Spatial Pattern in the Level of Urbanization in North-East India

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Abstract – Urbanization is the part of development, which define the population dynamics over different places on earth. Urbanization as a process of concentration has socio-economic relevance in spatio-temporal dimensions. Urbanization visualizes the change in not only the birth places of civilizations (river plains) but with the stance of time it is visible in mountainous areas. In this context the present paper tries to show the spatial pattern in the level of urbanization in North-East India. This paper also tries analyzing the changing pattern of urbanization from 2001 to 2011. The study is based on secondary data compiled and availed by Census of India. To achieve the objective of the study, the share of urban population has been calculated for both 2001 and 2011 year. To look over the approach of the urban area service, the rural areas and population served by the urban centers has been intended. Maximum distance to nearest urban center also has been calculated to analyze the spatial impact of urbanization. The method of Z score has been used to look-over the overall level of urbanization in different districts of North-East India. The result has been found the low level of urbanization. Share of urban population in NE India has increased from 23.39 in 2001 to 27.64 in 2011 which is only 4 percent and below the national average i.e. 31.16 percent. Up to Class-3, few towns have increased as compare to 2001 but the percentage to total population decreased. This is because of the Class-4, 5 and 6 cities, has almost double the towns in 2011 and their percentage to total population has increased.

Keywords: Urbanization, Urban Area, Maximum Distance, Z Score

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INTRODUCTION

Urbanization is a dynamic process of increasing population in urban areas. It's a process of society transformation from rural to urban. The degree of urbanization in a region provides a fair measure of its social and economic progress. According to Davis (1965), "Urbanization is an index of transformation from traditional rural economies to modern industrial one. It is a progressive concentration of population in urban unit". The process of urbanization takes in two ways; one is the natural increase, which is determined by the factors of birth and death and another important factor is the migration which take place from rural area to urban areas. This process of urbanization not only includes the increase in the population of any urban area, but also includes the process of socio-economic transformation as people move from rural to urban areas, their way to live also change. Moreover, in this process of change their activities also change from primary to secondary and tertiary level. Urbanization is not a new phenomenon; it has been evolved long year back. The process of urbanization doesn't take place evenly everywhere rather than it is a more uneven process. Siddhartha and Mukherjee (2011), defines "Urbanization refers to the process of becoming Urban. It is a spatial concomitant phenomenon involving the complex

process of change involving population concentration, structural transformation and socio-psychological change affecting both people and places". According to Chand and Puri (1983), "urbanization refers the proportionate increase of the urban population in relation to the total population in a given country". One of the known aspects of urbanization is the uneven pattern of urban system all over the world; in which there are few big cities and a large number of small towns. In India, the pattern of urbanization is found in the same way where there are few larger city accounts for a larger share of total urban population, whereas the large number of small urban settlements occupy only small portion of the total urban population. Even in the large cities, the percent share of urban population is high amongst few metropolitan cities like Delhi, Mumbai, Chennai, Kolkata and Bangalore etc. This uneven spatial distribution pattern of urban places and urban population affects the level of urbanization of any region. According to the Census of India 2011, definition of urban area is as follows:

All places which have a municipality, corporation, cantonment board or notified town area committee etc.

All other places which satisfied the following criteria;

1.   A minimum population of 5000;

2.   At least 75% of male main working population engaged in non-agricultural pursuits and

3.   Density of population at least 400 persons per sq. km.

The level of urbanization of any region may be measured in many ways, such as a percent share of urban population to the total population of any region, rural population served by each to al area served by urban centre, distance to the nearest town or spacing between the towns and many more.

In the context of urbanization, there has been notable increase during last decades in developing countries of the world. Besides, with an amount of 31.16 percent of urban population, there are many cities of India emerged as a new hub of urbanization. There are a number of cities such as Delhi, Mumbai, Chennai, Kolkata, Bangalore, Kanpur etc. that's attracts a huge share of population every year. In the context of study area, due to its isolation location, it cut off from whole India in many economic, social, commercial and many more activities. Therefore, the research concern is to analysis the level of urbanization in North-east India.

NEED OF THE STUDY

•   In North-East State of India, there is less urban proportion (27.64%) as compare to National average (31.16%).

•   The study area as practically least important region in India in context of urban development, therefore it becomes important to analyze the extent of urbanization at present level in the seven states.

•   The need of the study is also consider to look over the factors which confined the urbanization in North East India.

STUDY AREA

•   North-East India (Seven Sisters of India) is the easternmost region of India representing both a geographic and political administrative division of the country.

•   It comprises seven states: Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura.

•   The NE India lies between $21^{\circ}56'$ N to $29^{\circ}28'$ N latitude and $89^{\circ}46'$ E to $97^{\circ}24'$ E longitude.

•   The Siliguri Corridor in West Bengal with a width of 21 to 40 kilometers connects the North-East India with East India.
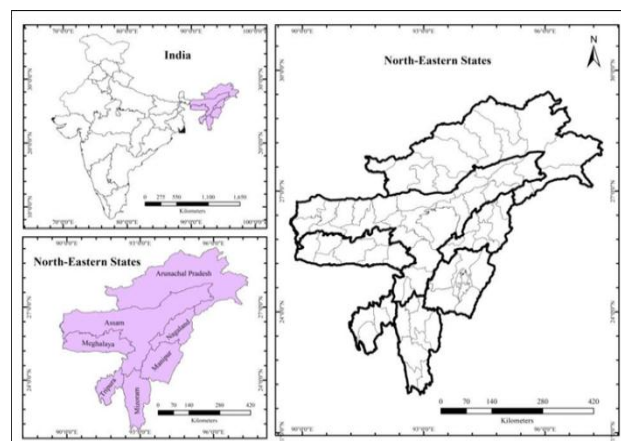

Figure 1: Study area

OBJECTIVE

The main objective of the present paper is:-

•   To measure the level of urbanization in North-East India at district level from 2001 to 2011.

DATABASE AND METHODOLOGY

This study is basically based on secondary data which have been extracted from Census of India General Population Tables (A-Series) No. A-1 and A-4, District Census Handbook (DCHB) and Town Directory. The indicators used to measure the level of urbanization are:

1.   Share of urban population

2.   Rural area served by urban centre

3.   Rural population served by urban centre

4.   Maximum distance to nearest urban centre

5.   Z – Score

There are different formulas has been used to achieve the objective:

Share of urban population:

$$\frac{\text{Urban population}}{\text{Total population}} \times 100$$

Rural area served by urban centre:

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Rural area of the district

Total number of towns & cities in districts

Rural population served by urban centre:

Rural population of the district

Total number of towns & cities in districts

Maximum Distance to nearest Urban centre:

According to Bornes and Robins (1940)

$$1.11x \ \sqrt{A/N}$$

Where;

A = total area of the district

N = total no. of towns in the district.

Composite Index of Urbanization

$$Z \ Score = \frac{X - \bar{X}}{SD}$$

Where;

X = Actual Value

$\bar{X}$ = Mean

SD = Standard Deviation

• After data processed, maps have been prepared for ease of interpretation and easily understandable manner using ArcGIS software.

RESULTS AND DISCUSSIONS:

Structural Classification of Cities and Towns

Table 1 shows the structural classification of cities and towns in North-East India. This table reveals that upto Class-3, few towns has increased as compare to 2001 but the percentage to total population decreased. This is because of the Class-4, 5 and 6 cities, has almost double the towns in 2011 and their percentage to total population has increased.

Table 1: Structural Classification of Cities and Towns, North-east India

Size Class	Population Range	Number of Cities/ Towns		Percentage to total no. of towns and cities		Percentage to total population	
		2001	2011	2001	2011	2001	2011
Class 1	1 lakhs & above	10	11	4.02	2.69	35.63	33.99
Class 2	50,000- 99,999	11	14	4.42	3.42	12.33	11.13
Class 3	20,000- 49,999	47	56	18.87	13.69	23.01	19.64
Class 4	10,000- 19,999	74	112	29.72	27.38	17.83	18.87
Class 5	5,000- 9,999	80	159	32.13	38.88	9.56	13.76
Class 6	Less than 5000	27	57	10.84	13.94	1.64	2.60
Total		249	409	100	100	100	100

Source: Calculated by author from Census of India- 2001 & 2011

CITIES IN NORTH-EAST INDIA

This graph reveals that the in most of the states, small towns has increased in 2011 as compare to 2001. Class-1 city has only increase in Nagaland where in 2001; there is no Class-1 city.
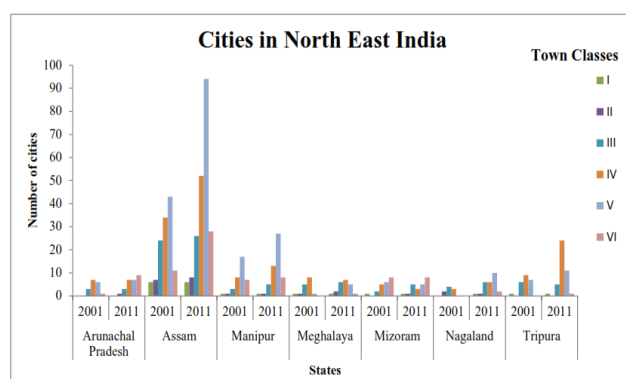

Figure 2: State wise change in cities classes, North-east India

SHARE OF URBAN POPULATION

This graph describes that the percent share of urban population in NE India has increased from

23.39 in 2001 to 27.64 in 2011 which is only 4 percent and below the national average i.e. 31.16 percent.
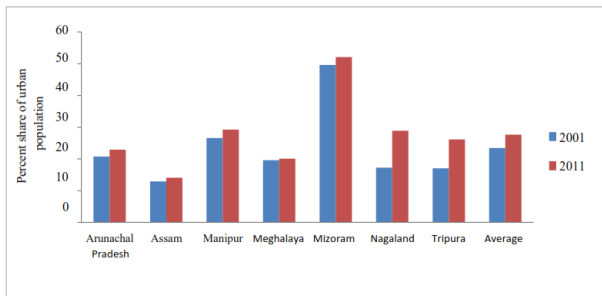
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Figure 3: Share of urban population in North-east India

The most urbanized state in NE India is Mizoram which have 52.11 percent urban population but with less pace. Nagaland is the only state in NE India whose percent share of urban population has increased at very fast rate by 11.63 percent, which has 17.23 percent in 2001 and 28.86 in 2011.

Figure 4 show the state wise share of urban population in North-east India. The share of urban population has increased in Kamrup Metropolitan which is more than 60 percent as compare to 2001 (Fig. 5). Also share of urban population has increased in north eastern part of Arunachal Pradesh and southern part of Mizoram.
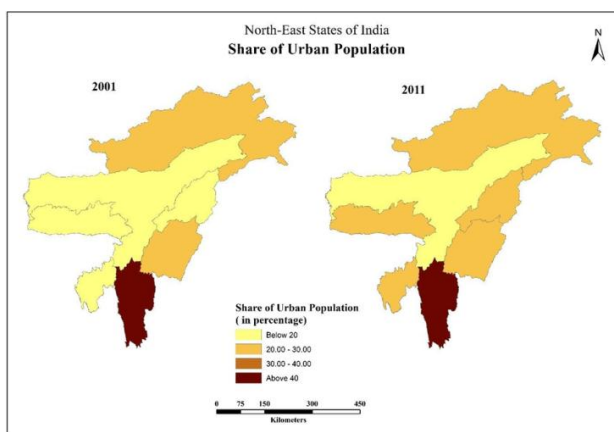
Figure 4: State wise share of urban population in North-east India
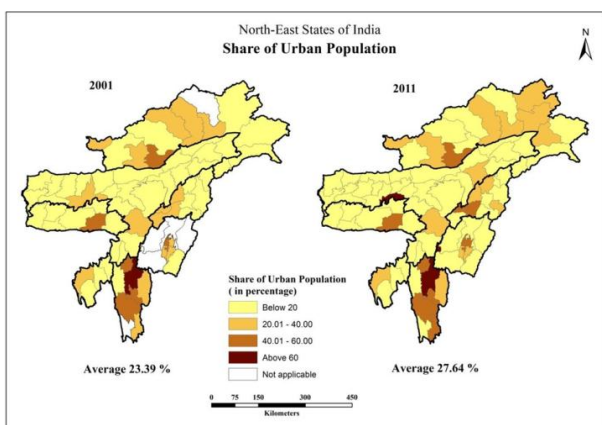
Figure 5: District wise share of urban population in North-east India

RURAL POPULATION

This map reveals that the rural population served by each urban centre has increased, which is very less. If the rural population served by each urban centre is less, than this shows that it is more urbanized and vice-versa. Almost in all the NE India, rural population served by each urban centre has increased in 2011 as compare to 2001.
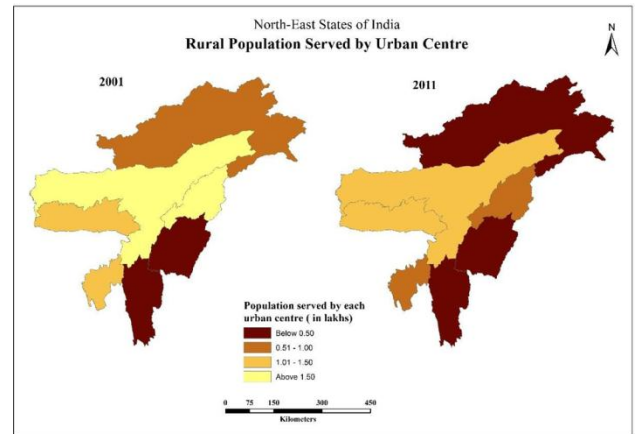

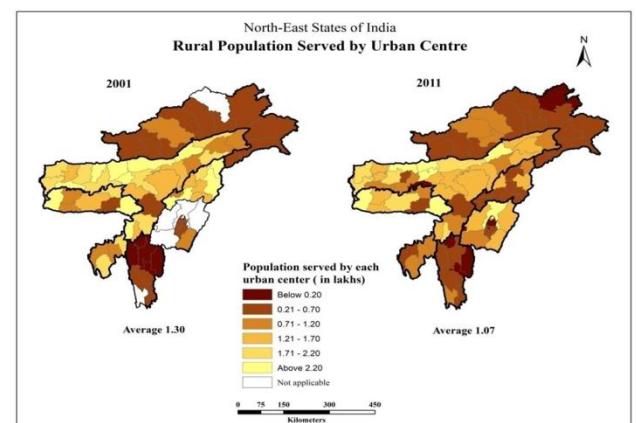**Figure 6: State wise rural population served by urban centre, North-east India**

Figure 7: District wise rural population served by urban centre, North-east India

RURAL AREA

This map shows that the inverse relationship between rural area served by each urban centre and urbanization. The map also reveals that the rural population served by town has decreased in the NE states during 2001 to 2011. When we compare both the maps, we concluded that almost in entire Assam state, rural area served by each urban centre has decreased except Baksa, Karbi Anglong and Dima Hasao. Mostly rural area served by urban centre has decreased in Tripua, Nagaland and Assam. In case of Arunachal Pradesh, in some district rural population served has decreased due to the increase of towns and movement of rural population to these towns; also one of the reason may be due to less population growth of Arunachal

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Pradesh. Whereas, in case of Mizoram rural population served by town has increased due to the overall population growth (2001-11) is more while the number of town has slightly been changed during the same period.
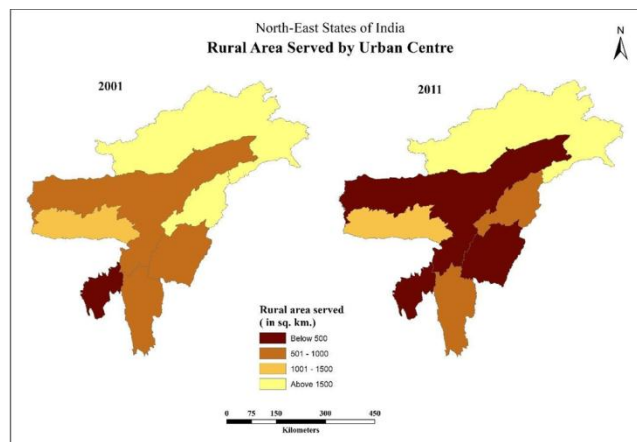

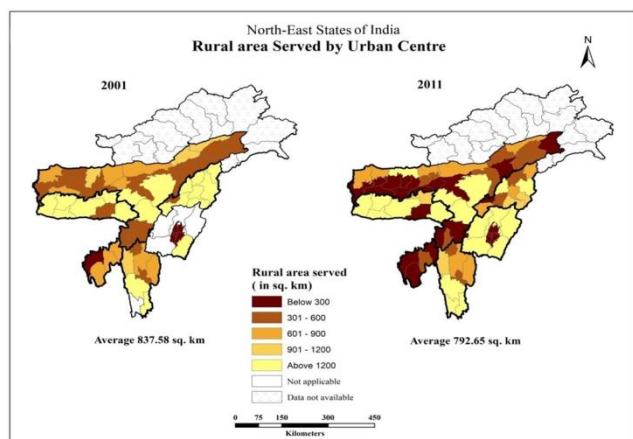**Figure 8: State wise rural area served by urban centre, North-east India**

Figure 9: State wise rural area served by urban centre, North-east India

MAXIMUM DISTANCE

Maximum distance to nearest urban centre is decreased in 2011 which shows the urbanization is taken place in NE India. The maximum distance between urban center has decreased in the states of Tripura followed by Assam and Nagaland because the number of town in these states are increased more as compared to other states in the NE region. In 2001, maximum distance to nearest urban centre in western part of Assam was 15 to 30 km, which is in 2011 comes below than 15 km among Goalpara, Nalbari and Kamrup Metropolitan. Almost in every state, the more distance is decreased except Arunachal Pradesh and Manipur where very less distance decreased.
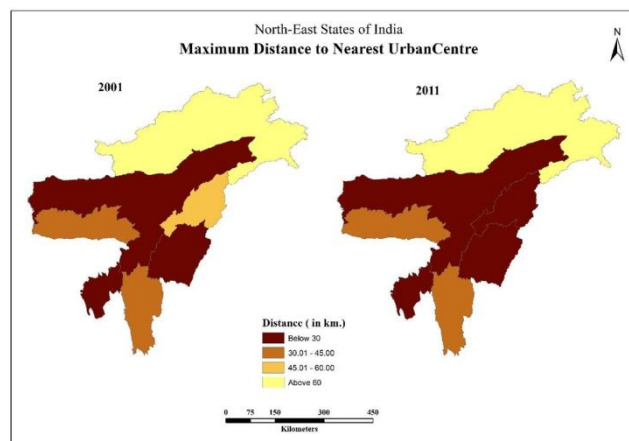

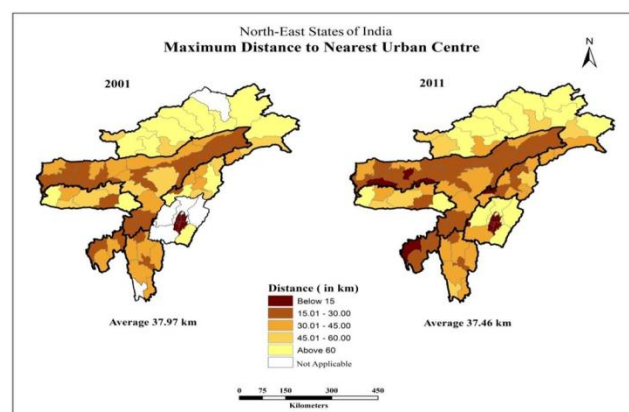**Figure 10: State wise maximum distance to nearest urban centre, North-east India**

Figure 11: District wise maximum distance to nearest urban centre, North-east India

COMPOSITE INDEX

Composite Index in this map shows the overall scenario of the NE India. Kamrup Metropolitan in Assam, East Khasi Hills in Meghalaya, Dimapur in Nagaland and West Tripura falls in very high category which shows they are highly urbanized. Goalpara, Morigaon, Nagaon, Imphal East, Champhai and South Tripura fall in High urbanized category. Baksa, Karbi Anglong in Assam, West Garo Hills in Meghalaya, Tuensang in Nagaland, Senapati in Manipur and Lawnglai in Mizoram are very low urbanized as in 2011.
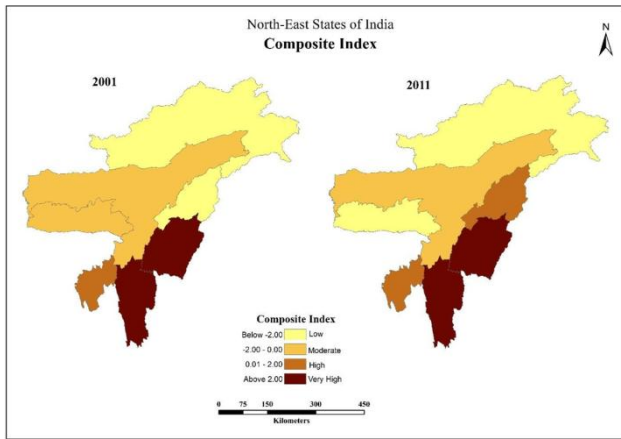
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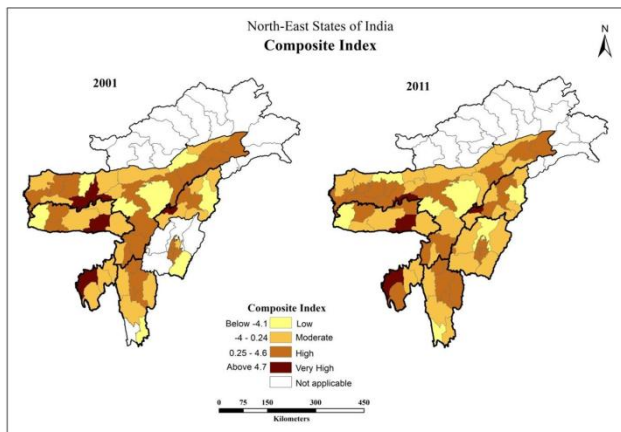**Figure 12: State wise composite index, North-east India**

Figure 13: District wise composite index, North-east India

CONCLUSION

• The overall analysis reveals that the level of urbanization in North-East India is not uniform rather than it is more concentrated.

• Few larger cities accounts more than half of the total urban population whereas, large number of small urban settlement shares very less proportion.

• The study reveals that in the North-eastern states, the proportional share of urban population is highest (34%) in class I cities but constitutes only 2.69 % of the total number of towns which indicates that the quality of urbanization and more opportunity are being offered by the class I cities and more people preferred to settle their as compared to their urban center.

• The highest decadal change between 2001 to 2011 found in class IV, V and class VI hierarchy of town in all the NE states, however the highest change occurred in Assam and Tripura states.

• In the NE States of India, Urban Primacy is maintain by the capital of each state except Nagaland where Dimapur occupied urban primacy.

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