Urbanization Trend In North East India: An Empirical Study

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Abstract

The urbanization is the most essential for all round development of the developing nations, as it has increased employment, income and standard of living in these countries. The environment is deteriorating and the earth's resources are fast running out due to over saturation of urban areas. Almost all the cities in India especially the cities of Assam suffer from the same problems. The paper tries to search the ongoing urbanization trend in north east region of India. This study is a descriptive type of research based on secondary data gathered from books, articles, websites, web-based journals, Census Reports and government offices. Serious attention should be given to the need for improving urban strategies, which promote efficiency in resource use. There is an urgent need to tackle the problem of population growth in the urban areas in a rational manner, without which the urban environment will be polluted and unfit for healthy life.

Keywords: Urbanization, Employment, Environment, Pollution, Population and standard of living.

I. Introduction

North East India or North East Region (NER) of India consists of eight states surrounded by Bangladesh, Myanmar, China, Nepal and Bhutan. Its boundary consists of 99% international border and remaining 1% is connected with main land called chicken's neck or Siliguri corridor. The Chicken's Neck is a narrow stretch of land of about 22 kilometers width, located in West Bengal (a State of India). The eight states are Assam, Meghalaya, Arunachal Pradesh, Tripura, Nagaland, Manipur, Mizoram, and Sikkim. The north east region shares an international border of 5,183 kilometers out of 15,106 kilometers of land border of India showing 34.31 per cent with several neighbouring countries: 1,395 kilometers with Tibet Autonomous Region and China in the north and north east, 1,640 kilometers with Myanmar in the east, 1,596 kilometers with Bangladesh in the south-west, 97 kilometers with Nepal in the west, and 455 kilometers with Bhutan in the north-west. The land area of the north east region is 2, 63,179 sq. km. covering 7.76 per cent of the geographical area of the country and has a population of over 46 million, which is 3.76 % of India's population (Dutta and Mandal, 2011). The states in the NER are shown below in the diagram 1.
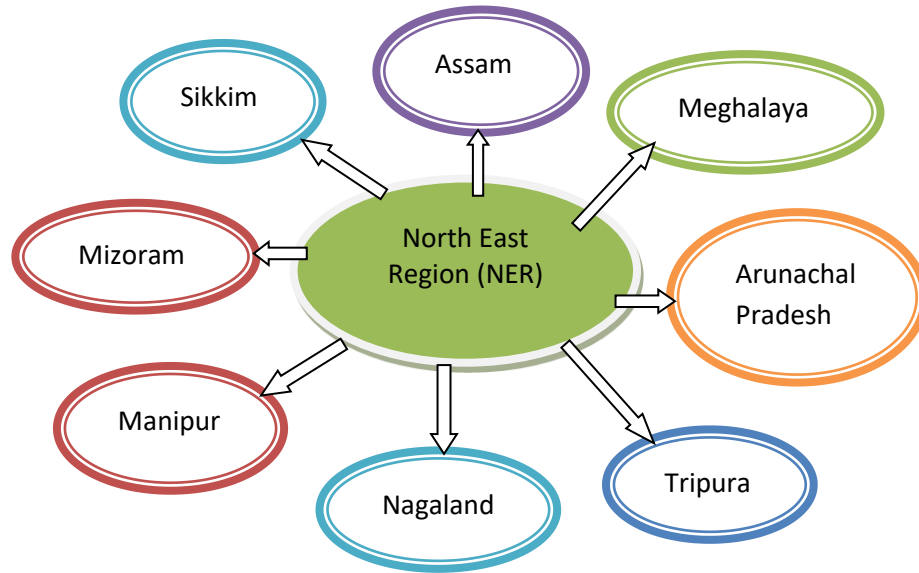
Diagram 1

The location of North East India is strategically very important because of its connectivity with five countries. Its location is shown in the map given below.
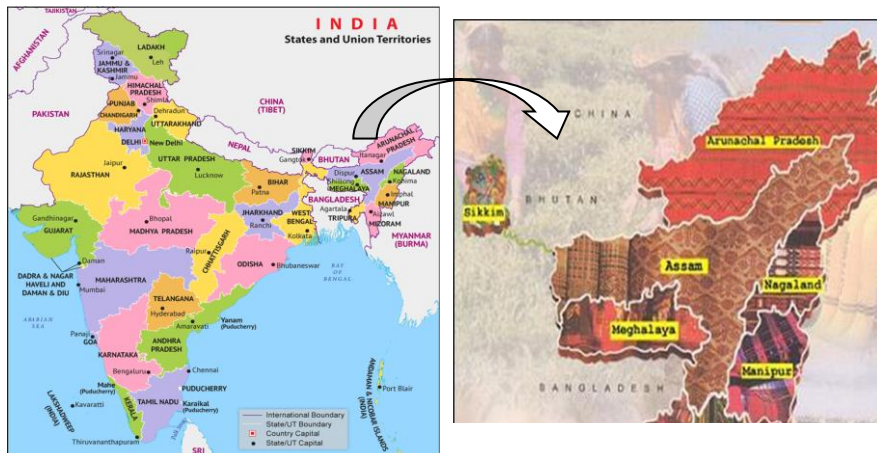
Location of North East India

Fig. 1

Objective: The present study concentrates to examine the urbanization trend in North East India.

2. Method and Materials

This study is descriptive in nature based basically on data of secondary sources of urbanization. The data from secondary sources are collected from government offices, books, articles, various census reports, and websites published in different times. But the main source of urbanization data is the population census.

Analysis: The different materials collected from the various sources have been scrutinized, processed, organized, and tabulated logically and systematically under appropriate heads of rows and

columns of statistical tables in such a way to use the different statistical tools for calculation and thereby to get the results. In addition to graphical representations (Line, Pie-Chart and Bar Diagrams), simple numerical calculations like percentages, exponential growth rate and decadal variation of urban population, least square method to fit regression, etc. have been calculated.

3. Results and Discussion

Literature Survey

Dutta (2003) brought out the facts about the regional disparity in NER and concluded that the states of NER are suffering from paucity of funds to improve their socio-economic backwardness. The states of NER are far behind from other states of the Indian Union so far as the basic amenities of life such as health, education, safe drinking water, banking facility, food security, communication etc. are concerned. He analyzed and concluded that the economic development of a country might not be possible without regional development and equitable distribution of wealth and income of a nation among the different parts of the country. Iniquitous distribution of national wealth and resources of the country causes regional disparities by giving rise to various types of socio- economic problems (Dutta and Mandal, 2018).

Urbanization is a finite process- a cycle through which a nation passes as they evolve from agrarian to industrial society (Davis and Golden, 1954). He has mentioned three stages in the process of urbanization.

Stage-I is the initial stage characterized by rural traditional society with predominance in agriculture and dispersed pattern of settlements.

Stage-II refers to acceleration stage where basic restructuring of the economy and investments in social overhead capitals including transportation, communication takes place. Proportion of urban population gradually increases from 25 % to 40 %., 50 %, 60 % and so on. Dependence on primary sector gradually dwindles.

Stage-III is known as terminal stage where urban population exceeds 70 % or more. At this stage, level of urbanization remains more or less same or constant (Davis, 1965). Rate of growth of urban population and total population become same at this terminal stage. We have conceded the Kingsley Division view in the 19th century that "it is not possible to have industrialization without urbanization". It is fact that the urbanization is the most essential for all round development of the developing nations, as it has increased employment, income, and standard of living in these countries. But these developments mean the destruction of vegetation of the nature (Lonchung, 2020).

The impact of urbanization is destructing the scope of social forestry and leading to ribbon development in all urban areas of the State especially in the capital complex. The unplanned construction is leading towards landslides, soil erosion, water logging especially during rainy season and loss of fertility of nearby agrarian land. Again, it is creating sewage problems and traffic congestion (Mandal et. al, 2020).

Urbanization in this regard may also be defined as a process that is characterized by transition or take off in which a region/nation can jump out of the transition from total agrarian base to industrial society (Rao et. al, 2004). In other words, it is delimitated as a process of massive shifts of labour and capital from predominantly rural to urban areas. Urbanization in this sense can be considered as an index of modernization and largely associated with economic growth and development (Prakash, 2005). In fact, it is very helpful in contributing positively to poverty reduction in the rural areas. Different levels of urbanization, however, reflect different degrees of modernization and development in the economy (Prasad, 1995). It is a multi-dimensional process and largely, it depends upon the incentives for industrial and service sector development.

It is true that in a growing economy, there is mounting demand of industrial and service sector products. Consequently, there is spontaneous increase in industrial and service sector production and thus, employment generation in the economy. This also follows increase of service facilities for

various purposes like the distribution of increased output, financial management through banking and financial institutes as well as civic services for the population experiencing increase in income levels (GOI, 2003). Economic development, therefore, foretells industrialization and that itself promotes the concentration of people in the urban areas, where maximum attempt is made to economize the land inputs (i.e., the land requirement per unit of output being less than the agricultural sector). On the whole, growth of industrialization necessitates urbanization in particular and economic development in general.

The growth of urbanization can also enlarge through availability of socio-economic infrastructure in the economy. In the modern world, problem of large urban concentrations affects not only in the advanced countries but also all the areas with dense population and consequently, in large cities. In a mature system of cities, standardized manufacturing

production trends to be de-concentrated into smaller and medium size metropolitan areas (Hicks, 1974). However, the production in large metropolitan areas focuses on services, and non-standardized manufacturing. The problem in today's developing countries is that they appear to be strong bias toward excessive concentration (Henderson, 2002).

4. State Wise Distribution of Urban Population in NER

The distributive aspect of population as per 2011 census of each state in NER is shown in the Table-1 and Fig-2. A wide variation has occurred during the attainment of urbanization among 8 states. Under the analysis the smallest state is Sikkim, which attains153578 persons of urban population, whereas Assam has attained the highest urban 4398542 persons during 2011. Sikkim is the lowest among all states.

Table-1: Rural and Urban Population in North East States as per 2011 Census

States	Persons	Rural	Urban
A. P	1383727	1066358	317369
Assam	31205576	26807034	4398542
Manipur	2570390	1736236	834154
Meghalaya	2966889	2371439	595450
Mizoram	1097206	525435	571771
Nagaland	1978502	1407536	570966
Sikkim	610577	456999	153578
Tripura	3673917	2712464	961453

Source: Basic Statistics of North Eastern Region 2015, p.3. N.B.: A.P.= Arunachal Pradesh

The Fig.-2 shows the distribution of population among persons, rural and urban through line graph, where Assam shares highest and Sikkim lowest.
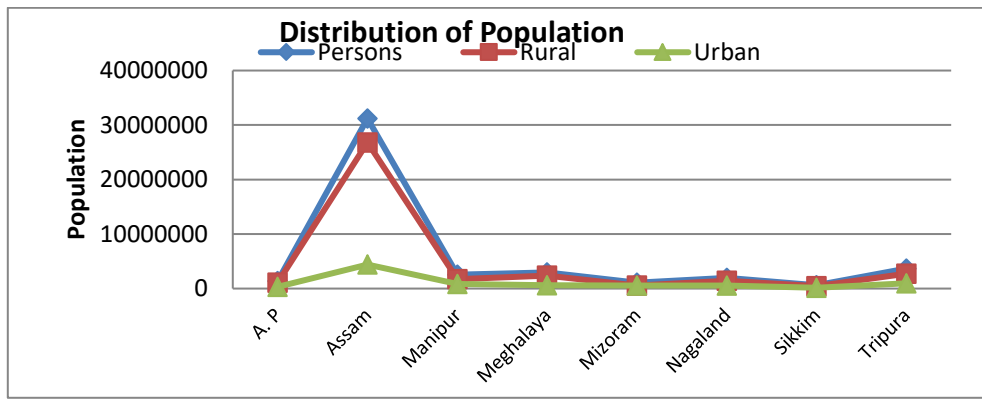
Fig. 2

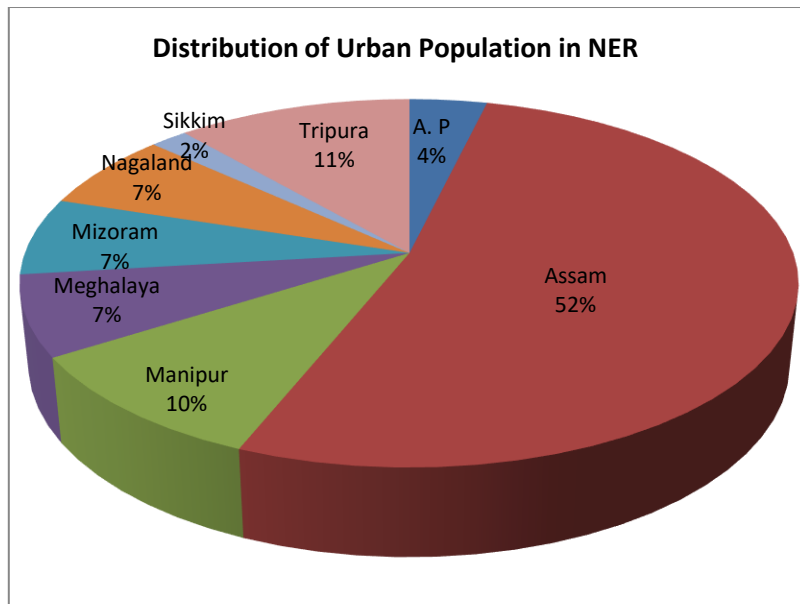The percentage distribution of urban population only in North East States (NER)

Fig. 3

Again, if we compare the percentage of urban population of NER with all India, it is observed that NER is much lagging behind shown in Table-2 and Fig.-4.

Table-2: Percentage of NER Urban Population to the total population of India
as per 2011 Census

States	Persons	Males	Females
NER	18.47	18.48	18.47
All India	31.16	31.37	30.92

Source: Basic Statistics of North Eastern Region 2015
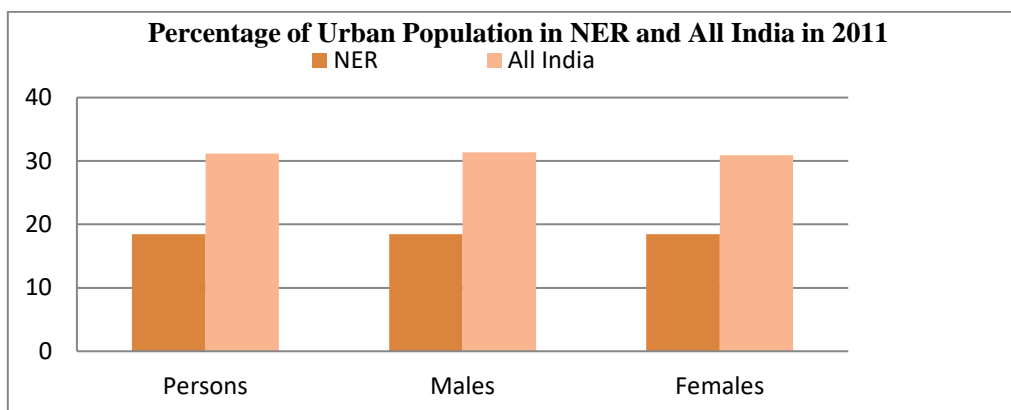
Fig.-4

Pattern of urbanization in the North-East region presents a paradoxical situation, while the hilly areas, with their quasi- subsistent tribal economies have been experiencing a phase of urban explosion in recent years, the valley areas having surplus producing peasant economy are experiencing stagnation in terms of the growth of urban areas (Mitra, 1997).

5. Percentage of Urban Population to Total Population for All Censuses

From Table-3 and Fig.-5 given below, a comparative study can be made on percentage of urban population to total population of different states of NER and also all India during 1971 – 2011. An increasing trend in the percentage of urban population has been seen. In 1981 and 1991 Census, the percentage of urban population of Manipur and Mizoram is higher than that of other states of North East Region. In 1971 census, the percentage of urban population to total population of Meghalaya is seen highest followed by Manipur. In 1981 census, the percentage of urban population to total population of Manipur is seen highest followed by Mizoram. In 1991 census, the percentage of urban population to total population of Mizoram is seen highest followed by Manipur. In 2001 census, the percentage of urban population to total population of Mizoram is seen highest followed by Manipur. In 2011 census, the percentage of urban population to total population of Mizoram is seen highest followed by Arunachal Pradesh. Therefore, the percentage of urban population to total population of Mizoram is seen much higher than any other states of NER even than that of NER and India in 1991, 2001 and 2011 censuses.

Table 3: Percentage of Urban Population to the Total Population in North East Region for All Censuses

State/India	1971	1981	1991	2001	2011
A. P.	3.70	6.56	12.80	20.41	22.94
Assam	8.82	9.88	11.10	12.72	14.08
Manipur	13.19	26.42	27.52	23.88	21.16
Meghalaya	14.55	18.07	18.60	19.63	15.32
Mizoram	11.36	24.67	46.10	49.50	51.51
Nagaland	9.95	15.52	17.21	17.74	17.32
Sikkim	9.37	16.15	9.10	11.10	11.68
Tripura	10.43	10.99	15.30	17.02	14.87
NER	10.17	16.03	19.72	21.50	18.47
All India	19.91	23.33	25.71	27.78	31.16

Source: Census of India 1971-2011 and self-calculated.

N.B.: We start here from the census year1971; because first census was operated in Arunachal Pradesh (A.P.) in 1961 when there was no census town in the State.
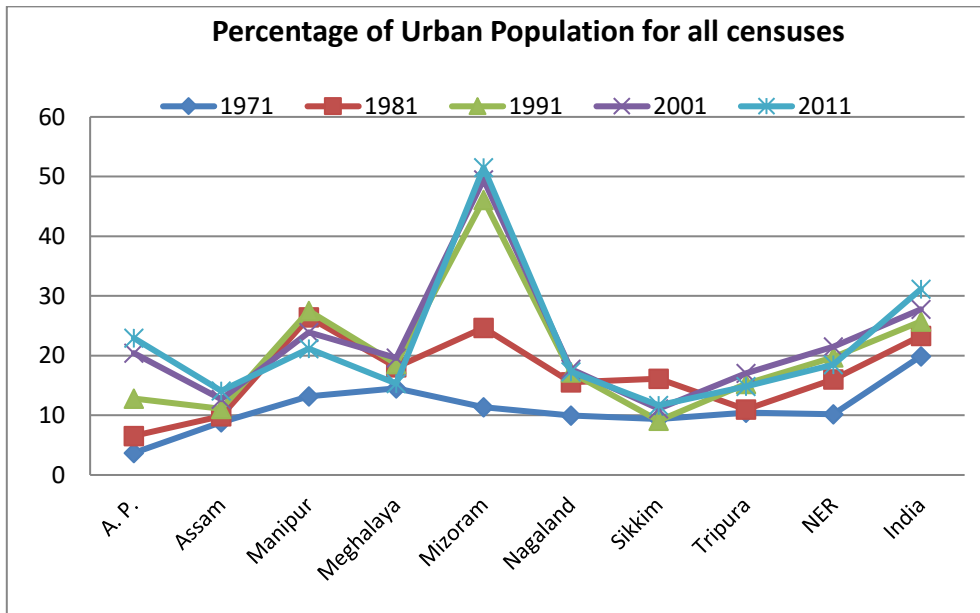

Fig. 5

Overall, the urbanization in NER is going fast. This indicates that both process of urbanization and development have concentrated in these states. Thus, in NER the situation and problems associated with the process of urbanization is more complex than elsewhere because of large concentration of urban population in capital towns than other towns. However, it is remarkable to note that the percentage of urban population has decreased in the year 2011 in comparison to 2001 especially in Manipur, Meghalaya, and Tripura. Again, the overall percentage of urban population to total population in NER has decreased in 2011 in comparison to 2001 though there was an increasing trend up to 2001. But there is increasing trend in case of all India level.

Prediction

Percentage of Urban Population to the Total Population in 2021, 2031, 2041 and 2051 Censuses for North East Sates (NER) and India

The least square method is the process to predict the value of dependent variable on the basis of a set of data of independent variable(s). It is the process of finding the best-fitting curve for a set of data. During the process of finding the relation between two variables, say dependent and independent variables, the trend of outcomes is estimated quantitatively. This process is termed as regression analysis**.** The method of curve fitting is an approach to regression analysis. This method of fitting equations which approximates the curves to given raw data is the least square. Therefore, the least squares method is a crucial statistical method that is practiced to find a regression line or a best-fit line. This method is described by an equation with specific parameters. The method of least squares is generously used in evaluation and regression (Damodar and Sangeetha, 2007).

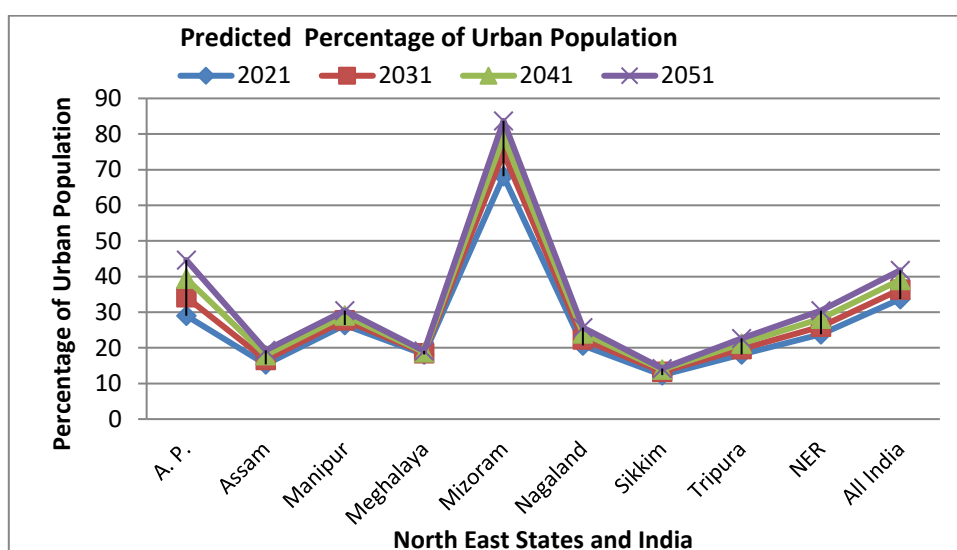The regression equation through Least Square Method: y = b + mx

Where we assume, y is Dependent Variable as Percentage of Urban Population, x is Independent Variable as Census Year, bis Intercept and m is Slope of the line. The values of m and b are determined by the following way.

$$m = \frac{N\,\Sigma(xy) - \Sigma x \Sigma y}{N\,\Sigma(x^2) - (\Sigma x)^2} \quad \text{and} \quad b = \frac{\Sigma y - m\,\Sigma x}{N}$$

Table-4: Predicted Percentage of Urban Population to the Total Population

State/India	Fitted Equation	2021	2031	2041	2051
A. P.	Y= −1028.6083 + 0.5233X	28.98	34.21	39.45	44.68
Assam	Y= − 254.6776 + 0.1336X	15.33	16.66	18.00	19.34
Manipur	Y= − 244.36 + 0.134X	26.45	27.79	29.13	30.47
Meghalaya	Y= − 44.487+ 0.031X	18.16	18.47	18.78	19.09
Mizoram	Y= − 2056.5103 + 1.0513X	68.16	74.68	79.19	83.70
Nagaland	Y= − 322.126+ 0.1696X	20.64	22.33	24.03	25.72
Sikkim	Y= 20.0413 + 0.0043X	12.35	13.30	13.92	14.22
Tripura	Y= − 283.136 + 0.1491X	18.19	19.69	21.18	22.67
NER	Y= − 422.236 + 0.2207 X	23.80	26.00	28.21	30.42
All India	Y = − 510.997 + 0.2695X	33.66	36.36	39.05	41.75

Source: Calculated with the help of least **square method** on the basis of the data of table 3.

Fig. 6

In table 4 and fig.6, the calculated predicted percentage of urban population to total population through regression analysis with the help of least square method drawn from the table-3 shows the trend only on the basis of past trend. It cannot predict the exact value but near about the value on account of which future plan may be taken. The trend of the curves in fig.-6 is the same as shown in fig.-5. All the fitted regression equations have given the values of dependent variable (Percentages of Urban Population) by putting the independent variables (Census Years). Likewise, we have calculated the values of Percentage of Urban Population for all North East States and separately for NER and all India levels for 2021, 2031, 2041 and 2051 censuses. We are obtaining almost same trend, which we have got for the past censuses.

6. Average Annual Exponential Growth Rate of Urban Population

We see the pattern and level of urbanization along with the growth of urban population in the North Eastern States. Their annual exponential growth rate as compared to all India is also calculated and discussed.

Table-5: Average Annual Exponential Growth Rate of Urban Population of N.E. States since 1961

States/India	1961-71	1971-81	1981-91	1991-2001	2001-11
Arunachal	-	8.74	9.28	7.54	3.2
Assam	5.01	3.27	3.27	3.16	2.43
Manipur	7.37	9.26	2.98	1.21	3.55
Meghalaya	2.25	4.95	2.74	3.19	2.7
Mizoram	9.74	11.71	9.57	3.3	2.42
Nagaland	9.87	8.49	5.58	5.18	5.15
Sikkim	10.55	9.55	-3.29	4.83	9.29
Tripura	4.55	3.29	6.19	2.59	5.65
All India	3.21	3.83	3.09	2.73	2.76

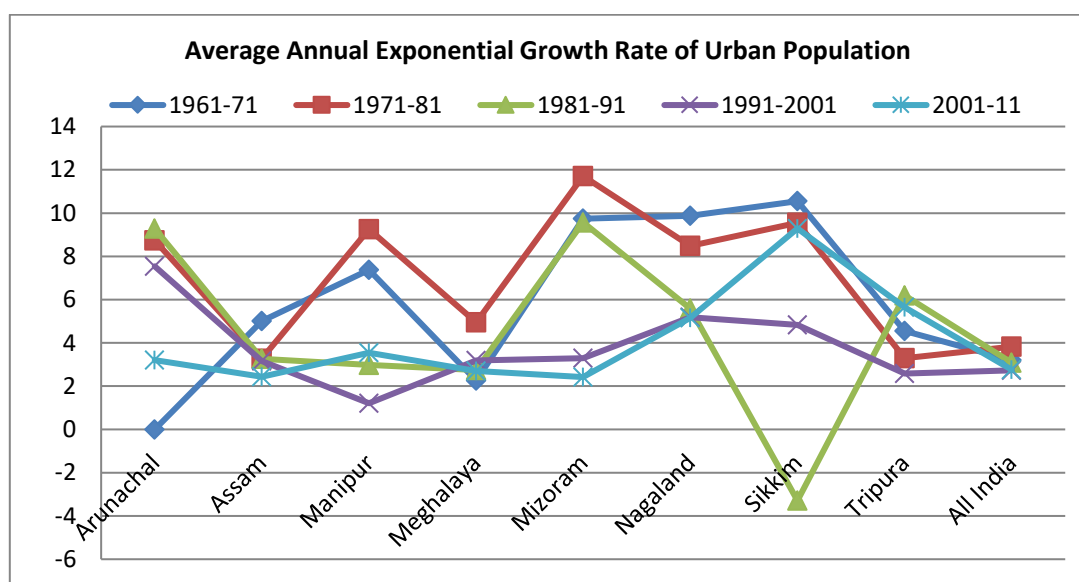**Source:** Population Census, Paper 2, 1971,1981,1991,2001, 2011.

Fig. 7

Table-5 and Figure-7 show the average exponential growth rate of urban population during each of the census decades 1961onwards. We start the analysis from 1961, as because the census has started from 1961 in Arunachal Pradesh. During the period of five decades from 1961 to 2011 the phase of urban population in most of the states in NER has shown up and down except Nagaland and Assam, where there is a continuously decreasing. There is same jig jag trend seen in other states of NER and all India. This can be attributed to fast growth of small towns in the region due to arrival of internal and international migrants especially in Arunachal, Assam, Mizoram, Meghalaya, Nagaland and Sikkim. This clearly indicates that our country fails to continue the tempo of growth of urban population that existed during 1961 – 2011.

7. Decadal Variation of Urban Population

The decadal variation of urban population in the north east states in percentage from 1981 to 2011 is presented in table-6 and fig.-8.

Table-6: Percentage of Decadal Variation of Urban Population in NER during 1981-2011

Decades	Arunachal	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura	India

1981-1991	167	39.6	34.7	36.8	161	73.2	-27.6	87	36.4
1991-2001	106	38.2	123.9	37.6	38.7	64.6	61.8	29.4	31.5
2001-2011	39.30	27.9	44.8	31.1	29.7	66.6	156.5	76.2	31.8

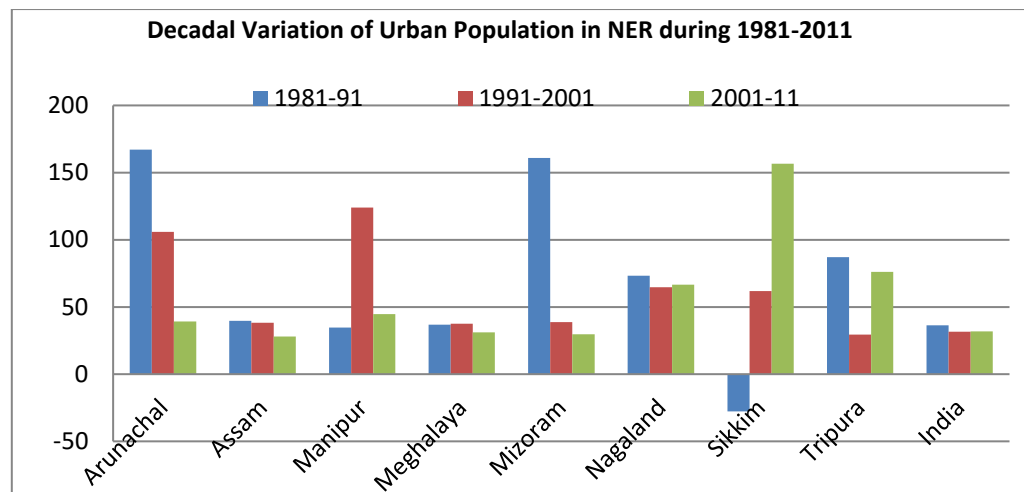**Source:** Basic Statistics of North Eastern Region 2015, p.3

Fig. 8

In the table-6 and the fig.-8, Percentage of Decadal Variation of Urban Population of all the north eastern states during 1981-2011 is seen. From 1981-1991 to 2001-2011, the percentage of decadal variation of urban population is gradually decreasing in case of Arunachal Pradesh, Assam, and Mizoram while it has increased from 1981-1991 to 1991-2001 and again decreased from 1991-2001 to 2001-2011 in case of Manipur and Meghalaya. In case of Nagaland and Tripura, the percentage of decadal variation of urban population has decreased from 1981-1991 to 1991-2001 and again it has increased from 1991-2001 to 2001-2011. In case of Sikkim, the percentage of decadal variation of urban population has decreased and become negative from 1971-1981 to 1981-1991, but it has increased from 1981-1991 to 2001-2011. But in case of India, the

percentage of decadal variation of urban population has decreased from 1981-1991to 1991-2001 and again it has slightly increased between 2001 and 2011. More or less the percentage of decadal variation of urban population of India is stable. It means that the percentage of urban population is increasing at a constant rate.

8. Speed of Urbanization

The speed of urbanization is regarded here as the percentage growth of towns in the states of NER. We consider the speed of urbanization for 2011 census on the basis of 2001 census for all states of north east region. Some of the towns were historically known as marketing and educational service centres, meeting the needs and necessary service to the surrounding rural settlement in the region (Mohan 1985).

Table-7: Percentage Increase in Number of Towns from 2001 to 2011 in the States of NER

States	2001			2011			% Increase of Towns from 2001 to 2011
	Statuary Towns	Census Towns	Total	Statuary Towns	Census Towns	Total	
Arunachal	-	17	17	1	26	27	58.8
Assam	80	45	125	88	126	214	71.2

Manipur	28	5	33	28	23	51	54.5
Meghalaya	10	6	16	10	12	22	37.5
Mizoram	22	0	22	23	0	23	4.5
Nagaland	8	1	9	19	7	26	188.9
Sikkim	8	1	9	8	1	9	0.0
Tripura	13	10	23	16	26	42	82.6
All India	3799	1362	5161	4041	3894	7935	53.7

Source: Calculated on the basis of All India Census Report for 2001 and 2011

Percentage increase of Towns from 2001 to 2011 in the States of NER
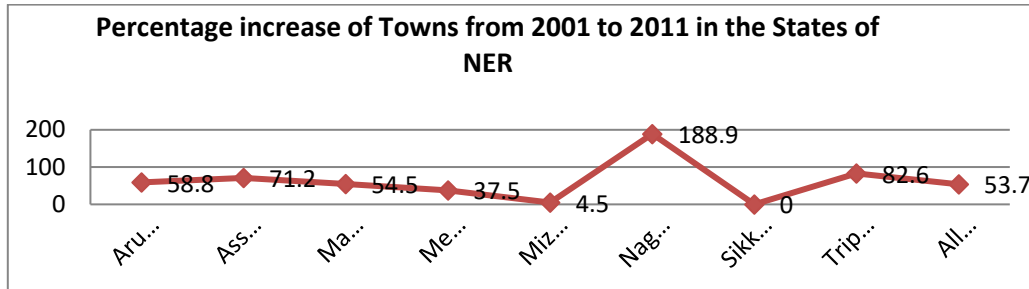

Fig. 9

From table 7 and fig.9, it has been observed the percentage increase of towns in number from 2001 to 2011 in the States of North East India. Among the states, Nagaland has registered more than 100 percent increase in the number of towns since 2001 census. In case of states like Mizoram and Sikkim, the increase in rate of number of towns is much lesser than the average increase in number of cities in India, these states are having 4.5, and 0 percent increase in their cities during 2011. On account of the topographical factor even today the government made several efforts to increase the number of places into cities. But it is unable to achieve the target. On the other side, the state like Nagaland recorded tremendous increase in the number of towns. It may be on account of decentralization of administrative machinery, provision of better civic amenities and others had contributed on a large scale which promotes to increase in the number of towns.

9. Remarks

1. For understanding the dynamics of development, it would be important to analyze the spatial pattern of urban growth in different size classes of towns.

During the first four census decades since independence, urban growth has generally been high in relatively backward and less urbanized states. (Kundu, 1994). This is primarily due to the fast growth of small and medium towns and emergence of new towns.

2. In the instant case of state like Arunachal Pradesh, a sizable proportion of these fast growing and new towns are circle or block or district headquarters where implementation of government sponsored development schemes are in full swing including the new central scheme popularly known as JNURM Mission (Jawaharlal Nehru Urban Renewal Mission).

3. The relationship between urban growth and development, in this case, works out to be negative. This can be attributed to government investment in district headquarters and transfer of funds from center to state to local bodies through a need based or what is popularly known as "a gap filling" approach (Kundu, 1994). A large part of rural to urban migration into smaller towns from their rural hinterland in backward states like Arunachal Pradesh can, however, be explained in terms of push factors, owing to lack of diversification of agrarian economy and pull factors, owing to demand of high

skill, semi-skilled, and unskilled workforce required for all round development of the state, which is in the infant state of development in terms of all round development.

4. Many people are moving to cities because of the available opportunities and the availability of infrastructure facilities, which encourages the urbanization in all states of North East Region.

5. Many researchers and governments in the developing countries considered that the rapid growth of urban population and high primacy (concentration of population and activities in the leading cities) have a major impediment in realizing their development goals of equitable development. Several explicit and implicit policies were adopted by governments of many developing countries for slowing down the urban growth particularly the population growth in large cities, by focusing on reducing the migration to these cities from rural areas. The latest data on world urbanization, however, show that at the beginning of the twenty first century, a number of developing countries do not have even one third of their population in urban areas. There is also a considerable slowing down in the rate of urbanization as well as rate of urban population growth in most of the developing countries in the last two decades. In India, the latest census data also confirms the same.

6. The rural to urban migration is an important component of urbanization in most of the countries and regions. Both urbanization and migration are regarded as one of the most important indicators of economic development and social transformation of a region. Economic growth is accompanied by a gradual reduction in the relative share of agriculture and an increase in the relative share of industry and services in total output and labour force. This indicates a movement of population from agricultural areas to the industrial centers. This picture is seen in the region.

S. Kuznets emphasized that there is a relationship between migration and economic development that takes place in terms of the selectivity of people. He opines those migrants are dynamic, risk-bearing persons who respond favorably to economic stimuli and have high capacity to detach themselves from traditional surroundings and adapt themselves to unfamiliar environments. Thus, the migrant people are most productive from the viewpoint of economic development in the sense that they are risk bearing section of population (Mitra, 1997).

10. Conclusion

Evidence from the present study indicates that the maintenance of high quality of life in town requires the innovative economic growth potential as well as our urban population in the urban areas should be stabilized at sufficient level in lieu with the resources available and the protection of environmental quality leading towards sustainable development. Serious attention should be given to the need for improving urban strategies, which promote efficiency in resource use. There is an urgent need to tackle the problem of population growth in the urban areas in a rational manner, without which the urban environment will be polluted. The capital cities like Guwahati, Gangtok, Itanagar, Shillong, Agartala have already been population saturated. If proper step is not taken in recent time, the environment will be unfit for healthy life. Comprehensive land use planning and revision of planning standards and administrative procedures would go a long way to reduce many of the problems faced by urban populations in Assam. The present state of urbanization creates a large number of towns for middle and lower categories where they qualify the urban status because of their population size without necessary infrastructures.

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