

# POPULATION GEOGRAPHY

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## URBANIZATION IN PUNJAB (INDIA) : 1881-1891

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### Abstract

Two significant infrastructural developments influenced the growth of urban population in Punjab during 1881-1891. These were (i) introduction of canal water irrigation from Sirhind Canal and (ii) construction of Bathinda-Rajpura and Bathinda-Firozpur railway lines. At the same time, due to a more strict definition of urban centre as compared to the one adopted in 1881 census, the total number of towns in the state decreased from 96 in 1881 to 79 in 1891 while the total urban population registered a decline by 1.44 per cent although five new towns were added during this period. However, the adjusted growth rates, computed after excluding the populations of declassified as well as new towns, show that the total urban population as well as its constituent religious groups recorded a perceptible increase during this decade. The adjusted growth rates also show that with the exception of Amritsar, the only Class I city, there was an increase in the population of all other towns, although the urban population growth rate did not show any conspicuous relationship with the size-class of urban centres. A relatively high increase in urban population was recorded in western Malwa tract as compared to towns in central and eastern Malwa. The changes in the relative proportion of various religious communities in different size-classes of towns were related to up-gradation, declassification and addition of new towns.

### Generalities

The decade 1881-1891 witnessed some notable economic and infrastructural development in Punjab. Completion of the Sirhind Canal could be called the main achievement in this regard. Introduction of irrigation from this canal to the south west Punjab, i.e. the districts of Firozpur, Faridkot, Bathinda and Ludhiana and the then princely states of Malerkotla, Nabha and Patiala energized rural economy, resulting in notable increase in agricultural surplus in these hitherto agriculturally poor tracts. Another equally important event during this period was the construction of Rajpura - Patiala, Amritsar - Pathankot, Bathinda - Firozpur, and Patiala-Bathinda railway lines. The decade also remained free from epidemics and famines. It needs to be

emphasized, however, that death rate remained high running close to the birth rate as is the case in the first stage of demographic transition. Significantly, urban population was characterized by higher mortality as compared to its rural counterpart (Census of India, 1891, p. 72). Though the Lalaypur Canal Colony was opened for colonizers in 1897, it had not been able to generate notable inflow of migrants from the present Punjab during the decennial period under consideration.

The definition of the urban centre at the 1891 Census was a little more strict than that adopted at the previous Census in 1881 (Census of India, 1891, p. 71). It was mainly due to this reason that 22 of the towns listed at the previous census were declassified in 1891. Thus, the total

number of urban centres, despite the addition of 5 new towns, had dropped down to 79 in 1891 as against 96 in 1881.

The towns which had lost their urban status in 1891 (22 in all) are given below in order of their population size in 1881: Lal Garh, Bilga, Mahatpur, Mahraj, Rurka Kalan, Sarhali Kalan, Sur Singh, Bundala, Ramdas, Kharar, Fatehgarh, Narot Jaimal Singh, Bahlolpur, Bahrapur, Adampur, Kallar, Maingan, Sahibnagar, Shahpur, Ghuram, Ghanaur and Kasohan. It is significant to note that all but four towns had failed to appear in the list of urban centres even after 110 years in 2001, 14 of these urban centres had a population of less than 5000 each in 1881, while in others it was between 5000 and 9999 each.

Five new towns entered the list at the 1891 census. Sanaur in the then Patiala state had the largest population (8678) followed by Rampura Phul (5188), Mudki (3538), Dalha (1524), and

Shikhupura (1387). The last three were essentially large villages and have been out of the list of urban centres since 1911.

Table 1 reveals that the main change in the number of urban centres occurred in Class VI towns (from 35 to 19) during 1881-1891 which was attributable to declassification of smaller urban centres. On the other hand, the number of towns in other urban size-classes experienced only a little change during this period. However, the share of size - Classes I, II and III together had slightly gone up from 8.33 per cent to 10.13 per cent at the expense of the other three categories, which is also reflected in the increased share of population of these size-classes from 44.41 per cent in 1881 to 47.11 per cent in 1891.

The decade 1881-1891 recorded a fall in the urban population of Punjab from 917,967 to 904,748 persons i.e. a decline of 1.44 per cent (Table 2). It occurred chiefly due to the

**Table - 1 : Punjab: Urban Centres by Size-Class of Population (1881 and 1891)**

Size-class	Number		Per cent of urban population		Per cent of urban centres	
	1881	1891	1881	1891	1881	1891
Class I. 100,000+	1	1	16.55	15.12	1.04	1.27
Class II. 50,000-99,999	2	3	11.52	19.07	2.08	3.80
Class III. 20,000-49,999	5	4	16.34	12.92	5.21	5.06
Class IV. 10,000-19,999	9	10	12.78	14.56	9.38	12.66
Class V. 5,000-9,999	44	42	31.19	31.62	45.83	53.16
Class VI. Below 5000	35	19	11.62	6.71	36.46	24.05
Total	96	79	100.00	100.00	100.00	100.00

Source: (i) *Census of Punjab 1881*.

(ii) *Census of India 1891, The Punjab and its Feudatories, Vol. XX (Part II) and Vol. XXI (Part III)*.

declassification of 22 towns at the 1891 census. The combined population of the towns was as high as 80,095 persons in 1881. The Hindus and the Sikhs also recorded a decrease in their population at the rate of -1.58 per cent and -12.03 per cent, while the Muslims growth rate was merely 0.44 per cent.

Thus, to get a realistic picture of growth rate of urban population of Punjab, it is necessary to recalculate the growth rate by deducting the population of the declassified towns from the base year figures. Similarly, the population of 'new' towns listed in 1891 should be subtracted from the end year population of the decade under study in order to have a better appreciation of urban growth rates.

From columns 4, 5, and 6 of Table 2, it becomes clear that adjusted growth rates of urban population, obtained by subtracting population of declassified and 'new' towns during the decade, differ considerably from the unadjusted rates. According to the adjusted data, the general urban

population as well as its various constituent religious groups had recorded perceptible increase during the decade. Besides, inter-group differentials in growth rates were not as marked as revealed by unadjusted figures. Thus, various religious communities in the state did not differ much from one another in their response to the process of urbanization. The Jains furnished the only exception in this regard as their growth rate was much higher in respect of both adjusted and unadjusted figures. The Jains were largely urban people and they had recorded perceptible rural-urban migration in the state during this period.

Relatively low growth rate of urban Sikhs was attributable to the adoption of the more rigorous definition of Sikh for the 1891 Census (Kaur, 1979, p. 40). Though the new definition of Sikh was not used uniformly in different parts of the state, it did make for a lower growth of urban Sikhs. However, in the absence of the stepped up pace of religious conversions to this faith under the inspiration of the Singh Sabha Movement, the

**Table - 2: Punjab: Growth of Urban Population (1881-1891)**

Population Group	Urban population		Per cent growth		
	1881	1891	Unadjusted	Adjusted*	Adjusted**
Total	917967	904748	-1.44	+7.98	+5.56
Hindus	344907	368970	-1.58	+8.31	+5.90
Jains	7771	8684	+11.49	+15.54	+14.87
Muslims	444522	446462	+0.44	+7.67	+5.46
Sikhs	86058	75706	-12.03	+7.59	+3.48
Others	4709	4946	+5.03	+5.26	+5.19

\* excluding population of declassified towns.

\*\* excluding population of declassified as well as new towns.

population increase of the urban Sikhs would have been still lower.

Various religious communities differed significantly from one another in terms of number of urban centres in different growth categories (Table 3). More than half of the towns had recorded either actual decrease or less than 10 per cent increase in their population. Only four urban centres had the distinction of experiencing more than 40 per cent growth during this decade. Significantly, the two major religious communities i.e. the Hindus and the Muslims resembled each other closely regarding the distribution of urban centres in various growth categories. As in the case of general population, the number of urban centres in respect of the two communities declined progressively while moving to categories of higher

growth rates. However, this pattern was not observable in case of the numerically less prominent communities i.e., the Sikhs and the Jains. The Sikhs had recorded above 40 per cent growth rate in 16 towns, while they registered actual decline in 42 (Table 3). In case of the Jains the number of urban centres in each of the two categories stood at 22.

Punjab's urban population recorded a decline in sex ratio of 14 females per thousand males during this period (Table 4). The corresponding figures of sex ratio decline for the Hindus, the Jains and the Sikhs were 24, 11 and 55 respectively, while the Muslim sex ratio remained unchanged over the period. The main reason for decrease in female proportion was the exclusion of the population of declassified towns which had

**Table – 3 : Punjab: Classification of Urban Centres\* by Growth Rate (1881-1891)**

Growth rate (in percentage)	Number of Urban Centres				
	Total	Hindus	Jains	Muslims	Sikhs
40+	4	3	22	3	16
30-39.99	-	4	-	3	1
20-29.99	9	8	2	10	5
10-19.99	14	14	3	18	8
Below 10	28	20	9	20	2
Decrease	19	25	22	18	42
No Urban Population	-	-	16	-	-
New Towns	5	5	5	5	5
<b>Total</b>	<b>79</b>	<b>79</b>	<b>79</b>	<b>79</b>	<b>79</b>

\* excluding 5 new towns in 1891.

**Table – 4 : Punjab: Change in Urban Sex Ratio (1881-1891)**

Population Group	1881	1891	Change
Total	812	798	-14
Hindus	799	775	-24
Jains	898	887	-11
Muslims	854	854	nil
Sikhs	688	633	-55

**Table – 5 : Punjab: Growth of Urban Population by Size-classes of Urban Centres (1881-1891)**

Size-class	Per cent growth			
	Unadjusted	Adjusted (with urban centres as in the base year)	Adjusted (as in Col. 2 minus new towns in 1891)	Adjusted (with same towns as in the base year minus new towns and declassified towns during 1881-1891)
1	2	3	4	5
I	-9.96	-9.96	-9.96	-9.96
II	63.12	15.42	15.42	15.42
III	-22.09	11.53	11.53	11.53
IV	12.30	2.25	2.25	2.25
V	-0.07	-3.55	-8.39	9.28
VI	-43.05	-22.67	-28.71	4.33
<b>Total</b>	<b>-1.44</b>	<b>-1.44</b>	<b>-3.65</b>	<b>5.56</b>

considerably high sex ratio (855) as compared to the general urban sex ratio (812) in 1881. The same was largely true of various religious communities in this regard. Besides, a high degree of male-

selectivity in the small trickle of rural-urban migration obtaining at that time also worked to depress urban sex ratio.

### Population Growth by Size-Classes of Urban Centres

Punjab recorded notable variations in growth rate of population by size-classes of urban centres. Unadjusted figures in column 2 of Table 5 show that population increase was recorded in Class II (63.22 per cent) and Class IV towns (12.30 per cent) in which one town each had been added from the next lower size-category. All other size-categories of urban centres had suffered decline in population attributable chiefly to declassification of a number of towns as well as up-gradation of urban centres to the next higher classes.

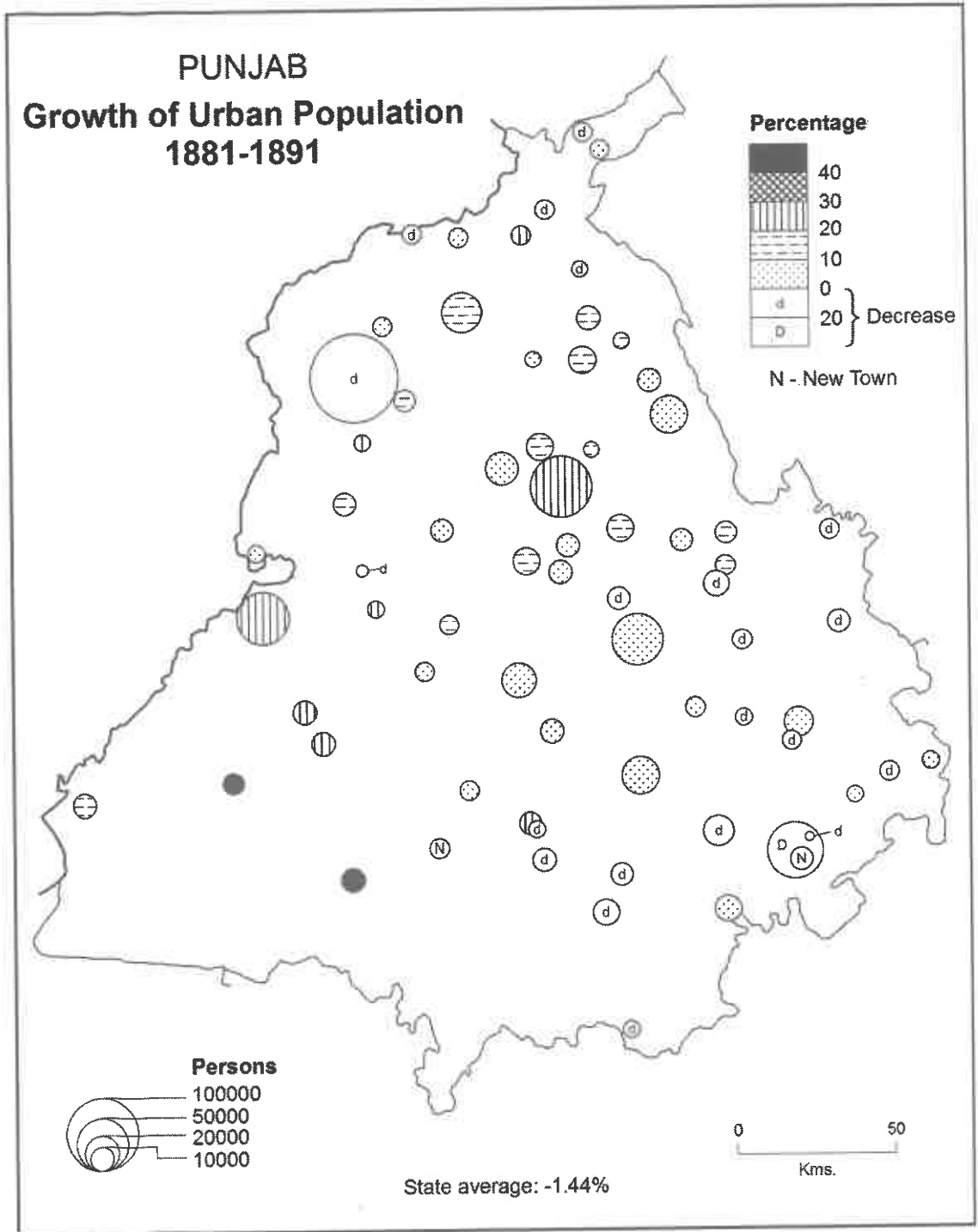
Amritsar was the only city belonging to Class I (population 100,000+) at both the Censuses. Its 9.96 per cent decline in population was "attributed by local authorities to the unhealthiness of the town" (Census of India, 1891, p. 84). Outbreak of Malaria in 1881, 1887 and 1890 resulted in higher death rate than birth rate that led to decrease of this city's population (Gosal, 1966, p. 6; Gauba, 1988, p. 224).

Column 3 of Table 5 shows growth rates worked out by keeping the same towns in each size-class as in the base year of the decade. In column 4 the population of new towns appearing in 1891 was taken out before computing population increase. It bears emphasis that growth rates of various size-categories of urban centres as shown in column 5 can be said to be more realistic as these have been arrived at by excluding populations of both new and declassified towns, while keeping the towns in the same category as in the previous census year.

Column 5 of Table 5 draws attention towards the following points: (i) Punjab's urban population registered an increase of 5.56 per cent during 1881-1891, although the unadjusted data shows a decrease in this regard; (ii) with the exception of size - Class I, that included Amritsar city at both the censuses, all other size-classes registered an increase in their population ranging from 2.25 per cent in Class IV to 15.42 per cent in Class II; and (iii) urban population growth rate did not show any conspicuous relationship with size-

**Table - 6 : Punjab: Change in the Proportion of Religious Communities (1881-1891)**

Size-class	Hindus	Jains	Muslims	Sikhs	Christians	Change in Diversification Index
I	+1.08	+0.09	-3.63	+2.38	+0.06	+0.02
II	1.61	-0.19	-1.40	-0.44	+0.38	0.00
III	-3.83	+0.48	+5.38	-0.99	-1.05	-0.04
IV	-1.23	+0.13	+1.41	-0.29	-0.01	-0.01
V	+0.96	+0.21	+2.90	-4.13	+0.06	-0.01
VI	-0.34	+0.11	-0.85	+0.96	+0.11	+0.01
<b>Total</b>	<b>-0.06</b>	<b>+0.11</b>	<b>+0.93</b>	<b>-1.00</b>	<b>-0.04</b>	<b>-0.01</b>



MAP 1



class of urban centres.

The decade witnessed a small change in the religious composition of urban Punjab. Constituting 49.35 per cent of the urbanities in 1891, the Muslims had improved their proportion by 0.93 percentage points (Table 6). It mainly sprang from the declassification of 22 urban centres that had relatively low share of Muslims as compared to that in the general urban population in 1881. However, an increase of 0.11 percentage points in the proportion of the Jains resulted from their perceptible rural-urban migration. The Sikhs's proportion came down by 1.00 percentage point that stemmed both from a more rigorous definition of a Sikh at the 1891 Census (Census of India, 1891, pp. 92-94) as well as their greater proportion in the population of the towns declassified between the two censuses. There was little change in the respective share of the Hindus and 'Others'.

Table 6 shows that there was no distinct pattern in the change of the proportion of different religious groups in various size-classes of urban centres. Whereas the share of Muslim population improved in the middle size-categories of towns, that of the Sikhs increased in Classes I and VI. Significantly, the Sikhs improved their proportion by 2.38 percentage points in Class I which included Amritsar city only in 1891. Similarly, no particular relationship was observed between urban size-class and growth rate in respect of the other religious communities.

The religious diversification index of Punjab's urban population declined from 0.59 to 0.58 during this period. However, the index had increased in Class I and Class VI urban centres by 0.02 and 0.01 points respectively (Table 6). On the other hand, the religious diversification of urban population experienced a decrease in case of size categories III, IV and V, while there was no change in Class II. It is important to note that change in

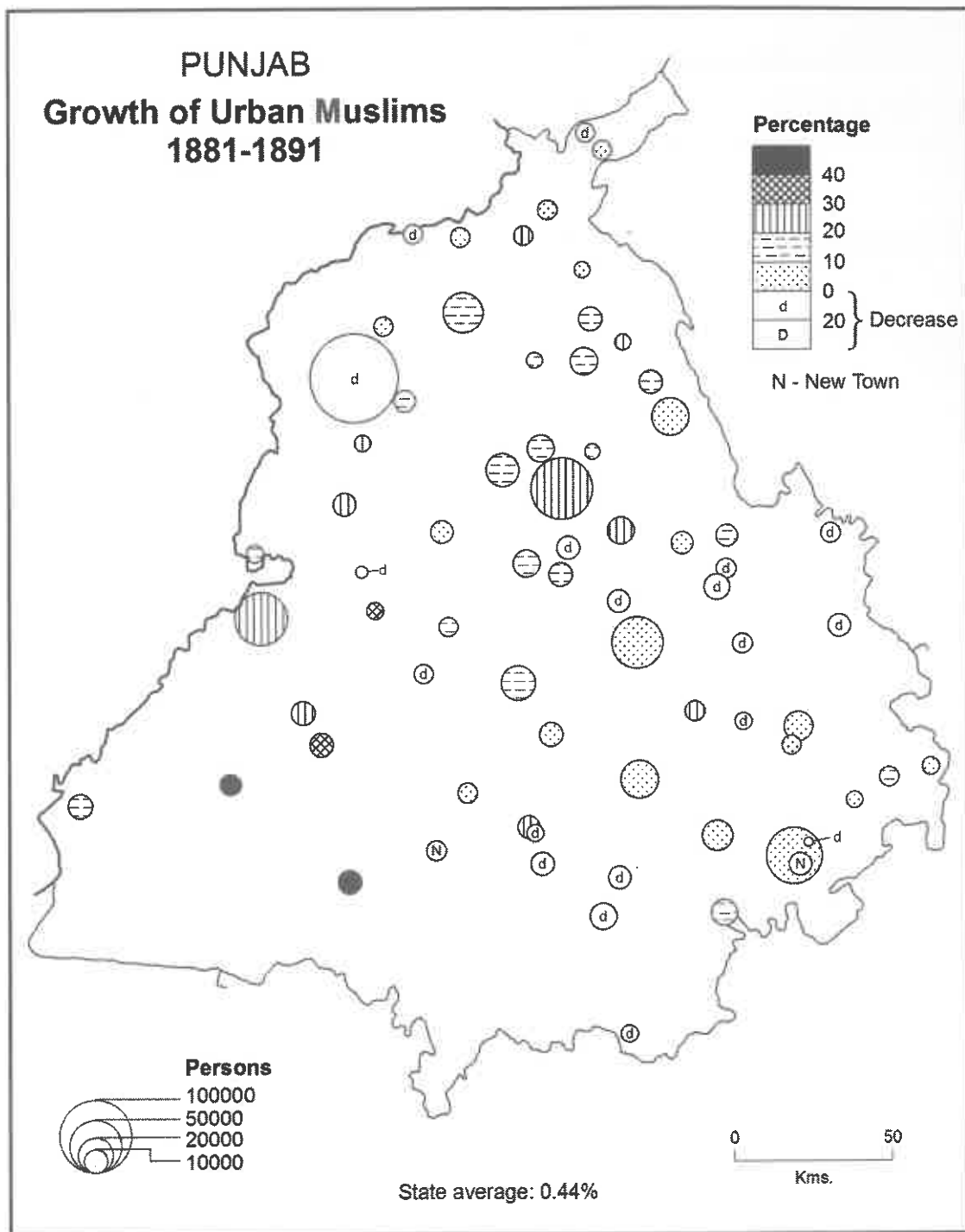
religious diversification did not show any direct relationship with growth rate of urban population (Tables 5 and 6).

It follows from the above that there was no distinct relationship between the size-hierarchy of urban centres and their growth rate during the decade. Local factors had been largely responsible for influencing the growth rate of urban centres irrespective of their size-classes. It is usually the case at the time of incipient capitalism, when most of urban centres act merely as collecting centres for the agricultural produce of local areas, and they do not have much to participate in the wider network of markets.

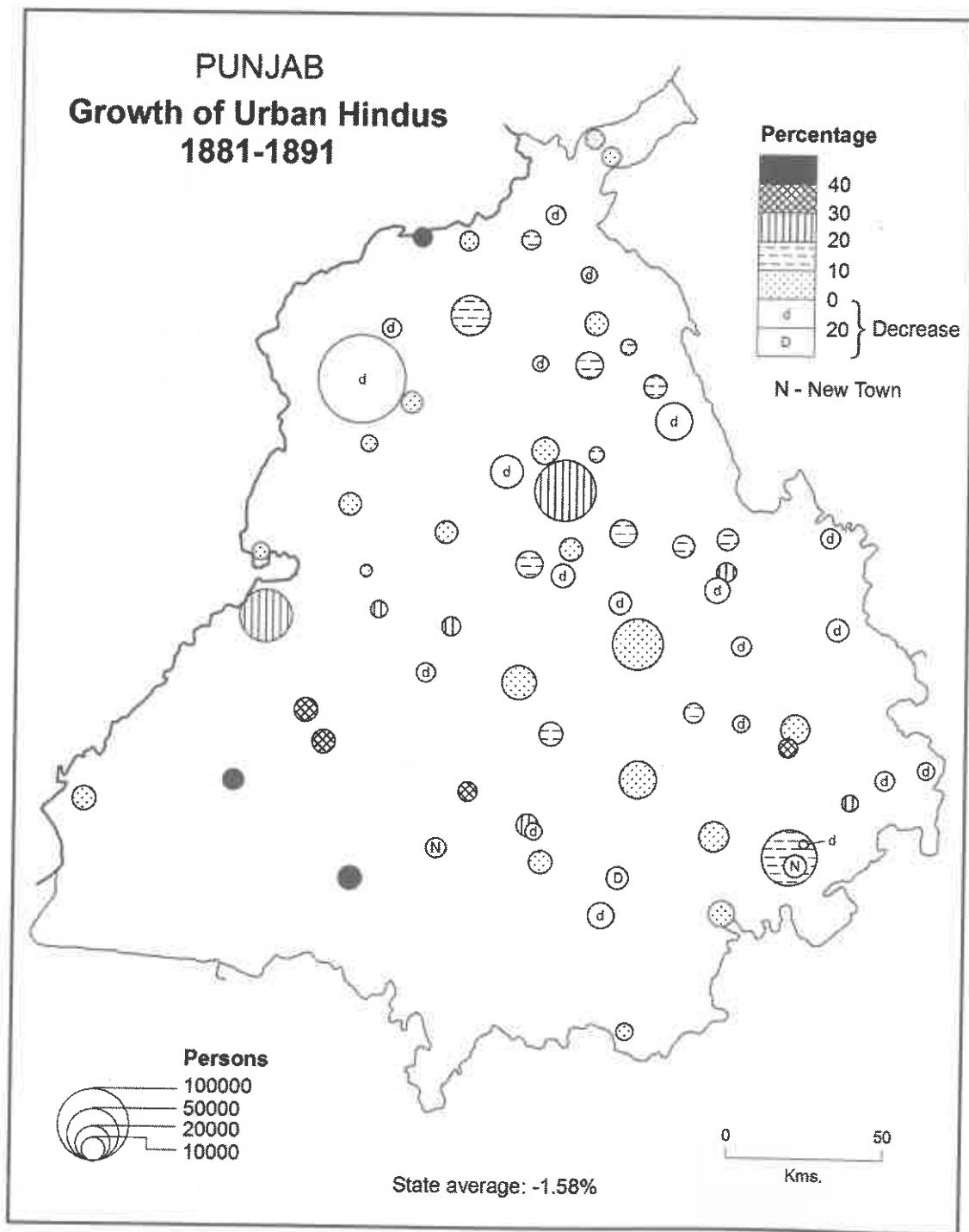
### Spatial Pattern

Though its general urban population had declined by 1.44 per cent (unadjusted rate) during 1881-1891, Punjab had registered large spatial variations in the growth of urban population during this period. The rate of population change varied from +68.67 per cent in Mukatsar to -15.81 per cent in Rupnagar.

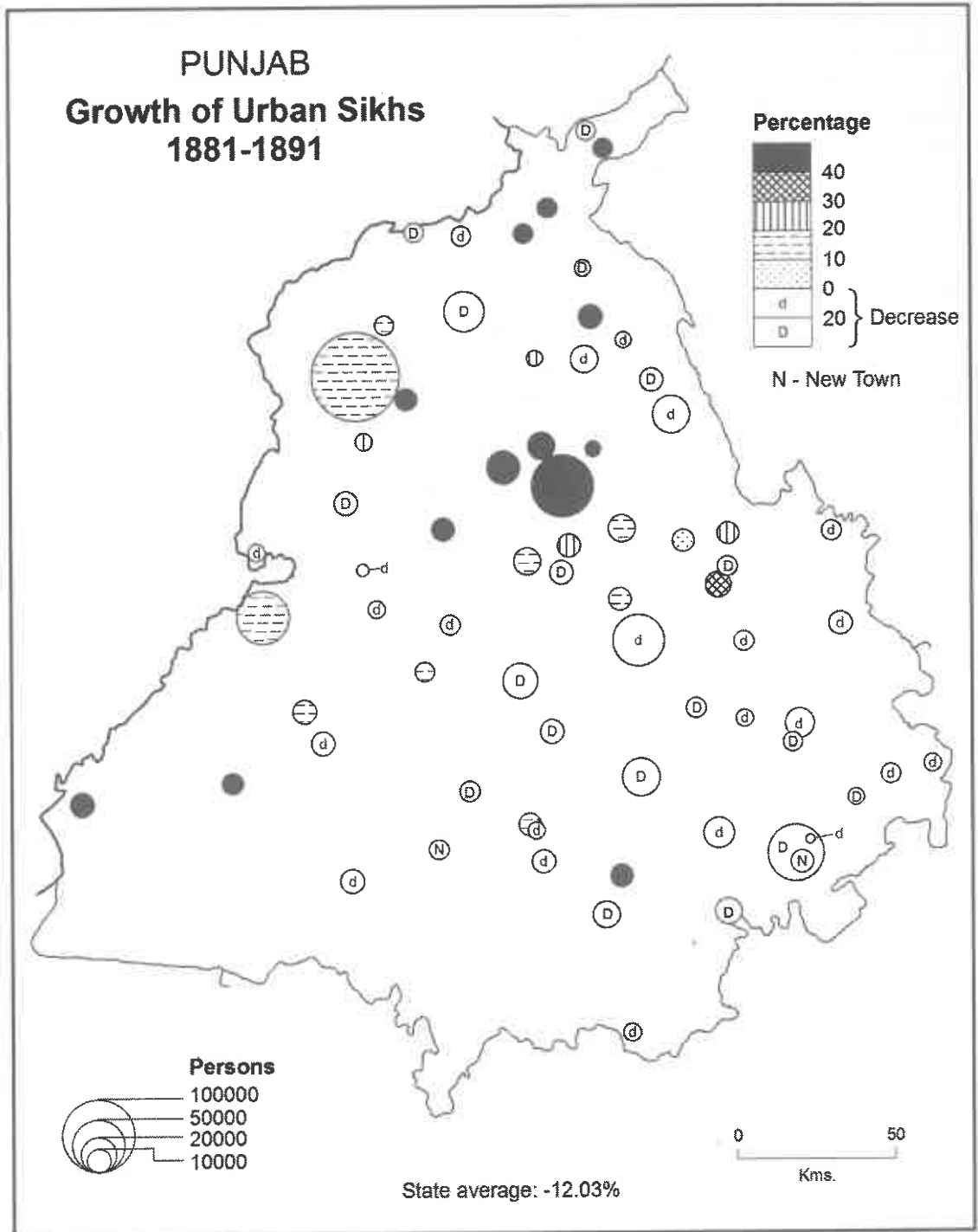
Relatively high increase of urban population was registered in the western Malwa tract where all the towns, except Fazilka, had experienced more than 24 per cent growth rate (Map 1). In Mukatsar and Bathinda the corresponding figures were as high as 68.67 per cent and 67.90 per cent respectively. The spurt of urbanization in the tract was mainly the result of: (i) notable addition of economic dynamism in large parts of the semi-arid tract consequent upon the introduction of Sirhind Canal irrigation during this decade; and (ii) construction of Bathinda-Firozpur and Bathinda-Rajpura railway lines which particularly stimulated the growth of main towns along them. Outside this area, more than 20 per cent growth rate was experienced in three towns only i.e. Jalandhar (27.02 per cent),



MAP 2



MAP 3



MAP 4

Gurdaspur (24.46 per cent) and Tarn Taran (21.50 per cent).

In rest of the State the growth rate of urban population was less than 20 per cent. Map 1 reveals that a large number of urban centres in the Bist Doab and the Majha regions recorded growth rates between 10 and 20 per cent. Both these regions had better agricultural conditions and a dense population. Both these factors promoted urbanization. It is important to note that towns in the peripheral parts of these two regions had recorded below 10 per cent increase or had shown actual decline in their population. Amritsar city suffered 9.96 per cent decrease in population that stemmed from high mortality due to fever during the decade (Census of India, 1891, p. 84).

The towns in the eastern and central Malwa region recorded either very low rate of growth or actual decline in their population. Map 1 shows that a majority of the urban centres, especially smaller ones, in this area had registered a decline in population. Having little provision of irrigation facilities, this area was marked by poor farm economy providing indifferent agricultural surplus so essential for urbanization. Besides, largely being under the princely states of Patiala, Nabha and Malerkotla was also partly responsible for its low level of socio-economic development. Under the circumstances, there was little incentive for urbanization in the area (Gosal, 1985, p.65).

It follows that the pace of urbanization in the state during 1881-1891 stood positively correlated with buoyancy in agricultural economy that was notably higher in canal-irrigated areas. Emerging rail connectivity was another important factor in this regard. It also bears emphasis that with the exception of Amritsar city, all other larger urban centres had recorded higher growth rates.

It is significant to note that spatial patterns of urban population growth among the Hindus and the Muslims were almost the same, and these

resembled closely with that of general population (Maps 2 and 3). It was primarily attributable to indifferent pace of rural-urban migration of the two communities during the decade. Highest growth rate of both Hindus and Muslims was found in Bathinda (Hindus 114.16 per cent and Muslims 76.04 percent) as was also the case with the general population.

However, the spatial pattern of growth of urban Sikhs was quite different from that of the Hindus and the Muslims. In more than half of the urban centres of the state, the Sikh population had declined during this period (Map 4). Decrease in the Sikh population was a notable feature of most of the Malwa region, foothill zones of the Bist Doab and parts of the Majha tract. Highest growth rate of the Sikhs was recorded in Jalandhar (526.45 per cent) followed by Pathankot (331.25 per cent) and Ferozpur (180.61 per cent). The staggering increase of this community in these three towns was related to the stationing of the Sikh troops during the decade. Similarly, their growth rate was more than 50 per cent in Sangrur (123.79 per cent), Sultanpur (113.53 per cent), Dinanagar (60.00 per cent), Jandiala (56.72 per cent) and Gurdaspur (56.33 per cent). In sum, the Sikhs' higher growth rate was recorded in central Bist Doab, northern Majha tract and in parts of western Malwa which mainly stemmed from their very low population in 1881.

Having recorded the highest rate of growth (+11.49 per cent) among the various religious groups in Punjab, the Jains' urban population was characterized by distinctive spatial patterns of growth during the decade. Their highest growth rate was experienced in Amritsar (1488.89 per cent), followed by Ferozpur (456.28 per cent), Fazilka (443.75 per cent) and Bathinda (333.33 per cent). True to their business instinct, the Jains and recorded very high growth rates in these commercially flourishing market (mandi) towns. Besides, Jain population had also spread to several

other towns that had no Jain representation in 1881.

### Summing Up

The decade 1881-1891 experienced a decline in urban population of Punjab mainly as a result of declassification of 22 towns during this period. The population of the Hindus and the Sikhs also declined, while that the Muslims was almost stationary. However, if growth rate is worked out by excluding the declassified as well as new towns during the decade then the growth rate of general urban population as well as of the constituent religious communities comes to be more than 5 per cent.

As per the adjusted growth rates, the highest increase of population was registered in size Class II followed by Class III and V towns. Size Class I, which contained only one urban centre, i.e. Amritsar, suffered actual decrease in population attributable to high mortality due to malaria during the decade (Gosal, 1966, p. 6). There was little connection between growth rate and urban size categories. Changes in the proportion of various religious communities in different urban size-categories primarily sprang from up-gradation, declassification as well as addition of 'new' towns during this period.

In spatial terms rapid urban growth was a characteristic feature of western part of the Malwa region that stemmed from: (i) notable

improvement in its agricultural economy following introduction of Sirhind Canal irrigation in that tract; and (ii) construction of Bathinda-Rajpura and Bathinda-Firozpur railway lines. Significantly, rapid growth of population was also typical of larger urban centres except the Class I city of Amritsar. On the other hand, slow urban growth was the rule in eastern and central Malwa region known for poor agricultural economy at that time.

The spatial patterns of growth of general urban population corresponded quite closely to those of the Muslims and the Hindus indicating that all the groups showed similar response to the urbanization process. Contrarily, the Sikhs came up with quite different spatial fabric of urban growth. Similarly, the commercial community of the Jains also showed distinctive pattern of growth with its higher increase in the flourishing commercial centres.

### Note

The index of diversification is derived using Gibb's and Martin's formula

$$1 - \frac{\sum x^2}{(\sum x)^2}$$

The index would range from 0 (maximum concentration) to 0.68 (maximum diversity) if there are five variables (population groups by religious affiliation in the present case).

### References

**Census of India (1891):** *The Punjab and its Feudatories*, Vol. XX (Part II) and Vol. XXI (Part III), Calcutta, 1892.

**Gauba, Anand (1988):** *Amritsar: A Study in Urban History*, UBS Publications, Jalandhar, Punjab.

**Gosal, G. S. (1966):** "Urbanization in Punjab (INDIA): 1881-1961", *Research Bulletin (N.S.) of the Panjab University*, Vol. 17, Nos. 1 & 2, pp. 1-26.

**Gosal, G. S. (1985):** "Agricultural Development and the Urbanization Process (With Special Reference to Punjab)", *Travaux et Documents de Géographie Tropicale (COGET)*, No. 53, pp. 65-76.

**Kaur, Surinderjit (1979):** *Changes in the Distributional Patterns of the Sikhs in India—1881-1971: A Geographical Appraisal*, Unpublished Ph. D. Thesis, Panjab University, Chandigarh, India

## TRENDS AND PATTERN OF METROPOLISATION IN INDIA

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### Abstract

This paper attempts to examine a specific parameter of Indian urbanisation with focus on metropolises across India. By adopting metropolises as per Census 2011 an attempt is made to trace their origin or roots in different periods in Indian history, examine their locational pattern vis-à-vis a number of features, and highlight the trend in their growth pattern in the post-liberalisation period. Secondary data obtained from Census of India has been processed, classified, analysed, tabulated and mapped. 21st century has ushered in a major phase of urbanisation in India, increasing faster than expected as increase in urban population has outpaced rural for the first time since independence. The urban areas in the country have added 91 million persons in the last decade in which 27.6 million persons that is 30.4 per cent have been added by existing metropolitan cities. India at a comparatively low level of urbanisation contains a fairly large proportion of population in its metropolitan cities. These alone account for 42.3 per cent of the urban population in 2011 in comparison to 18.8 per cent in 1951. Ongoing increase in the number of metropolises, that is, cities whose population exceeds one million inhabitants is tremendous; increasing ten folds from 5 in 1951 to 52 in 2011. Metropolisation in the post-liberalisation period is both an economic and administrative process. The present growth pattern and spread of metropolitan cities is related to their administrative eminence, emergence as transport nodes and re-classification. The traditional colonial set up of Indian urbanisation is being reversed. However, the demographic decline of the mega cities or some metropolises does not mean their economic decline. The level of urbanisation shows a strong positive correlation ( $r=0.76$ ) with per capita income and population contained in metropolises ( $r=0.60$ ).

*Key Words* : Metropolis, Statutory Town, Census Town, India.

### Introduction

Urbanisation is a cause and effect of heightened economic progress in a region (Census of India, 2011). It plays an enormous role in social transformation and economic mobility all over the world. In fact, the process of urbanisation has been transforming the developing countries from 'countries of villages' to 'countries of cities and towns'. The urban population today is growing large-city centric between two to three times faster than the rural population and the greater part of it happens to be in the developing world (United

Nations, 2012). Urban population of Africa and Asia is expected to double between 2000 and 2030. It will also continue to expand, but more slowly in Latin America and the Caribbean. Regarding India no matter which figures you select, the urban population growth projections are incredible. In a 2006 report, India's Registrar General expected the share of increase in urban population to be 249 million between 2001 and 2026 (Census of India, 2006, viii). The 2010 McKinsey Global Institute Report on 'India's Urban Awakening' suggests a



rise of 250 million citizens between 2008 and 2030.

Thus the first half of the 21st century is likely to be characterized by large scale urban development. The two most populated countries of Asia, China and India, are experiencing an urbanisation process of remarkable scale. As is evident from Table 1, India at a comparatively low level of urbanisation contains a fairly large proportion of urban population in its three megacities, each with a population of 10 million or more as compared to fast urbanising China and urbanised United States. Although the megacities attract considerable attention because of their population size and geographical complexity, they represent the extreme of the distribution of cities by population size.

In 2014, there are 28 mega-cities worldwide, home to 453 million people or about 12 per cent of the world's urban dwellers. Nearly one in eight lives in the mega-cities of 10 million inhabitants or more. Of today's 28 mega-cities, sixteen are located in Asia, four in Latin America, three each in Africa and Europe, and two in Northern America. The number of mega-cities has nearly tripled since 1990, and by 2030, 41 urban

agglomerations are projected to house at least 10 million inhabitants each (<http://esa.un.org/unpd/wup/Highlights/WUP2014-Highlights.pdf> accessed on 21 July, 2014).

The mega-cities are followed by 43 cities with populations ranging from 5 million to just under 10 million. Most of these "megacities in waiting" are located in developing countries, of which six are in India alone. These are Chennai, Bangalore, Hyderabad located in south India, Ahmadabad in west-central India and Pune and Surat in western India.

In relation to the overall population of the world, the share of megacities was 5.2 per cent in 2011, implying that just about one in every twenty people on Earth lives in megacities. In India this share is 4.03 per cent. India as per 2011 census has 3 megacities containing nearly 13 per cent of its urban population. The increase in the number of 10 million-plus cities from zero in 1950 to three by the turn of the century have been cited as evidence of unprecedented urban growth in India (Mohan and Dasgupta, 2005).

India's proportion of population in its metropolises is equivalent to that of China. The situation in United States is, however, different. In

**Table - 1: Urbanisation Morphology of India, China and the United States: 2010**

Pop. Size Category of Towns	Per Cent in Urban Population in 2010		
	India	China	United States
10 million or more	15	8	13
5 to 10 million	8	10	10
1 to 5 million	17	23	34
500,000 to 1 million	9	15	10
Fewer than 500,000	52	44	33
Total Urban Population (in 000)	378775	660286	254959
Per Cent Urban Population	30.9	49.2	82.1
Urban Annual Growth Rate (%) 2005-2010	2.56	3.44	1.24

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 2010 Revision and World Urbanization Prospects: The 2011 Revision*, Sunday, January 05, 2014; 3:09:22 A.M.

India, greater accretion of population in large cities leading to their higher increase in number is a post-liberalisation phenomenon not witnessed earlier. This vast urban expansion has regional, national and global implications. Cities are already the locus of nearly all major economic, social, demographic and environmental transformations (UNFPA, 2007).

Krishan and Singh (1993, p. 127) have visualised Indian urbanisation, with a history spanning over nearly five millennia, as having passed through four phases: pre-feudal (ancient) with primarily an administrative cultural base, feudal (medieval) with a political-military-economic base, colonial (modern) with an exploitative capitalist base, and post-colonial (contemporary) with a capitalist - welfare base. To this may be added the recent neo-liberal phase. The importance of cities and urban centres has been growing in India's economic development during the post-liberalisation phase, such as the contribution of urban areas in GDP has increased from 29 per cent in 1951 to 63 per cent in 2007 and is expected to increase to 75 per cent by 2021. However, with increasing economic growth, prosperity is getting concentrated in cities and urban centres, and the rural-urban gaps in income levels and wages and employment opportunities are widening (Bhagat, 2011, a). It is linked with globalisation, industrialisation and economic development.

### Urban Definition

The Census of India recognizes three categories of urban places: metropolitan areas, cities and towns. The Census typology of urban places is entirely based on the population criterion. Thus, the term 'metropolitan area' is applied to places with a population of one million and above whereas city population is designated with one hundred thousand and above persons in India. Lower down the population size urban places are designated as towns (Ramachandran, 2007, p. 108). In the present article 'metropolitan area', 'metropolitan city' or 'metropolis' is referred to for

a city with a population of at least one million. Mega city refers to a city with minimum 10 million people. Barring Jaipur, Greater Visakhapatnam, Ludhiana, Faridabad, Vasai-Virar City and Kota that are municipal corporations, all other metropolises are urban agglomerations.

An area is classified as rural or urban depending upon various criteria such as civic status, population size, density and occupational composition. In India whereas state governments decide on the civic status of a settlement, the Census of India applies demographic and economic criteria in identifying towns at every census. The first criterion of statutory administration includes civic status of towns and the towns identified on this basis are known as statutory or municipal towns. These include all places with a municipality, corporation, cantonment board or notified town area committee. Towns identified on the basis of the second criteria involving economic and demographic indicators that entail characteristics like population size, density of population, and percentage of the workforce in the non-agricultural sector are termed census or non-municipal towns. Specifically, it includes fulfilling the conditions of (a) minimum population of 5000; (b) at least 75 per cent of the male main working population engaged in non-agricultural pursuits; (c) a population density of at least 400 persons per square kilometre. In the government perspective these are villages. This definition was carried through the 1961 Census.

In every census, several new towns are added to or removed from the roster of towns if they do not satisfy the earlier-mentioned criteria. As many urban residents also live outside the municipal boundary, the Indian Census uses the concept of an 'urban agglomeration' (UA) to measure urban population at the town and city level. An UA consists of the population of a core urban centre living within its municipal boundary, as well as the population of contiguous towns and adjoining urban outgrowths (OGs). An 'out growth' (OG) is a viable unit such as a village or a hamlet or an enumeration block made up of such village or

hamlet and clearly identifiable in terms of its boundaries and location. These are areas around a core city or a statutory town that are fairly large such as a railway colony, university campus, port area, military camp, among other examples, but are not included within the municipal boundary of the core city or town. These have come up near a statutory town outside its statutory limits but within the revenue limits of a village or villages contiguous to the town. While determining the outgrowth of a town, it has to be ensured that it possesses the urban features in terms of infrastructure and amenities such as pucca roads,

electricity, taps, drainage system for disposal of waste water, educational institutions, post offices, medical facilities, banks etc., and physically contiguous with the core town of the UA ([http://www.censusindia.gov.in/2011-prov-results/paper2-vol2/data\\_files/India2/1.%20Data%20Highlight.pdf](http://www.censusindia.gov.in/2011-prov-results/paper2-vol2/data_files/India2/1.%20Data%20Highlight.pdf)).

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**Table - 2: Urban Situation in India: 1901-2011**

Census Year	Number of Towns/ UAs	Cities with 100,000 + Persons (No.)	Metropolitan city	Urban Population (in millions)	Per cent Urban Population	Compound annual growth rate of url population
1901	1827	23	1	26	10.8	—
1911	1815	21	2	26	10.3	0.04
1921	1949	27	2	28	11.2	0.8
1931	2072	33	2	34	12.0	1.8
1941	2250	47	2	44	13.9	2.8
1951	2843	71	5	62	17.3	3.5
1961	2365	95	7	79	18.0	2.4
1971	2590	139	9	109	19.9	3.3
1981	4029	204	12	159	23.3	3.9
1991	4689	273	23	217	25.7	3.2
2001	5161	394	35	286	27.8	2.7
2011	7935	468	52	377	31.2	2.8

Source: 1. *Census of India, 1991. Part-II A (ii) – Towns and Urban Agglomerations classified by population in 1991 with variation since 1901.*

2. *Census of India, 2011, PCA UA/Towns, Office of the Registrar General & Census Commissioner, India New Delhi (compact disk form).*

3. <http://censusmp.nic.in/censusmp/All-PDF/3Trends in Urbanization21.12.2011.pdf>

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Source: 1. Census of India, 1991, Part-II A (ii) – Towns and Urban Agglomerations classified by population in 1991 with variation since 1901.

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the municipal boundaries, the application of the concepts of UA and OG by the Census takes into account any spill over of urban population outside the municipal boundary.

### Urban Situation in India

The population of India has increased from 238 million in 1901 to 1210 million in 2011. Of this, the rural population stands at 833.1 million and the urban population at 377.1 million. The urban population growth of nearly 91 million between 2001 and 2011 is for the first time higher than the absolute rural growth, albeit slightly. The

urban growth rate, which fell in the last two decades, also rose in this census. This has reversed the slowdown in Indian urbanisation observed during the 1980s and 1990s. The average annual growth rate of population in the last decade was 1.2 per cent and 3.2 per cent in rural and urban areas respectively with the average at 1.8 per cent ([http://www.censusindia.gov.in/2011census/PCA/PCA\\_Highlights/pca\\_highlights\\_file/India/Chapter-1.pdf](http://www.censusindia.gov.in/2011census/PCA/PCA_Highlights/pca_highlights_file/India/Chapter-1.pdf)). The level of urbanisation in India is 31.2 per cent in 2011 having increased from 10.8 per cent in 1901 i.e. only a three-fold increase in more than a century (Table 2). Much of it can be attributed to high rate of rural population growth.

**Table - 3: The break-up of Class-I Cities: 2011**

City Population	No. of Cities	Cities	Total Population	Per cent Population
More than 10 million	3	Greater Mumbai, Delhi, Kolkata	48802734	18.4 (12.9)
5-10 million	5	Chennai, Bangalore, Hyderabad, Ahmadabad, Pune	36266376	13.7 (9.6)
2-5 million	11	Surat, Jaipur, Kanpur, Lucknow, Nagpur, Ghaziabad, Indore, Coimbatore, Kochi, Patna, Kozhikode	28839005	10.9 (7.7)
1-2 million	33	Bhopal, Thrissur, Vadodara, Agra, Visakhapatnam, Malappuram, Thiruvananthapuram, Kannur, Ludhiana, Nashik, Vijayawada, Madurai, Varanasi, Meerut, Faridabad, Rajkot, Jamshedpur, Jabalpur, Srinagar, Asansol, Vasai Virar City, Allahabad, Dhanbad, Aurangabad, Amritsar, Jodhpur, Ranchi, Raipur, Kollam, Gwalior, Durg-Bhilainagar, Tiruchirappalli, Kota	45665729	17.3 (12.1)
<b>Total (Cities with Million plus population)</b>	<b>52</b>		<b>159573844</b>	<b>60.3 (42.3)</b>
0.5 million to 1 million	44		31207407	11.8 (8.3)
0.1 million to 0.5 million	372		73919974	27.9 (19.6)
<b>Total (Class-I Cities)</b>	<b>468</b>		<b>264701225</b>	<b>100 (70.2)</b>

Source: Computed from Census of India, 2011, PCA UA/Towns, Office of the Registrar General & Census Commissioner, India, New Delhi (compact disk form).

Note: Figs. in parentheses indicate % to total urban population. The names of the metropolitan cities are listed in the descending order of population.

**Table - 4: Number of UAs/Towns and Out Growths (OGs) : 2001- 2011**

Type of Towns/UAs/OGs	Number of towns	
	2001	2011
Statutory Towns	3,799	4,041
Census Towns	1,362	3,894

Source: Same as in Table 2

The total number of urban agglomerations/towns that constitutes the urban frame in the country in 2011 is 7935, which has grown from 1827 in 1901.

The current census has enumerated 264.7 million people, constituting 70 per cent of the total urban population living in 468 Class I UAs/Towns (Table 3) having at least 1,00,000 persons. Their number has increased from 23 in 1901 and 76 in 1951 to 468 in 2011. The graduation of number of urban centres from lower population size categories to Class I cities has resulted in top-heavy structure of urban population in India oriented towards large cities (Kundu, 2011 and 2009).

Another important feature of the 2011 Census is a phenomenal increase of 2,774 new towns. Only 242 statutory towns are added in the last decade in comparison to 2532 Census towns (CTs). Whereas the number of statutory towns (STs) has increased marginally from 3,799 to 4,041 there is an unexpected jump in the number of "census towns" from 1362 to 3894 (Table 4) which is unprecedented in the history of the Indian census since 1901. Many of these towns are part of UAs and the rest are independent towns. A phenomenon of dispersed pattern of in situ urbanisation is observed with the reluctance of state policy to recognise new statutory towns partly responsible for the growth of new CTs.

Pradhan (2012) finds that 26 per cent to 29.5 per cent of the urban growth from 2001 to 2011 can be attributed to the recognition of new census towns, varying from a high of nearly 90 per cent in Kerala and 60 per cent in West Bengal to less than 10 per cent in states like Karnataka and

Gujarat. By contrast, only 8.4 per cent of the growth in urban population over 1991 to 2001 was due to new census towns. Thus a substantial urbanisation has taken place outside recognised urban local bodies. Not all of this growth of census towns is occurring around existing large towns. Using a differentiated spatial buffer around towns above 1,00,000, he finds that only 37.2 per cent or 926 (of 2,489) settlements and 33.6 per cent of the population fall within these buffers, indicating that much of this growth is outside the peripheries of existing large towns.

The spatial distribution of new census towns shows that while there is a high concentration in certain districts close to metropolitan cities, the formation of census towns is also widely spread across the country. This indicates that the process of spontaneous transformation of settlements, reflected in the growth of census towns beyond metros, is a relatively widespread geographical phenomenon. Krishan (2012, p. 74) has attributed a large part of the increase in census towns to a definitional change under which the growers of five plantation crops, namely coconut, tea, coffee, rubber and betelnut, were recorded as non-agricultural workers at the 2011 census.

Bhagat (2011) estimates that 44 per cent of the urban growth between 2001 and 2011 is due to natural growth and the remaining 56 per cent is due to net reclassification, expansion of boundaries and migration. As shown earlier, 29.5 per cent of the growth is because of reclassification of rural settlements into CTs, implying the remaining 26.5 per cent is attributable to net reclassification of

rural settlements into STs, the incorporation of such settlements into existing STs by expansion of their boundaries and migration.

The pattern of urbanisation and growth of urban population reveals a strong positive correlation ( $r=0.76$ ) with per capita income of the states and the flow of foreign direct investment (FDI). Also the correlation between per capita flow of foreign direct investment (FDI) and infrastructure indicators like road, railway and telecom is positive and very strong. These investments directly or indirectly have been instrumental in infrastructure development (Sivaramakrishnan, *et al.*, 2005).

Sixteen states and one union territory contain at least one metropolis (Table 5). There is no metropolitan city in any of the states in the northeast namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Nagaland, Tripura, Sikkim and Mizoram; the hilly states of Uttarakhand and Himachal Pradesh; low income and less urbanised state of Odisha; the small highly urbanized state of Goa. Except the NCT of Delhi, none of the union territories, namely Andaman and Nicobar, Chandigarh, Dadra and Nagar Haveli, Daman and Diu, Lakshadweep, Puducherry, are a metropolis. Many states and union territories do not have threshold population to support a metropolitan city.

### **Metropolises in the Indian Urban System**

The Indian Census 2011 appears to indicate that two major urbanisation trends are at work. Kundu (2011, p. 24) feels that "urbanisation process has...become concentrated in developed regions and larger cities in recent years, with backward areas and smaller towns tending to stagnate". Denis, Mukhopadhyay and Z erah (2012) seem to suggest that multiple urbanisation processes may be at work in India, such as metropolitan agglomeration and what they term subaltern urbanisation. India seems intent, as

Nijman (2012, p. 18) puts it, on "writing its own script". It is an urbanisation with a distinct story, a "contribution made by the people *on their own*" (Guha, 1982, p. 39), countering the claim of hegemonic narratives of space and identity. These cities have a resilient and robust economic base, which may be connected globally, sometimes bypassing the intermediation of the metropolis.

Notwithstanding these opinions, metropolitan urbanisation is a distinct feature on the Indian landscape. Metropolises wield considerable influence by their sheer size and economic agglomeration as they alone account for more than 2/5th of the total urban population of the country. Translated into numbers it is nearly 160 million peoples contained in 52 metropolises. Ongoing increase in the number of metropolises, that is, cities whose population exceeds one million inhabitants is tremendous. The number since 1951 has increased ten folds from 5 in 1951 to 52 in 2011. With a large number of cities acquiring the status of metropolises, the hegemony of port cities and the contours of colonial set up of Indian urbanisation is being gradually weakened and regional centres of great potential are emerging inland.

A special case of metropolitan urbanisation is capital urbanisation, where the city is also the state capital. Administratively created towns are also growing rapidly. However, the Census of 2011 also indicates that large metropolises are slowing down, but growth is occurring around them. All this is indicative of the changing nature of geography of areas, which is rapidly undergoing change in the neo-liberal period. Metropolises beyond doubt have a sustained relevance. These are reflective of the regional configuration of political power, trade and commerce and reflect the nature of Indian urbanisation. By adopting metropolises in India as in 2011 an attempt is made to trace their origin or roots in different periods in Indian history, examine their locational pattern *vis- -vis* a number of features and highlight the trend in their growth pattern.

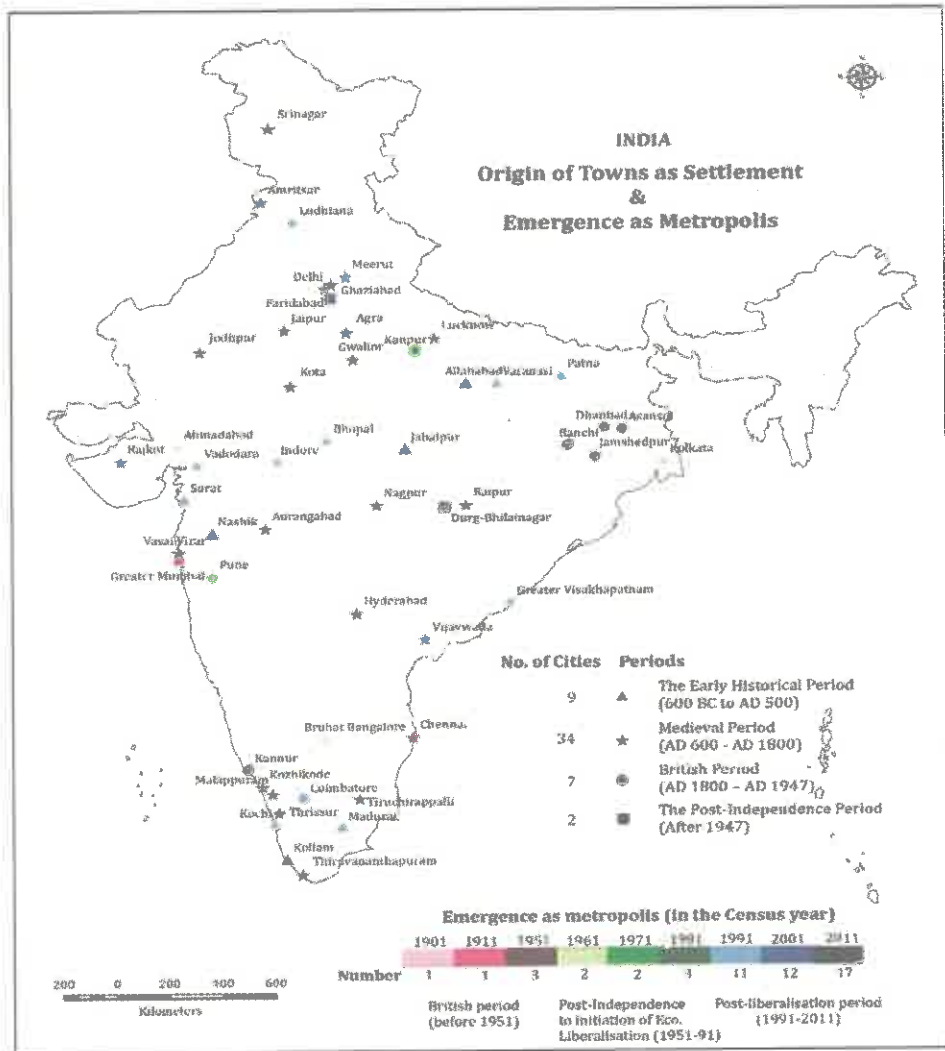


**Table - 5: Configuration of Million Cities : 2011**

State/Union Territory	City with Million plus Population	No. of million cities	Population of Million cities	State Urban Population	State's % Urban Population	% share of Metropolis
Kerala	Kochi UA, Kozhikode UA, Thrissur UA, Malappuram UA, Thiruvananthapuram UA, Kannur UA, Kollam UA	7	12139860	15934926	47.7	76.2
Uttar Pradesh	Kanpur UA, Lucknow UA, Ghaziabad UA, Agra UA, Varanasi UA, Meerut UA, Allahabad UA,	7	14025098	44495063	22.3	31.5
Maharashtra	Greater Mumbai UA, Pune UA, Nagpur UA, Nashik UA, Vasai Virar City (M Corp.), Aurangabad UA	6	29927857	50818259	45.2	58.9
Gujarat	Ahmadabad UA, Surat UA, Vadodara UA, Raikot UA	4	14161800	25745083	42.6	55.0
Madhya Pradesh	Indore UA, Bhopal UA, Jabalpur UA, Gwalior UA	4	6428127	20069405	27.6	32.0
Tamil Nadu	Chennai UA, Coimbatore UA, Madurai UA, Tiruchirappalli UA	4	13278580	34917440	48.4	38.0
Andhra Pradesh	Hyderabad UA, Visakhapatnam (M Corp.) Vijayawada UA	3	10882077	28219075	33.4	38.6
Jharkhand	Jamshedpur UA, Dhanbad UA, Ranchi UA	3	3662372	7933061	24.0	46.2
Rajasthan	Jaipur (M Corp.), Jodhpur UA, Kota (M Corp.)	3	5186157	17048085	24.9	30.4
Chhattisgarh	Raipur UA, Durg-Bhilainagar UA	2	2187780	5937237	23.2	36.8
Punjab	Ludhiana (M Corp.), Amritsar UA	2	2802428	10399146	37.5	26.9
West Bengal	Kolkata UA, Asansol UA	2	15301405	29093002	31.9	52.6
Bihar	Patna UA	1	2049156	11758016	11.3	17.4
Haryana	Faridabad (M Corp.)	1	1414050	8842103	34.9	16.0
Jammu & Kashmir	Srinagar UA	1	1256831	3433242	27.4	36.6
Karnataka	Bangalore UA	1	8520435	23625962	38.7	36.1
Delhi	Delhi UA	1	16349831	16168899	97.5	99.9
<b>India</b>		<b>52</b>	<b>159573844</b>	<b>354638004</b>	<b>31.2</b>	<b>45.0</b>

Source: Same as in Table 2

**Fig.1 Location of Metropolises in India (Based on 2011 Census)**



### Metropolitan Urbanization: Spatial Spread, Origin, Pattern of Growth Trends

The fifty two million cities in the country are located in 16 states and one union territory. The largest metropolitan city, Greater Mumbai, is 18 times the size of the smallest, Kota, in the hierarchy. Nine metropolises are spread over more than one district but within the same state. These

are : 1) Kolkata spread over the districts of Kolkata, South Twenty Four Parganas, North Twenty Four Parganas, Nadia, Haora and Hughly in West Bengal; 2) Delhi covering the districts of Central Delhi, East Delhi, New Delhi, North Delhi, North-East Delhi, North-West Delhi, South Delhi, South-West Delhi, West Delhi; 3) Greater Mumbai constituting the districts of Mumbai, Mumbai Suburban and Thane in Maharashtra; 4) Hyderabad including the districts of Hyderabad,

Rangareddi and Medak in Andhra Pradesh; 5) Ahmadabad covering the districts of Ahmadabad and Gandhinagar in Gujarat; 6) Chennai incorporating the districts of Chennai, Thiruvallur and Kancheepuram in Tamilnadu; 7) Vijayawada spread over the districts of Krishna and Guntur in Andhra Pradesh; 8) Jamshedpur including the districts of Purbi Singhbhum and Seraikela-Kharsawan in Jharkhand and 9) Srinagar stretched over Badgam and Srinagar ([http://www.censusindia.gov.in/2011-prov-results/paper2-vol2/data\\_files/India2/UAs\\_spreading\\_over\\_more\\_than\\_one\\_districts.pdf](http://www.censusindia.gov.in/2011-prov-results/paper2-vol2/data_files/India2/UAs_spreading_over_more_than_one_districts.pdf)).

At the state level, greater concentration of metropolitan cities is found in Uttar Pradesh and Kerala (seven each) followed by Maharashtra (six), Tamil Nadu, Gujarat and Madhya Pradesh containing four each. Andhra Pradesh, Jharkhand and Rajasthan have three each cities with million plus inhabitants. The corresponding number is two in Chhattisgarh, Punjab and West Bengal. The states of Bihar, Haryana, Karnataka, Jammu & Kashmir contain one metropolitan city each. The National Capital Territory of Delhi as a union territory has a negligible rural population. The rest of the states/union territories are without any metropolitan city.

In some states like Kerala, Maharashtra, Gujarat and West Bengal, majority of urban population is concentrated in metropolises. The range is from highest of 76.2 per cent in Kerala to 16.0 per cent in Haryana. The degree of urbanisation in a state is positively correlated ( $r=+0.60$ ) with proportionate share of million cities in its urban population. Kerala and Uttar Pradesh have seven metropolises each. The comparison ends there. The large number of million cities in Kerala is because of its peculiar land configuration, where a very large number of settlements have been constituted into urban agglomerations along the coast. Uttar Pradesh is a heavily populated state in the Ganga plain. The rate of urban population living in metropolises is comparatively high regarding the low level of urbanisation in the states of Uttar Pradesh,

Jharkhand, and Chhattisgarh. Haryana and Punjab display a more dispersed urbanisation pattern. Both are small states where agriculture and industry are equally developed. Haryana borders the national capital on three sides with several towns growing simultaneously.

With the origin of towns that are presently metropolises dating back to the phase of urbanization in India that took place in the Ganges Plain beginning c. 600 BC, their contribution to the evolved cultural landscape has been substantial. The oldest (Varanasi) to the recent (Durg-Bhilainagar) span a period from c. 600 BC to 1960. The oldest existing cities in India - Varanasi and Patna in the north and Madurai and Kochi in the south - which originated around 500 BC are symbolic of India's long urban heritage (Fig. 1).

Different kinds of towns grew out of earlier settlements; as capitals of Kingdoms, as defence sites or grew out of markets, or from being sacred centres where people gathered. Evidence of towns comes from the grammar of Panini generally dated to 5th century BC and contemporary with urban centres (Thapar, 2003, pp.139-40). Thirty four cities had origin in the medieval period. From the seventh through 16th centuries Muslim peoples successively entered India. The choice of Delhi as the capital of India for these invaders was very much a function of geography. As Fairgrieve (quoted in Kaplan, 2012, p. 237) writes, "Sind and the Indus valley, including the Punjab.....form but the antechamber to India, to which there is a comparatively narrow passage, 150 miles wide, between the Indian desert and the Himalayas. At the exit from this passage stands Delhi." The medieval period in Indian history was significant from the viewpoint of urban development. Many new towns appeared as administrative, defence and trade points.

In the early modern India (1761 A.D. to the close of the 19th century) the new economic activity showed a tendency of concentration in the three port cities of Bombay, Madras, Calcutta (presently Mumbai, Chennai and Kolkata respectively) in conformity with the colonial nature of urbanisation (Bala, 1986, p. 11). Bombay,

Madras, Calcutta presidencies became focal points of the British rule. In the British period, introduction of the railways and modern industry led to the creation of new industrial townships such as Kanpur, Dhanbad, Asansol and Jamshedpur.

Majority of the towns that are metropolises today had some administrative status in 1901, such as that of presidency capital, imperial capital, division headquarters, native state capital, and district headquarters. Naturally these towns had an edge over other towns in their respective regions being centres of political power, administration, economy, trade and commerce. The post-Independence period witnessed administrative urbanisation with creation of cities by the state, like Chandigarh, Durg-Bhilainagar, Bhubaneswar, Faridabad, Gandhinagar etc., some of which became cities with million plus-inhabitants. Presently, 14 metropolises are state/ union territory capitals and remaining are district headquarters except Vasai-Virar. Delhi is the capital of India. Chandigarh is close to become a million city. It was listed as a metropolis in the census provisional totals but could not make it in the final list (Census of India, 2011).

Historically, 32 of these cities had initially emerged as settlements along the banks of rivers. Several of these places were located on historical trade routes. However, regional setting alone does not determine which cities will grow or thrive. National policies, corporate strategies, political significance and the comparative advantages that cities offer in global, regional and local markets determine the growth of cities. Connected through railway network, presently all these towns are located on recently emerged premier transport routes: golden quadrilateral, north-south corridor and east-west corridor. Golden Quadrilateral connects Delhi, Mumbai, Chennai and Kolkata. The North-South-East-West corridor connecting Srinagar, Kanyakumari, Porbandar and Silchar with some stretches common with Golden Quadrilateral is the largest ongoing highway project in India. Only National Highways have been used in the projects.

Fundamentally, geographers have

approached the study of city on locational and regional bases. There is only one metropolis, Srinagar, located in the Himalayas. Situated in the valley, it had emerged as a settlement before AD 700. It was a native state capital at the time when British ruled India. Fourteen metropolitan cities are distributed in The Great Plains of North India, 16 are located on the Eastern and Western coasts of the country and 21 dot the peninsular plateau.

It is evident that towns have structured the Indian spatial landscape since historic times. However, the growth of metropolises can easily be configured into distinct phases during the 20th century and oughties: the period before 1951, post-Independence to initiation of economic liberalisation (1951-1991) and post-liberalisation (1991-2011) period.

Kolkata was the only metropolitan city at the beginning of twentieth century. Mumbai was added to this category in 1911. The number of such cities remained constant at two till 1941. Delhi, Chennai and Hyderabad joined the rank of million cities increasing the tally to five in 1951. From 18.8 per cent of urban population living in metropolitan cities in 1951 the percentage has grown to 42.3 in 2011. Thus, there has been significant increase in the concentration of urban population in metropolitan cities in the last decades from a little more than one-fourth in 1970s and 1980s to nearly one-third in 1990s and approaching two-fifth in oughties. Greater Mumbai UA (18.4 million), Delhi UA (16.3 million) and Kolkata UA (14.1 million) are the largest urban agglomerations in the country. Within the metropolitan cities, eight cities having population more than 5 million namely Greater Mumbai, Delhi, Kolkata, Chennai, Bangalore, Hyderabad, Ahmadabad and Pune contain 22.6 per cent of the country's total urban population. Concentration of urban population in metropolitan (or metro) cities – cities having population of a million or more – is even greater. There was only one city with over a million people in 1901, claiming just 6 per cent of the urban population. The number rose to 2 in 1911 and remained so until 1941, although their percentage share in urban

population went up from 10.7 to 12.0. In 1981, the share became 26.4 which increased further to 32.5 in 1991 and 42.3 in 2011 (Table 6). This further corroborates the thesis of top-heavy urban development. The average population per million city has, however stabilized since 1980s after reaching a maximum population of 3.5 million per metropolis in 1981 as several new metropolises have entered the million league after 1981 as compared to earlier decades.

In India the eighties experienced substantive liberalization of domestic economic policy and partial globalization while the nineties witnessed complete liberalization domestically and gradual integration of the national economy with the global economy. Hence the pattern of growth trends of metropolitan cities is examined for 1981-2011. Overall, there is decline in growth rate of metropolitan cities particularly in the post-liberalisation period. 19 cities, however, have shown an increased growth rate during this period, primarily due to reclassification of their jurisdictional boundaries or addition of new towns

or outgrowths (Table 6). These include cities in Kerala (Kannur, Kollam, Kozhikode, Malappuram, Thrissur, Thiruvananthapuram), Andhra Pradesh (Hyderabad, Vijayawada, Visakhapatnam), Madhya Pradesh (Indore, Gwalior), Tamil Nadu (Coimbatore, Madurai), Uttar Pradesh (Ghaziabad, Varanasi), Chhattisgarh (Raipur), Gujarat (Ahmadabad), Maharashtra (Vasai - Virar) and Karnataka (Bangalore). Majority of these cities are located in South India.

At the time of Independence Indian urban landscape was characterised by selective development of a few port cities and their hinterlands. After Independence, urbanisation had entered a new and important phase in India. In contrast with the British Period that witnessed a period of urban stagnation, the post-Independence period is notable for rapid urbanisation, characterised by uneven distribution with few larger metropolitan and mega cities growing at a faster rate and containing disproportionate large share of urban population (Ramachandran, 2007).

**Table - 6: Growth of Cities with Million plus Population: 1901-2011**

Census Years	Number	Population (in millions)	Decadal increase (percent)	Population of Million+ UAs/Cities as % of India's total Population	Population of Million+ UAs/Cities as % of India's Urban Population
1901	1	1.5	-	0.6 (1.5)	5.8
1911	2	2.8	82.8	1.1 (1.4)	10.7
1921	2	3.1	13.4	1.3 (1.6)	11.1
1931	2	3.4	8.9	1.2 (1.7)	10.2
1941	2	5.3	5.7	1.7 (2.7)	12.0
1951	5	11.8	21.3	3.3 (2.4)	18.8
1961	7	18.1	54.0	4.1 (2.6)	22.9
1971	9	27.8	53.8	5.1 (3.1)	25.5
1981	12	42.1	51.3	6.2 (3.5)	26.4
1991	23	70.7	67.8	8.4 (3.1)	32.5
2001	35	107.8	52.8	10.5 (3.1)	37.9
2011	52	159.6	48.9	13.2 (3.1)	42.3

Source: 1. Census of India, 1991. Part-II A (ii) – Towns and Urban Agglomerations classified by population in 1991 with variation since 1901.

2. Census of India, 2011: Provisional Population Totals, New Delhi.

3. Figs. in parentheses indicate Population per Metropolitan city (in millions).

**Table - 7: Compound Annual Growth Rate of Metropolitan Cities\* in India**

UAs/M.Corp.	State/Union Territories	1981-91	1991-2001	2001-11
Greater Mumbai UA	Maharashtra	2.9	2.7	1.1
Kolkata UA	West Bengal	1.8	1.8	0.6
Delhi UA	NCT of Delhi	3.9	4.3	2.4
Hyderabad UA	Andhra Pradesh	5.2	2.8	2.9
Bangalore UA	Karnataka	3.5	3.3	4.1
Chennai UA	Tamil Nadu	1.6	5.5	2.8
Ahmadabad UA	Gujarat	2.6	3.2	3.5
Pune UA	Maharashtra	3.8	4.2	3.0
Kanpur UA	Uttar Pradesh	2.2	3.0	0.7
Lucknow UA	Uttar Pradesh	5.2	3.0	2.6
Nagpur UA	Maharashtra	3.2	2.5	1.6
Jairpur (M Corp.)	Rajasthan	4.1	4.3	2.7
Surat UA	Gujarat		6.4	5.0
Kochi UA	Kerala		1.7	4.6
Vadodara UA	Gujarat		2.8	2.0
Indore UA	Madhya Pradesh		3.2	3.6
Coimbatore UA	Tamil Nadu		2.9	3.9
Patna UA	Bihar		4.4	1.9
Madurai UA	Tamil Nadu		1.0	2.0
Bhopal UA	Madhya Pradesh		3.2	2.6
Visakhapatnam UA	Andhra Pradesh		2.4	2.5
Ludhiana (M Corp.)	Punjab		3.0	1.5
Varanasi UA	Uttar Pradesh		1.6	1.8
Agra UA	Uttar Pradesh			2.8
Meerut UA	Uttar Pradesh			2.0
Nashik UA	Maharashtra			3.1
Jamshedpur UA	Jharkhand			1.9
Jabalpur UA	Madhya Pradesh			1.5
Asansol UA	West Bengal			1.5
Dhanbad UA	Jharkhand			1.2
Faridabad (M Corp.)	Haryana			3.0
Allahabad UA	Uttar Pradesh			1.5
Vijayawada UA	Andhra Pradesh			3.6
Amritsar UA	Punjab			1.7
Rajkot UA	Gujarat			3.3
Ghaziabad UA	Uttar Pradesh			
Kozhikode UA	Kerala			
Thrissur UA	Kerala			
Malapuram UA	Kerala			
Thiruvananthapuram UA	Kerala			
Kannur UA	Kerala			
Srinagar UA	Jammu & Kashmir			
Vasai Virar City (M Corp.)	Maharashtra			
Aurangabad UA	Maharashtra			
Jodhpur UA	Rajasthan			
Ranchi UA	Jharkhand			
Raipur UA	Chhattisgarh			
Kollam UA	Kerala			
Gwalior UA	Madhya Pradesh			
Durg-Bhilainagar UA	Chhattisgarh			
Tiruchirappalli UA	Tamil Nadu			
Kota (M Corp.)	Rajasthan			
<b>All Metropolises</b>		<b>3.0</b>	<b>3.2</b>	<b>2.3</b>

\*The number of metropolises is as per Census of India, 2011.

\*\*UAs and M.Corp. refers to Urban Agglomerations and Municipal Corporation, respectively.

Source: Same as in Table 2 and Paper-2, Rural-Urban Distribution, 1981, 1991, and Census 2001

As already mentioned, cities with million plus population are distributed in 16 states and one union territory in India. In states, all the capitals have attained the status of metropolitan cities excluding Gandhinagar which is the capital of Gujarat. These continue to grow fast in comparison to other cities because these are the hub of administrative and economic activities and have attracted investment in social and welfare activities. In addition, these are the sphere of governmental activities. Other metropolitan cities are the commercial centres of the regions in which they are located and growing fast from their hinterland. Large cities like Mumbai, Kolkata and Delhi, are extremely congested especially in their central place. They are not likely to maintain the phenomenal growth rate experienced earlier. Their growth rate is slow and these are expanding in the peripheral zone. Kolkata UA which held the second rank in population size in Census 2001 has been replaced by Delhi UA. The growth in population in these mega cities has slowed down considerably during the last decade. The compound annual growth rate in Greater Mumbai UA has declined from 2.7 per cent during 1991-2001 to 1.1 per cent during 2001-2011. Likewise the decline in Delhi UA is from 4.3 per cent to 2.4 per cent and Kolkata UA from 1.8 per cent to 0.6 per cent during the corresponding period (Table 7). The process of growth in suburbs or satellite towns for example Ghaziabad (9.4 per cent), Faridabad (3.0 per cent), Noida and Gurgaon is much faster than Delhi. Importantly, the demographic decline in these does not reflect economic decline. These are economically the flagship cities where cost of living is very high and hence in that sense elitist in nature. The critical size is 2.80 million beyond which the growth rate of metropolitan cities seems to decline. Metropolitan cities in Kerala, like Malapuram, Thrissur, Kannur, and Kollam have shown abnormal increase in the population registering compound annual growth rate of more than 10 percent during 2001-2011. Vasai-Virar city near Mumbai in Maharashtra also falls in this line. This is more due to the twin process of change in the territorial boundaries of these urban

agglomerations through incorporation of the surrounding rural settlements and merging of the towns into them. Similarly, other cities that have recently acquired the status of million cities have registered a higher growth rate due to merging of outgrowths into these towns.

## Conclusions

Indian urbanisation, with a history spanning over nearly five millennia has entered the neo-liberal phase with the immediate background of exploitative colonial background. At a comparatively low level of urbanisation (31.2 per cent), its metropolises contain more than 2/5th of the urban population. The increase in the number of mega cities, each with a population of 10 million or more from zero in 1950 to three by the turn of the century have been cited as evidence of unprecedented urban growth in the country. Greater accretion of population in large cities leading to their higher increase in number is a post-liberalisation phenomenon not witnessed earlier. In comparison to fast urbanising China, urbanised United States and the world average, the share of mega cities in the total urban population in India is fairly high. Although in relation to the overall population, the share of megacities is less in comparison to the world. This vast urban expansion has regional, national and global implications.

India is in a major phase of urbanisation, increasing faster than expected. Census 2011 has reported higher urban growth rate than rural. For the first time since independence, the absolute increase in the urban population is also slightly higher than the rural population. The number of million cities in the country since 1951 has increased ten folds from 5 in 1951 to 52 in 2011. The 'inner cities' have developed very fast along with the port cities. With a large number of cities acquiring the status of metropolises, the hegemony of port cities is being gradually weakened and regional centres of great potential are emerging inland. The traditional colonial set up of Indian urbanisation is being lessened.

The metropolises are no longer confined to the coastal areas. They have fast developed in interior land. Ranging in population size ratio of 1:18 Kota and Greater Mumbai respectively, metropolitan cities are found dotting the country's landscape except the north-east, which is conspicuous by their absence. Largely the towns that have enjoyed some initial advantage since historic times have grown into metropolitan cities.

The vast region of metropolitan cities is seen around Delhi (Ghaziabad, Faridabad, Meerut and Agra,), Greater Mumbai (Vasai-Vivar, Nashik and Pune) and in coastal Kerala (Kochi, Thiruvananthapuram, Malapuram, Thrissur, Kannur, Kollam, and Kozhikode). Larger cities particularly within developed states are generally more efficient in generating growth and attracting investments, thus attracting more population. Coastal areas accommodate 16 metropolitan cities, 21 cities are situated in the peninsular plateau and 14 million cities are positioned in the Great Indian Plains. North Himalayas have only Srinagar as metropolis. An individual metropolitan city's strong linkage with the regional and global economy seems to be the determining factor of its growth/ spurt in population.

The fastest growth rate is recorded in the ones that have recently joined the million cities club in 2011 census. Metropolisation is both an economic and administrative process. The growth and spread of metropolitan cities is administrative eminence, construction of efficient transport routes and re-classification. 13 of the 28 states have metropolitan cities as their capital in addition to the NCT of Delhi. Many states and union territories do not have the threshold population for a metropolis. However, the demographic decline of the mega cities or some metropolises does not mean their economic decline.

Managing millions of new people a year moving to India's cities requires major planning and intense government focus at national, state and city level. Clearly, there is no simple solution. Because India is a diverse and varied country with a rich and diverse culture, the approach to managing city growth must also be diverse. The cases may range from new satellite cities, to new urban hubs in existing cities, to renewing slum areas, to environmental and transport solutions for cities etc.

## References

- Bala, Raj (1986):** *Trends in Urbanisation in India*, Jaipur: Rawat Publication.
- Bhagat, R. B. (2011):** "Emerging Pattern of Urbanisation in India." *Economic & Political Weekly*, 46 (34), pp. 10-12.
- Bhagat, R. B. (2011a):** "Migrants' (Denied) Right to the City", in *Urban Policies and the Right to the City in India: Rights, Responsibilities and Citizenship*, edited by Zerah, Marie-Helene, Dupont, Veronique, Tawa Lama-Rewal, Stephanie (scientific editors) and Faetanini, Marina (publication editor), 48-57. New Delhi: UNESCO and Centre de Sciences Humaines.
- Census of India (2011):** *Primary Census Abstract, UA/Towns*, Office of the Registrar General & Census Commissioner, India, New Delhi (compact disk form).
- Census of India (2006):** "Population Projections for India and States 2001-2026," Report of the Technical Group on Population Projections. Registrar General & Census Commissioner, India.
- Denis, Eric., Partha Mukhopadhyay and Marie-Hélène Zerah (2012):** "Subaltern Urbanisation in India," *Economic & Political Weekly*, 47(30), pp.52-62.
- Fairgrieve, James (1917):** *Geography and the World Power*, New York: E.P.Dutton.



- Guha, Ranajit (1982):** "On Some Aspects of the Historiography of Colonial India." *Subaltern Studies I: Writings on South Asian History and Society*, Delhi: Oxford University Press, pp. 37-44.
- Krishan, Gopal (2012):** "India: Demographic Variables as Indicators of Social, Economic and Political Reality," New Map Series: 2, *Population Geography*, 34 (1&2), pp. 67-74.
- Krishan, Gopal and Nina Singh (1993):** "The Political Economy of India Urbanisation", in *Urbanisation: Trends, Perspectives and Challenges*, edited by Jaymala Diddee and Vimla Rangaswamy, Jaipur: Rawat Publication, pp. 111-29.
- Kundu, Amitabh (2011):** "Trends and Processes of Urbanisation in India," *Urbanisation and Emerging Population Issues – 6*, pp. 1-60, London: Human Settlements Group International, Institute for Environment and Development (IIED) and United Nations Population Fund (UNFPA) viewed on 12 July 2012. <http://pubs.iied.org/pdfs/10597IIED.pdf>
- Kundu, Amitabh (2009):** "Exclusionary Urbanisation in Asia: A Macro Overview," *Economic and Political Weekly*, (28), November, 44(48), pp. 48-58.
- Kaplan, Robert D. (2012):** *The Revenge of Geography*, New York: Random House.
- McKinsey Global Institute (2010):** *India's Urban Awakening: Building Inclusive Cities, Sustaining Economic Growth*, April, [http://www.mckinsey.com/insights/urbanization/urban\\_awakening\\_in\\_ind](http://www.mckinsey.com/insights/urbanization/urban_awakening_in_ind)
- Mohan, Rakesh and Shubhagato Dasgupta (2005):** "The 21st Century: Asia becomes Urban", *Economic and Political Weekly*, 40(3), pp. 213-223. <http://www.rakeshmohan.com/docs/EPWJan15%202005.pdf>
- Nijman, Jan (2012):** "India's Urban Challenge", *Eurasian Geography and Economics*, 53 (1), pp. 7-20.
- Thapar, Romilla (2003):** *The Penguin History of Early India: From the Origins to AD 1300*, New Delhi: Penguin Books.
- Pradhan, Kanhu Charan (2013):** "Unacknowledged Urbanisation New Census Towns of India", *Economic & Political Weekly*, 48 (36), pp.43-51.
- Pradhan, Kanhu Charan (2012):** *The New Census Towns of India*, Mimeo, New Delhi: Centre for Policy Research.
- Ramachandran, R. (2007):** *Urbanisation and Urban System in India*, New Delhi: Oxford Press.
- Sivaramakrishnan, K. C., Amitabh Kundu and B.N. Singh (2005):** *Handbook of Urbanisation in India: An Analysis of Trends and Processes*, New Delhi: Oxford University Press.
- United Nations Population Fund (UNFPA) (2007):** *State of World Population 2007: Unleashing the Potential of Urban Growth*, New York: USA. . <http://www.unfpa.org/public/>.
- United Nations (2012):** *World Urbanization Prospects : The 2011 Revision*, Department of Economic and Social Affairs / Population Division. [http://esa.un.org/wpp/ppt/CSIS/WUP\\_2011\\_CSIS\\_4.pdf](http://esa.un.org/wpp/ppt/CSIS/WUP_2011_CSIS_4.pdf)
- United Nations (2014):** *World Urbanization Prospects: The 2014 Revision*, Highlights (ST/ESA/SER.A/352) Department of Economic and Social Affairs, New York. <http://esa.un.org/unpd/wup/Highlights/WUP2014-Highlights.pdf>

## PROFILE OF LITERACY DISPARITIES IN RAJASTHAN : 2011

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### Abstract

Based on the Census of India data for 2001 and 2011 an effort has been made to understand the district wise scenario of literacy rate, gender gaps in literacy as well as state of change in its rates during 2001-2011. The study reveals that there is a strong correlation between areas with relatively low gender disparity (per cent difference between male and female literacy) and those with relatively high female literacy. The study reflects that areas with relatively low gender disparities have relatively high levels of female literacy rate. This establishes the negative correlation between gender gaps in general literacy and female literacy. The districts located along the relatively developed states recorded relatively high literacy rates and relatively low literacy differentials. In comparison the results are inverse in the districts adjoining the relatively less developed states and along the international border.

### Introduction

Illiteracy and gender gaps in literacy create many hurdles in the path of social uplift. In terms of socio-economic development, Rajasthan is one of the poorer states of the country. Literacy is the key input for social transformation and development (Joshi, 2000). It broadens the whole range of human activities and enables people in getting information from various sources like newspapers. It generates awareness about one's rights, strengthens an individual's resolve to resist harassment, enhances political, social and cultural awareness and helps in achieving good health and ensures protection from disease (Probe Team, 1999).

Tremendous transitions took place during the last-decade of the 20th century. Largely unacknowledged discriminations based on gender have been accepted as national issues. For instance falling sex ratio raised alarms among the academicians and social researchers. Similarly gender differentials in other qualitative aspects of human life have also been seriously observed. Literacy being one of the most important attributes

attracts the attention of the researchers. Women's education and equality are positively correlated. Women's empowerment is not possible without education. Mode of education can vary, it may be formal or informal. It is a pre-requisite for qualitative change and without change in this qualitative aspect, none of the desired social objectives can take root.

Like many other indicators of social development, regional variations in literacy in India have been observed. In north Indian states these contrasts are quite sharp as compared to those in the southern states (Dreze, 2003). These regional differences do not exist only at state level but have been noted up to the smallest administrative unit i.e. the village. Similarly India has a long history of educational disparities being exploited to consolidate social inequalities based on caste, class and gender. To some extent, this pattern continues to obtain even today. Privileged social groups have much better educational opportunities and this further consolidates their privileges. Further, the link between educational

disparities and social inequalities is gaining strength day by day, as literacy and education become more important tools of self defence (Probe Team, 1999). Moreover literacy and the level of educational attainment are regarded as the key variables affecting fertility, mortality and migration. Literacy has emerged as the key to both development and population control (Singh and Dwivedi, 2011).

Based on definition of literacy by the Census of India in 2011 net literacy rates have become 74 percent for persons, 82 percent for males and 65.5 percent for females. Corresponding figures for the same in Rajasthan are 67.06 percent, 80.51 percent and 52.66 percent respectively. It is seven percent less than the national average. Among all the states and union territories of India, Rajasthan is ranked 33rd. Among all the twenty big states it is on the 18th place followed by Jammu & Kashmir (58.74 percent) and Bihar (63.82 percent).

According to the Census of India 2011 one of the interesting features is that out of total literates added during the decade, females out number males whereas the trend was reverse during 1991-2001. During 2001-2011 the increase in the number of literates among males is 31.98 percent whereas the corresponding increase in case of females is of 49.10 percent. The above change is a clear indication of the fact that the gender gap in literacy is shrinking in the country. This trend of

rising female literacy will have far reaching consequences on the development of society. Table 1 shows the sex wise percent change in crude literacy after Independence.

### Patterns of General Literacy

The patterns of general literacy in the state of Rajasthan reveal that out of the total thirty three districts in the state nine districts emerged with more than seventy percent literacy in 2011 (Table 2). Out of these nine districts two recorded more than seventy five per cent literacy i.e. Kota (77.48 percent) and Jaipur (76.44 percent). An additional seven districts, namely, Jhunjhunun (74.72 percent), Sikar (72.92 percent) Alwar (71.68 percent), Bharatpur (71.16 percent) Ajmer (70.46 percent), Ganganagar (70.25 percent) and Dholpur (70.14 percent) had between seventy to seventy five per cent literacy. Out of the nine districts seven are located in the central eastern parts whereas the rest of the two districts (Kota and Ganganagar) are located in south-east and north west of the state respectively. The main factors associated with high literacy in these districts are physical, agro-industrial development, interaction with the developed areas of neighbouring states, relatively more infrastructural development, impact of National Capital Region and urbanisation. Physical impact can be explained in terms of plain surface which helps in development of

**Table-1 : India : Sex wise per cent change in Crude Literacy after Independence**

Year	Male	Female
1951	0.05	0.63
1961	9.49	5.02
1971	5.01	5.74
1981	7.44	6.13
1991	5.85	7.35
2001	10.5	12.98
2011	7.98	11.84

*Note : Figures for 1981 for Assam and for 1991 for Jammu and Kashmir are not included due to disturbed conditions.*

**Table-2 : Rajasthan : Percentage of Literates (2011)**

State/District	Person	Male	Female
<b>Rajasthan</b>	<b>67.06</b>	<b>80.51</b>	<b>52.66</b>
Ganganagar	70.25	79.33	60.07
Hanumangarh	68.37	78.82	56.91
Bikaner	65.92	76.90	53.77
Churu	67.46	79.95	54.25
Jhunjhunun	74.72	87.88	61.15
Alwar	71.68	85.08	56.78
Bharatpur	71.16	85.70	54.63
Dhaulpur	70.14	82.53	55.45
Karauli	67.34	82.96	49.18
Sawai Madhopur	66.19	82.72	47.80
Dausa	69.17	84.54	52.33
Jaipur	76.44	87.27	64.63
Sikar	72.98	86.66	58.76
Nagaur	64.08	78.90	48.63
Jodhpur	67.09	80.46	52.57
Jaisalmer	58.04	73.09	40.23
Barmer	57.49	72.32	41.03
Jalor	55.58	71.83	38.73
Sirohi	56.02	71.09	40.12
Pali	63.23	78.16	48.35
Ajmer	70.46	83.73	56.42
Tonk	62.46	78.27	46.01
Bundi	62.31	76.52	47.00
Bhilwara	62.71	77.16	47.93
Rajsamand	63.93	79.52	48.44
Dungarpur	60.78	74.66	46.98
Banswara	57.20	70.80	43.47
Chittaurgarh	62.51	77.74	46.98
Kota	77.48	87.63	66.32
Baran	67.38	81.23	52.48
Jhalawar	62.13	76.47	47.06
Udaipur	62.74	75.91	49.10
Pratapgarh	56.30	70.13	42.40

Source : Census of India 2011, Provisional Population Totals, Paper 2, Vol. 1, Rajasthan Series 9

transportation. An additional physical factor that may be mentioned here is that these enjoy relatively human friendly climatic conditions as compared to the areas with extreme type of hot climatic conditions in the western parts of the state. Interaction with relatively more advanced adjoining areas of other states i.e. Delhi, Haryana and Uttar Pradesh has played a very significant role in the enhancement of level of general awareness among the masses. It has awakened the people to understand the significance of literacy and education. It has been observed that levels of urbanisation and literacy are positively correlated, for instance almost all the districts with high literacy rates have relatively high levels of urbanisation. Jaipur being the state capital and Ganganagar, Kota, Jhunjhunun, Alwar, Bhartpur and Dholpur with industrial and agro-industrial centres have relatively high levels of urbanisation. Ajmer is the educational capital and religious centre with a cosmopolitan character.

Eighteen districts have been classified as areas with moderate literacy rate having values between sixty to seventy percent. Almost all these districts are located in the central and south-eastern parts of the state with two exceptions i.e. Ajmer and Kota which have above seventy per cent literacy. Out of these eighteen districts eight display more than sixty five percent literacy. Dausa topped the list in terms of literacy rate with 69.17 percent, closely followed by Hanumangarh (68.37 percent), Churu (67.46 percent), Baran (67.38 percent), Karauli (67.34 percent), Jodhpur (67.09 percent), Swai Madhopur (66.18 percent) and Bikaner (65.92 percent). In the central districts, literacy rate shows a decreasing trend from north to south. In the south-eastern districts trends are more or less similar in this regard.

Four districts along the international border with Pakistan and two southern most districts display general literacy rate of less than sixty percent and are classified as areas with low literacy. Newly formed Pratapgarh district had the lowest literacy rate (56.3 percent) whereas Jaisalmer recorded the highest value (58.04 percent) among these districts followed by Barmer

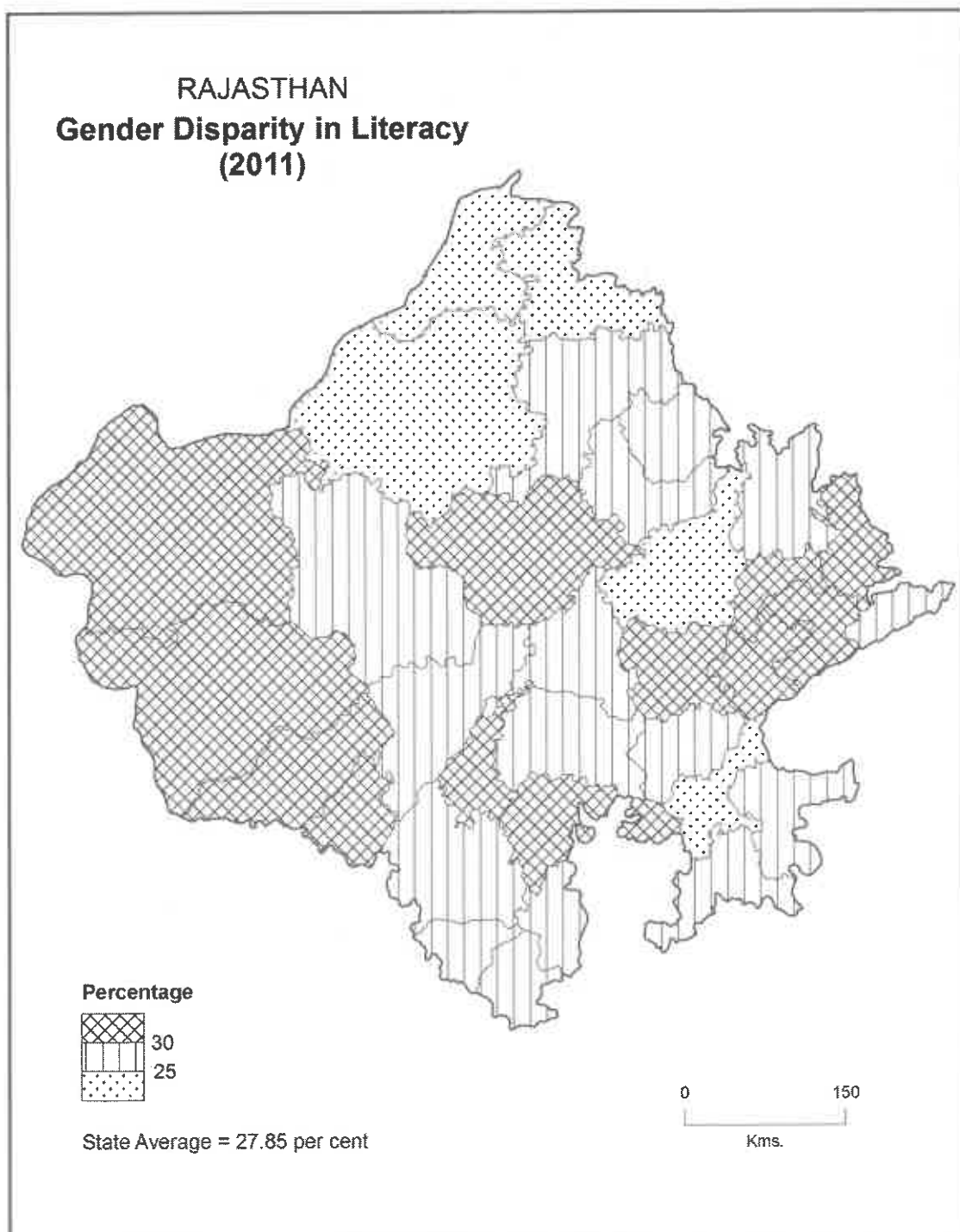
(57.49 percent), Banswara (57.02 percent), Sirohi (56.02 percent) and Jalore (55.58 percent). The major factor affecting literacy rate in these districts is physical i.e. relatively human unfriendly relief and climatic conditions which effect accessibility and economic conditions which in turn influence the overall infrastructural development, specially educational, which is relatively low. Historically, the incidence of pastoral nomadism in the Marwar region of Rajasthan (Robbins, 1998) has also played a negative role in the enhancement of literacy.

### Patterns of Male Literacy

An interesting fact can be noted in the case of total literacy levels at the national level and male literacy levels at the state level. Average male literacy for the state was 80.51 per cent which is only 1.63 per cent less than the national average. This fact indicates the relatively poor condition of the third component of literacy i.e. females literacy, which is more than six times less than that of the national average i.e. 12.80 per cent. Thirteen districts from the entire state display high male literacy i.e. more than 80 per cent. Out of these thirteen districts, six recorded more than 85 percent male literacy. The top position is occupied by Jhunjhunun district (87.88 per cent), closely followed by Kota (87.63 per cent), Jaipur (87.27 per cent), Sikar (86.66 per cent) and Bharatpur (85.7 per cent). The rest of the districts emerged with moderate male literacy i.e. between 75 to 80 per cent. Relatively low literacy rates (less than 75 per cent) were recorded for males in seven district namely Dungarpur, Jaisalmer, Barmer, Jalore, Sirohi, Banswara and Pratapgarh. These districts form a relatively low male literacy belt along the international border with Pakistan and the interstate border with Gujarat and Madhya Pradesh with only one exception, namely Udaipur.

### Patterns of Female Literacy

Female literacy recorded a rather low percentage (52.66 per cent) as compared to male literacy (80.51 per cent). Only four districts



Map 1

registered a high literacy value of more than sixty per cent. Among these four districts Kota (66.32 per cent) topped the list followed by Jaipur, Jhunjhunun and Ganganagar. An additional eleven districts emerged with moderate values varying between 50 to 60 percent. Among these, a group of nine districts is located as a region in the north and north-east parts only with two exceptions namely Ganganagar and Jhunjhunun.

Eighteen districts recorded a low female literacy rate of less than fifty per cent. About fifty percent area of the entire state displays relatively low female literacy rate which is lower than the state average. Almost all the districts along the Indo-Pak border and interstate borders with Gujarat and Madhya Pradesh display low literacy rates. It is significant to mention here that one of the factors responsible for low literacy rates, especially female literacy, along the international border is poor infrastructure and educational facilities. Another serious obstacle in the expansion of female literacy and education is early marriage which results in girls to be taken away from school before they have completed even their primary education. Other factors are *pardah* system and a low rate of female participation in outdoor activities which decreases the spread of education among females (Gosal, 1967). No doubt in the present scenario many females work outdoors, especially as manual labourers, but they belong to very low income group. In spite of their desire for education they cannot spare time and energy. Moreover they are compelled by poverty to choose other options offering immediate monetary benefits. In such an environment motivation factor can be a panacea which can change the mindset of masses regarding long term benefits of female literacy. On the other hand the reasonably well off section of population is still struggling as it is caught in the traditional and conservative socio-cultural web, where people hardly accept frequent outdoor activities by females. Basically they correlate it with their social status. Girls with minimum outdoor activities are considered to have good moral character and higher cultural values.

### **Spatial Patterns of Gender Disparity in Literacy**

On the basis of gender disparity in literacy for 2011 the following three types of areas have been identified (Map 1):

- i. Areas with high gender disparity in literacy (more than 30 percent);
- ii. Areas with moderate gender disparity in literacy (between 25-30 percent);
- iii. Areas with low gender disparity in literacy (less than 25 percent).

#### **(i) Areas with High Gender Disparity in Literacy (more than 30 percent) :**

In the entire state twelve districts emerge with relatively higher gender disparity. Swai Madhopur district located on the interstate boundary with Madhya Pradesh displays the highest gender disparity (34.92 percent) in literacy followed by Karauli (33.78 percent), Jalor (33.7 percent) Jaisalmer (32.86 percent), Tonk (32.26 percent), Dausa (32.21 percent), Barmer (31.29 percent), Rajasamand (31.08 percent), Bharatpur (31.07 percent), Sirohi (30.97 percent), Chittaurgarh (30.76 percent), and Nagaur (30.27 percent) (Table 3). It has been observed that the districts with high literacy disparity are located along the Indo-Pak border and interstate borders with Gujarat, Madhya Pradesh and Uttar Pradesh or adjoin the districts having a border location (Map 1). Nagaur District with 30.27 percent disparity having a central location is the only exception to this pattern. Areas with relatively high concentration of tribal population (about 30 percent) also indicate relatively high gender disparity in literacy. For instance districts of Bhilwara, Bundi, Rajsamand, Chittaurgarh, Udaipur, Banswara, Pratargarh and Jalor recorded more than 25 percent gender disparity. Relatively low socio-economic development in these areas is associated with higher gender disparity in literacy (Singh and Patidar, 2012).

**(ii) Areas with Moderate Gender Disparity in Literacy (between 25 and 30 percent):** Almost fifty percent of the districts in the state recorded a

**Table-3 : Rajasthan : Percentage Gender Disparity in Literacy (2011)**

State/District	Total	Urban	Rural
Rajasthan	27.85	17.63	31.24
Ganganagar	19.26	14.41	21.05
Hanumangarh	21.91	15.3	23.54
Bikaner	23.13	16.27	26.91
Churu	25.7	22.66	26.93
Jhunjhunun	26.73	22.92	27.85
Alwar	28.3	16.94	30.77
Bharatpur	31.07	20.32	33.83
Dhaulpur	27.08	18.91	29.32
Karauli	33.78	24.81	35.45
Sawai Madhopur	34.92	23.26	37.97
Dausa	32.21	22.84	33.61
Jaipur	22.64	14.61	31.56
Sikar	27.9	22.12	29.69
Nagaur	30.27	23.53	31.86
Jodhpur	27.89	15.96	34.33
Jaisalmer	32.86	21.62	34.41
Barmer	31.29	22.83	31.95
Jalor	33.7	28.22	33.49
Sirohi	30.97	22.5	32.84
Pali	29.81	23.75	31.28
Ajmer	27.51	14.69	36.18
Tonk	32.26	18.49	36.49
Bundi	29.52	20.35	31.91
Bhilwara	29.23	17.8	32.04
Rajsamand	31.08	19.26	33.21
Dungarpur	27.68	14.71	28.53
Banswara	27.33	12.4	28.51
Chittaurgarh	30.76	17.16	33.71
Kota	21.31	15.78	29.56
Baran	28.75	20.49	30.97
Jhalawar	29.41	17.39	31.72
Udaipur	26.81	12.43	30.38
Pratapgarh	27.73	15.49	28.85

Source : Census of India 2011, Provisional Population Totals, Paper 2, Vol. 1, Rajasthan Series 9



moderate gender disparity in literacy. These comprise a long belt starting from Churu, Jhunjhunun and Alwar districts in the north-east located along the Haryana border and extending over the entire central districts up to Gujarat and Madhya Pradesh interstate boundary in the south. Only Nagaur district disrupts the continuity of this belt (Map 1). Among these districts the highest gender disparity has been observed in Pali district (29.81 per cent). Out of the total sixteen districts with moderate disparity in literacy six namely, Pali, Bundi, Jalor, Bhilwara, Baran and Alwar, displayed a disparity value of more than 28 per cent. The lower most position is occupied by Churu district with a value of 25.7 per cent. The rest of the nine districts of this category display gender disparity values between 27.9 to 26.73 per cent. If plotted on the literacy graph, Sikar, Jodhpur, Pratapgarh, Dungarpur, Ajmer Banswara, Dholpur, Udaipur, Jhunjhunun and Churu districts are placed in decreasing order.

**(iii) Areas with Low Gender Disparity in Literacy (less than 25 per cent):** Five districts out of the entire state displayed a low gender disparity in literacy i.e. less than 25 per cent. These districts comprise fifteen per cent of the total districts. Out of these, three districts namely Ganganagar, Hanumangarh and Bikaner in the north-west of Rajasthan constitute a region with relatively very low disparity values in male female literacy followed by the districts of Jaipur and Kota. Located adjacent to south-western Punjab, Ganganagar district recorded the lowest value (19.26 per cent) in this regard. Kota with the offices of the state Public Service Commission and Board of Secondary Education being located here is regarded as the education hub (Singh, et. al., 2011). Further, the local and grass-root level actions have also helped in creating a platform of opportunities for poor rural women towards sustainable livelihood and promoted female literacy and reduced the gender disparity in this regard. In Bikaner district of western Rajasthan "all women are members of different Self-Help Groups and doing regular savings from their

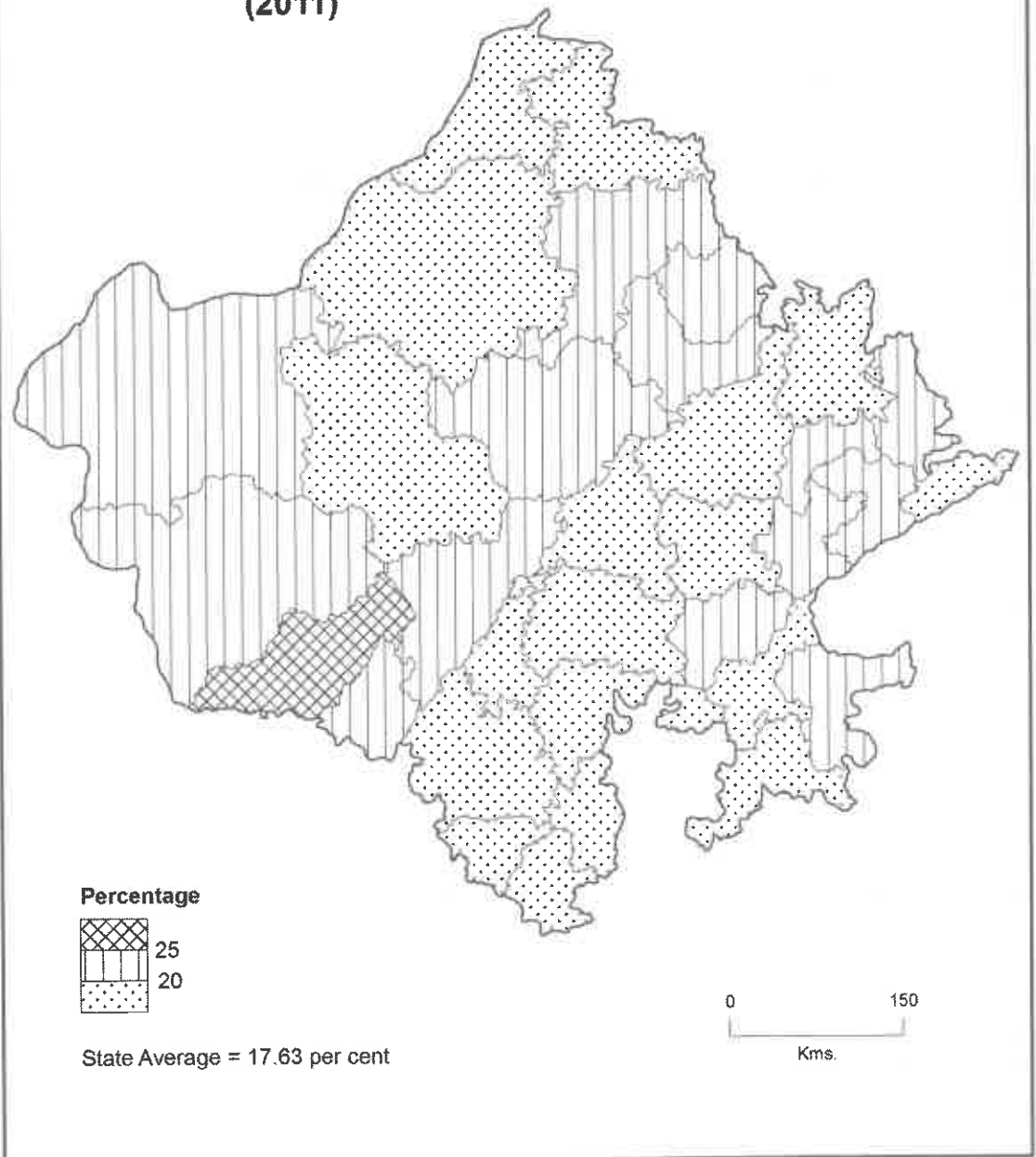
income for a better future. Their small children are getting benefits of 'Integrated Child Development Scheme' for health, nutrition and early childhood education. Their girls are now studying in the village schools with boys which was restricted earlier." (Ojha and Mishra, 2013).

### Spatial Patterns of Gender Disparity in Urban Literacy

In urban Rajasthan the picture is relatively encouraging with average gender disparity in literacy being 17.63 per cent which is less than the gender disparity in general literacy which is 27.85 per cent (Table 3). Only one district Jalor (28.22 percent) emerges with a high gender disparity in urban literacy (more than 25 per cent). A total of fourteen districts recorded a moderate gender disparity in urban literacy (between 20 per cent and 25 per cent). Out of these, six districts form a contiguous belt from north to south in the central part of the state flanked by two regions of low values (Map 2). In addition, two other districts, Jaisalmer and Barmer, having moderate values are located along the Indo-Pak border on the south west. Another region of moderate values comprising of the districts of Bharatpur, Dausa, Karauli, Swai Madhopur, Bundi and Baran is located in eastern Rajasthan. In this category Karauli district displays the highest value (24.81 percent) and Bharatpur recorded the lowest disparity (20.32 per cent). Relatively higher improvement in case of female literacy rate has resulted in a reduction in the gender gap in literacy rate in almost all these areas (Bhargava, 2002).

Eighteen districts of Rajasthan portray a low gender disparity in urban literacy (less than 20 per cent). Two clear cut regions have been identified in this regard. Ganganagar, Hanumangarh, Bikaner and Jodhpur districts located in north-western Rajasthan recorded less than twenty percent gender disparity in urban literacy. Another continuous long region running from north-east to south east of the state covers thirteen districts with low gender disparity in urban literacy. Five districts of this region recorded less

### RAJASTHAN Gender Disparity in Urban Literacy (2011)

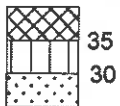


Map 2

# RAJASTHAN Gender Disparity in Rural Literacy (2011)



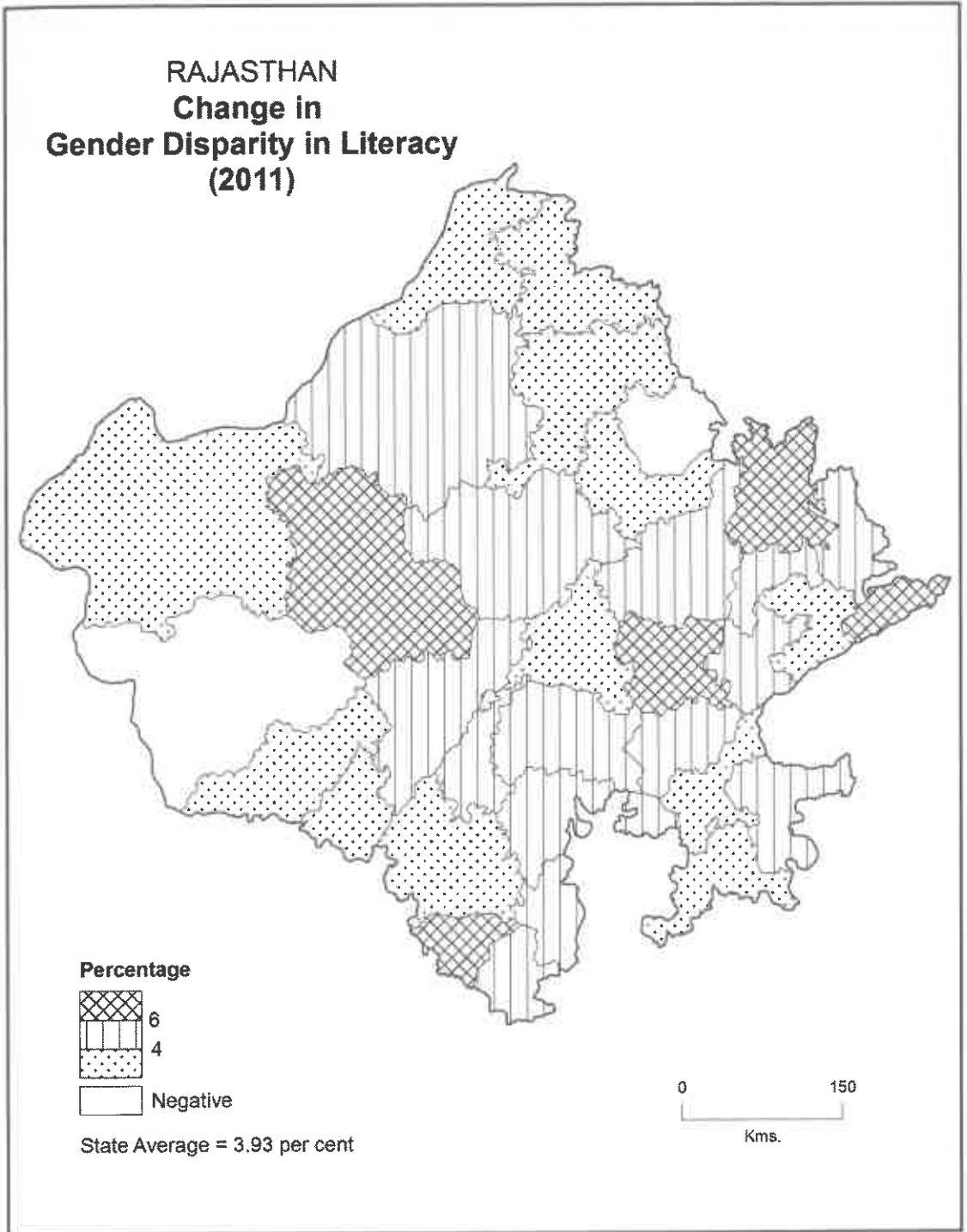
Percentage



State Average = 31.24 per cent



Map 3



Map 4

than fifteen percent gender disparity. The gap between male - female literacy is the lowest in the Banswara district (12.4 percent).

### **Spatial Patterns of Gender Disparity in Rural Literacy**

The gender gap in rural literacy in Rajasthan is relatively higher as compared to the disparity value for urban literacy with an average disparity of 31.24 percent (Table 3) which is 13.61 percent higher than that of the urbanites. Four districts namely Ajmer, Tonk, Sawai Madhopur and Karauli together comprise a long region running for about 300 kms in the east-west direction with high (more than 35 per cent) gender disparity in rural literacy (Map 3). Sawai Madhopur district located on the interstate border with Madhya Pradesh displays the highest (37.97 per cent) gap in this regard followed by Tonk (36.49 per cent), Ajmer (36.18 per cent) and Karauli (35.45 per cent) respectively.

More than fifty percent of the total districts in the state show moderate gender disparity (between 30 and 35 percent) in rural literacy. These districts form a large region stretching from east to west and south - east to south - west. Out of these eighteen districts with moderate gender disparity Jaisalmer district displays the highest gap (34.41 per cent) whereas the lowest (30.38 per cent) is recorded for Udaipur. Eleven districts of this category are located on the international border with Pakistan in the west and inter-state border with Gujarat, Madhya Pradesh, Uttar Pradesh and Haryana. Relatively higher disparity values in this category have been observed in the districts along the international border and their adjoining districts. Same is the case along the interstate borders with relatively less developed states.

Among the rural literates eleven districts of the state emerge as districts with low gender disparity (less than 30 per cent) in literacy. Sikar district emerges with the highest value (29.69 per cent) while Ganganagar recorded the lowest gap (21.05 per cent) within this category. Six districts in the northern part of the state with relatively low

gap in this regard form a triangle shaped large region. Rest of the five districts in this category are located in eastern Rajasthan (Dhaulpur and Kota) and southern most part of the state (Pratapgarh, Dungarpur and Banswara). All these districts share their boundaries with other states i.e. Gujarat, Madhya Pradesh and Uttar Pradesh.

### **Spatial Patterns of Change in Gender Disparity in General Literacy (2001-2011)**

Change in literacy disparity during 2001-2011 was 3.93 percent for the entire state (Table 4). Four types of areas of gender disparity in literacy have been identified i.e. areas with high change (more than 6 per cent), areas with moderate change (between 4 to 6 per cent), areas with low change (less than 4 per cent) and areas with negative change (Map 4).

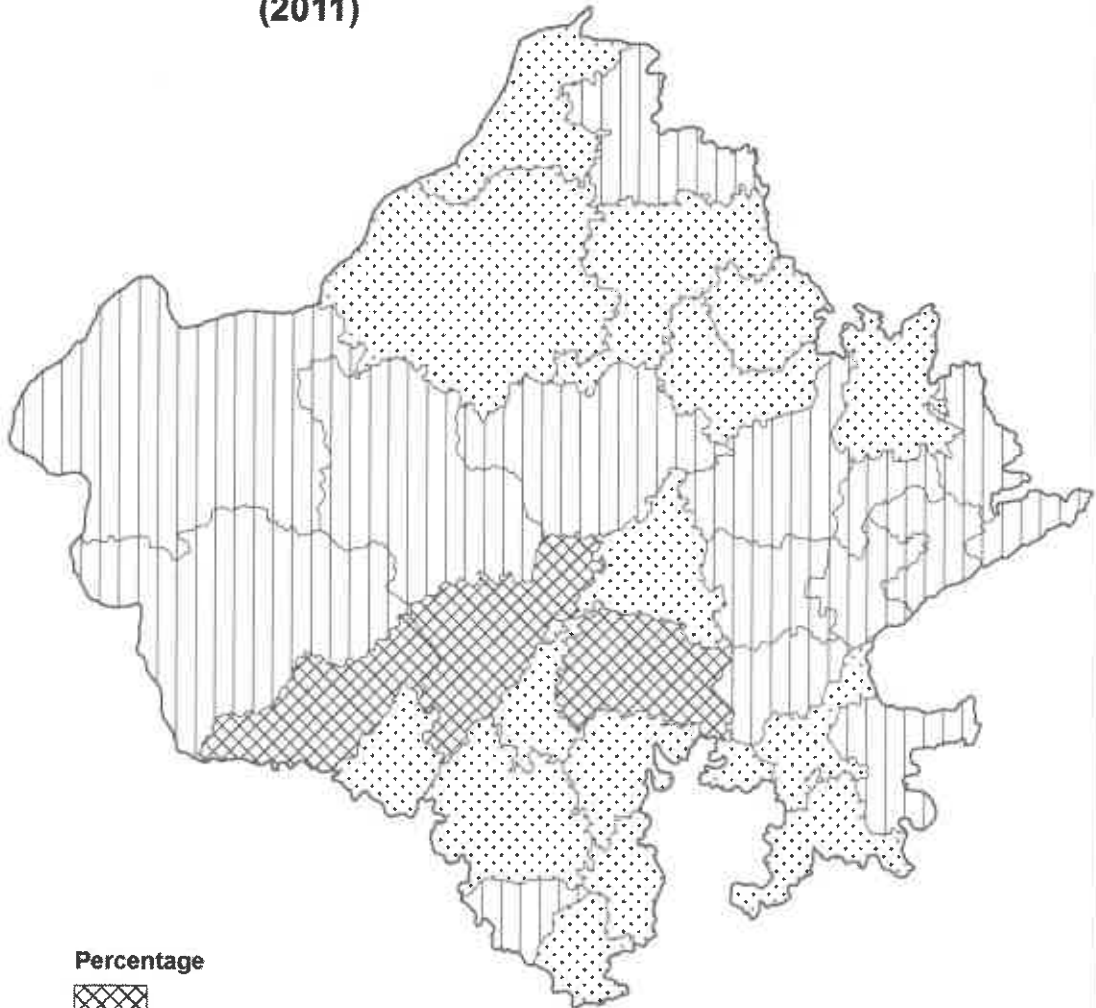
Out of a total of thirty three districts in the state five districts recorded a high change. These are Dungarpur (6.59 percent) Alwar (6.48 percent), Jodhpur (6.43 percent), Dhaulpur (6.17 percent) and Tonk (6.11 percent). It has been observed that not even a single district located along the international border registered a high change in literacy disparity during this decade whereas three districts namely, Dungarpur, Dhaulpur and Alwar, are located on the interstate border with Gujarat, Madhya Pradesh, Uttar Pradesh and Haryana respectively. The major factors associated with this pattern are good accessibility due to plain surface, transportation development, relatively good climatic conditions and prosperity due to agro- industrial development. Further, some parts of Alwar district fall in the National Capital Region and highest percentage of rural population and area are being served by education amenities (Joshi, 1991).

Fourteen districts of Rajasthan show moderate change in gender disparity in literacy during 2001 and 2011. Bharatpur and Jodhpur recorded the highest change (5.9 percent) among these districts whereas Nagaur displayed the lowest (4.07 percent) change. A long belt running

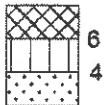
**Table – 4 : Rajasthan: Change in percentage of Gender Disparity in Literacy (2001-2011)**

State/District	Total	Urban	Rural
Rajasthan	3.93	4.15	3.59
Ganganagar	3.83	2.58	3.99
Hanumangarh	3.71	4.4	3.54
Bikaner	5.07	3.58	5.63
Churu	0.20	2.47	-0.75
Jhunjhunun	-0.15	3.30	-1.20
Alwar	6.48	3.29	6.40
Bharatpur	5.91	4.92	6.23
Dhaulpur	6.17	4.57	6.30
Karauli	1.33	4.15	0.74
Sawai Madhopur	5.65	4.77	5.64
Dausa	4.91	4.51	4.66
Jaipur	4.64	4.80	3.46
Sikar	0.33	3.73	-0.86
Nagaur	4.07	4.73	5.75
Jodhpur	6.43	5.06	6.85
Jaisalmer	1.35	4.77	1.04
Barmer	-1.98	5.87	-2.66
Jalor	3.24	6.41	3.46
Sirohi	1.77	2.74	1.07
Pali	5.91	6.09	5.64
Ajmer	2.98	2.62	3.07
Tonk	6.11	5.80	5.75
Bundi	4.37	4.57	4.13
Bhilwara	4.71	6.37	3.92
Rajsamand	5.29	2.73	5.05
Dungarpur	6.59	5.17	6.67
Banswara	4.95	2.52	5.19
Chittaurgarh	4.79	3.89	4.67
Kota	3.17	3.44	1.73
Baran	5.47	4.63	5.16
Jhalawar	3.88	3.92	3.54
Udaipur	3.36	2.79	3.08
Pratapgarh	4.77	2.90	4.99

### RAJASTHAN Change in Gender Disparity in Urban Literacy (2011)



Percentage

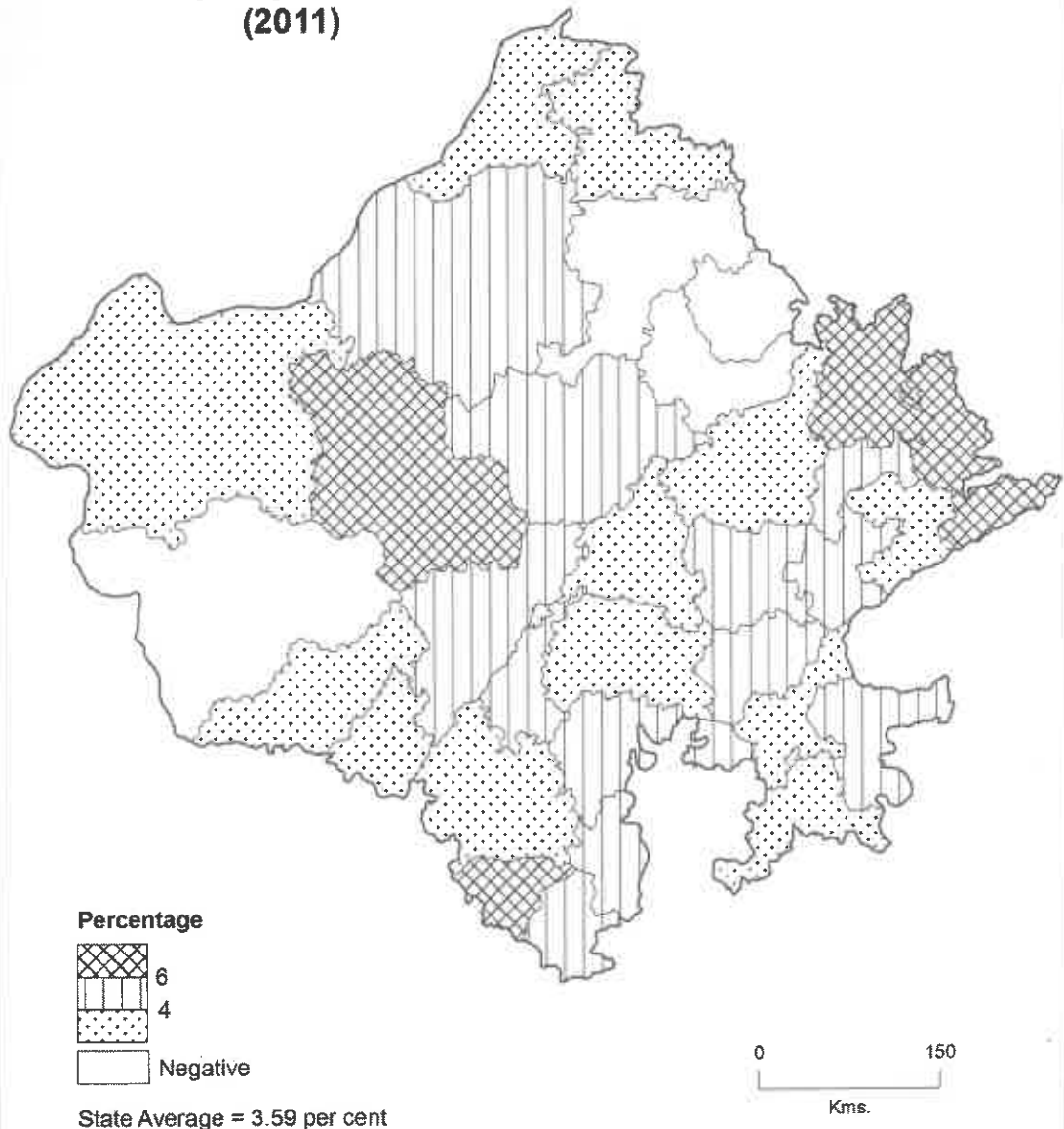


State Average = 4.15 per cent



Map 5

### RAJASTHAN Change in Gender Disparity in Rural Literacy (2011)



Map 6



from north-western Rajasthan to south eastern districts of the state, covering the districts of Bikaner, Nagaur, Pali, Bhilwara, Rajsamand, Chittaurgarh, Pratapgarh, Banswara and Baran falls in this category. In addition to it the eastern districts namely Bharatpur, Dausa, Jaipur and Sawai Madhopur also belong to the same category.

In twelve districts a low change in gender disparity in general literacy has been observed. i.e. less than four percent. Out of all these twelve districts Jalor emerges with the highest (3.88 percent) change whereas Churu district displays the lowest (0.2 percent) disparity during this decade. Most of these districts have an international or interstate border location. Only two districts, Barmer and Jhunjhunun record negative change in gender disparity in literacy i.e. -1.98 and -0.15 percent respectively

### **Spatial Patterns of Change in Gender Disparity in Urban Literacy (2001-2011)**

As far as the change in gender disparity in urban literacy in Rajasthan during 2001-2011 is concerned the gap between the overall and urban change is very meager. The average value for urban areas in this regard is 4.15 percent whereas it is 3.93 percent for general literacy. The districts of Jalor (6.41 percent) Bhilwara (6.37 percent) and Pali (6.09 percent) recorded a high change of more than six percent (Table 4).

A moderate change (between 4 to 6 percent) has been observed in urban male-female literacy for fifteen districts. Barmer and Karauli districts show the highest (5.87 percent) and lowest (4.15 percent) change in gender disparity in urban literacy during this period. Out of the fifteen districts only four (Barmer, Tonk, Dungarpur and Jodhpur) show a change of more than five percent. The districts in this category cover most of the south-western and eastern parts of the state with only two exceptions of Hanumangarh and Dungarpur on the extreme northern and southern ends of the state (Map 5)..

About 43 percent of the total districts, numbering fifteen, of the state display a low change in gender disparity in urban literacy. Out of these fifteen districts Jhalawar had the highest disparity value of 3.92 percent while the lowest value was recorded for Churu district (2.47 percent). Six districts in this category (Ganganagar, Bikaner, Churu, Jhunjhunun, Sikar and Alwar) are located in north and north east, whereas, nine districts (Sirohi, Udaipur, Chittaurgarh, Rajsamand, Ajmer, Pratapgarh, Banswara, Kota and Jhalawar) are located in the southern half of the state (Map 5).

### **Spatial Patterns of Change in Gender Disparity in Rural Literacy (2001-2011)**

In Rajasthan the change in gender disparity in rural literacy does not reflect any drastic change if rural areas are compared with urban areas in terms of average change in male - female disparity in literacy i.e. 3.59 and 4.15 percent respectively (Table 4). Despite the fact that the overall change in urban - rural differences is less than one percent, four districts (Churu, Jhunjhunun, Sikar and Barmer) display a negative change. It reflects relatively rapid growth in terms of literacy in these districts. Negative change has been relatively more for Barmer (-2.66 percent) followed by Jhunjhunun (-1.2 percent), Sikar (-0.86 percent) and Churu (-0.75 percent). A high change (more than six percent) has been recorded in five districts namely Jodhpur (6.85 percent), Dungarpur (6.67 percent) Alwar (6.40 percent), Dholpur (6.30 percent) and Bharatpur (6.23 percent). A moderate change (between 4 and 6 percent) have been observed in this regard in twelve districts. Out of which seven districts (Bikaner, Nagaur, Pali, Rajsamand, Chittaurgarh, Pratapgarh and Banswara) form a long belt starting right from the northern edge of Rajasthan to southern most tip of the state. In addition five districts (Dausa, Sawai Madhopur, Tonk, Bundi and Baran) located in south-east Rajasthan fall in the same category. Eleven districts of the state recorded a low (less than 4 percent) change in gender disparity in rural

literacy. Out of these, Jaisalmer district (1.04 per cent) lies along the Indo-Pak border and nine districts are located along the interstate boundaries with Gujarat, M.P. and Haryana. Ajmer (3.07 per cent) is the only district which is located in the central part of the state (Map 6).

### Conclusion

It has been observed that districts located along the interstate borders of relatively advanced states (Punjab and Haryana) record relatively high literacy rates and relatively low literacy disparities whereas results are inverse in the areas adjoining the relatively less developed states and along the international border. In this way, socio-economic development and literacy rates are positively correlated. Direct relationship has also been observed in the areas with the domination of tribal population and literacy disparity. A strong correlation has been observed between areas with relatively low gender disparity and those with relatively high female literacy. It suggests that greater efforts should be made to improve female

literacy as an effective means of attaining educational equality. In comparison with urban females, rural females are likely to have low literacy levels and relatively higher gender disparity in this regard. In this way literacy promotion schemes are required to be introduced more vigorously. Active participation of educationists, administrators, planners and decision makers can go a long way in mitigating the situation.

It is not an exaggeration that education is the one of the top most responsibilities of the state and the citizens. Basically universal literacy can be attained only with dedication for the teaching profession among the teachers, particularly at primary level followed by other stake holders such as parents and other responsible members of the society. In addition to it, sensitization regarding investment in education and its long term benefits among the masses are indispensable steps in this direction. Thus, attainment of the desired goal of parity in literacy levels is ultimately a social responsibility.

### References

- Bhargava, P.K. (2002):** "Changes in Gender Disparity in Literacy Rate during 1991-2001", *Seminar on Progress of Literacy in India: What the Census 2001 Reveals*, NIEPA, New Delhi. 7 Jan, 2010. <http://www.educationforallindia.com/> p. 174.
- Dreze, Jean. (2003):** "Patterns of Literacy and their Social Context" in Das, V. (ed.), *The Oxford India Companion to Sociology and Social Anthropology*, vol. 2, Oxford University press, New Delhi, p. 986.
- Gosal, G.S. (1967):** "Regional Aspects of Rural Literacy in India", *Transactions of the Indian Council of Geographers*, Vol. 4, p. 15.
- Joshi, Hemlata (2000):** "Changing Literacy levels in Rajasthan: A Geographical Analysis", *Geographical Review of India*, Vol. 62, No. 2, pp. 150-160.
- Joshi, Hemlata. (1991):** "Spatial Variations in Crude Literacy Development Index (RJ.)", *Transactions of the Institute of Indian Geographers*, Vol. 21, No. 1, pp. 36-39.
- Ojha, J.K. and Mishra, B. (2013):** "Building Capacity of Rural Women Artisans: Case Studies of Women Empowerment from Thar Desert of Western Rajasthan", *Journal of Rural Development*, Vol. 32, No. 3, p. 299.
- Probe Team (1999):** *Public Report on Basic Education in India*, Oxford University press, New Delhi, p. 4.

**Robbins, Paul (1998):** "Nomadization in Rajasthan, India: Migration, Institutions and Economy", *Human Ecology*, Vol. 26, No.1, pp. 87-108.

**Singh, A.K. and Dwivedi, A. (2011):** "Literacy Rate and Gender Gap in Chakia Block", *Journal of Landscape Systems and Ecological Studies*, Vol. 34, No. 2, pp. 1-3.

**Singh, M.B. et. al. (2011):** "Inter District variations in population characteristics in Rajasthan", *National Geographical Journal of India*, Vol. 57, Pt. 4, pp. 7-9.

**Singh, M.B. and Patidar, H. (2012):** "Socio-Economic and Demographic Correlates of Fertility: Evidence from Tribals of South-East Rajasthan", *National Geographical Journal of India*, Vol. 58, No. 2, pp. 1-12.

## POPULATION GROWTH, PATTERN OF EXPANSION AND DIRECTION OF URBAN DEVELOPMENT: A SPATIO-TEMPORAL STUDY OF KAITHAL CITY (HARYANA) USING GIS AND REMOTE SENSING

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Kurukshetra, India

### Abstract

Kaithal city is the administrative headquarters of Kaithal district in Haryana state in north-west India. The city consisted of 31 wards containing a population of 2, 10,524 persons covering a built up area of 2385.5 hectares in October, 2009. In comparison in 1971 its population was 45,199 persons and the extent of built up area was 337.88 hectares. This study aims to measure the urban expansion of Kaithal city over a period of four decades using GIS and Remote Sensing and compare the attributes of urban expansion with those of growth of population. Based on detailed datasets land use maps have been prepared to study the spatial behavior for direction of future growth and patterns of the city. A detailed dataset for built-up areal extent for the city has been derived from an assemblage of multi-temporal (1972, 1990 and 2001) Landsat TM satellite imageries of 30m resolution, Quickbird Imagery (2009), Proposed Land Use map prepared by City Town Planning Department, Survey of India Topographical Sheets, and ground survey data. The built-up area thus demarcated has been used for analysis for different time periods by using visual interpretation, ground verification, and onscreen digitization superimposed and overlay analysis in GIS environment. In order to study the spatio-temporal physical expansion and spatial growth direction, built-up area maps have been prepared for the years 1971, 1981, 1991, 2001 and 2009. Finally, all the maps for these respective years have been overlaid chronologically to demarcate the physical expansion in these particular years. The results show that the built-up area of Kaithal City has expanded by about 6 times (60.6 per cent) during 1971 to 2009 while its population has increased by 365.77 per cent during the same period. Much of the physical expansion has taken place over the surrounding agricultural land and the agricultural land in the city periphery has been converted for urban sprawl. This process has gained momentum with the up gradation of the administrative setup of the town after 1990. The agricultural land has experienced rapid transformation and continues to coalesce in built-up area. The maximum increase in the built-up area (76.35 per cent) was during 2001-2009 towards the north-east direction.

*Keywords:* GIS, Built-up Area, Sprawl, Physical Expansion.

## Introduction

As in other developing countries, in India too the excessive growth in population and the increased trend towards urbanization have led to many problems such as haphazard growth of industries, informal housing and utility networks, conversion of precious agricultural land into urban land etc. Urban land is one of the important resources provided to man by which necessary human activities are performed. Accurate and up to date information about urban land is essential for scientific planning and management of urban resources of an area taking into consideration the potentials and the constraints of the environment (Rajendran and Chandrasekaran, 2001).

The rational planning and management of urban system is possible through regular survey of land use which helps in delineating land suitable for various activities. The process of urbanization such as urban population growth, economy and infrastructure initiatives is chiefly responsible for land use change. The extent of urban sprawl is one such phenomenon which drives changes in land use patterns. Urban sprawl usually takes place in a radial manner around the city centre or in linear pattern along the highways (Tamilenthi and Baskaran, 2011).

Torrens and Alberti, (2000); Barnes *et al.*, (2001); and Epstein *et al.*, (2002) have studied urban sprawl. They considered the built-up area as spatial continuity of the built-up city and taken it into account as the parameter for quantifying physical expansion and urban sprawl. They have quantified it by considering the impervious or the built-up areas as the key feature of sprawl, which is delineated using toposheets or through data acquired by remote sensing and ground survey. The convergence of GIS, remote sensing and database management systems has helped in quantifying, monitoring, modeling and subsequently predicting this phenomenon. At the landscape level, GIS aids in calculating the fragmentation, patchiness, porosity, patch density, interspersion and juxtaposition, relative richness, diversity, and dominance in order to characterize landscape properties in terms of structure, function, and change.

Hanjagi (2008) studied the physical growth

of Mandya city in Karnataka state from 1971 to 2005. The study was based on satellite imagery, Survey of India toposheets and GPS survey data. He created the boundary of built-up area, road network, railway line and drainage network using satellite data integrated with GPS data. The study revealed that the rate of physical expansion of the city was not the same in all the decades and it was fluctuating. The expansion has been analysed for three decades during 1971-1981, 1981-1991 and 1991-2005. The city was not expanding much mainly because it had well irrigated agricultural land around it. The city's growth was also checked by the shadow effect of Bangalore and Mysore cities located nearby to Mandya directly or indirectly. Hence, its physical expansion was restricted to only limited areas.

Cities are recognized as drivers of growth (Eleventh Five Year Plan 2007-2012). These are places that provide opportunities for gainful employment and generating wealth. All urban areas do not have equal means or potential to realize the same level of high performance; nevertheless most urban centers do exhibit a significant vibrancy and transmit growth impulses into the surrounding areas in relation to their size and inherent characteristics. Cities require a vibrant city system to perform according to their potential reflected particularly in infrastructure and services which need to be of appropriate standard in size and magnitude, efficient in performance and quality and equitable in terms of access to all the residents. The Indian cities are significantly disadvantaged on this aspect since, the approach to the process of urbanization in India, has been largely 'reactive'. The problems threatening the survival of cities have been sought to be addressed after they become "too critical", rather than being "pro-active" in anticipating and enlisting an integrated approach to address the various dimensions of urban development.

Any environmentally well-matched town planning must start with a comprehensive look on the use of land as per site suitability (Arora and Pushkarna, 2009). Consequently, there is a great need of detailed data and information for planners about the extent, coverage and spatial distribution of diverse urban land uses, housing

distinctiveness, growth patterns, population, urban sprawl, infrastructure availability, utilities, urban fringe, etc.

The rapid and random expansions of cities are a typical phenomenon of urban landscape in India. The expansion of the cities within and beyond their limits has sadly remained a neglected area in urban research (Hanjagi, 2008). There is no definite boundary where urban area ends and rural area starts. The cities spread out within the jurisdictions of village Panchayats, which have neither financial resources nor technical expertise to plan and solve the problems of growing cities within their limits. Growth of cities is not planned, monitored and mapped correctly using recent techniques. Hence, there is need to map all the cities systematically to detect changes that have occurred within and around built-up areas to check the land use compatibility for sustainable development.

### Study Area

Kaithal city is situated on 29° 42' 09" north latitude and 76° 23' 49" east longitude (Figure 1). The main town is picturesquely situated on the bank of an extensive artificial lake called the "Bidkiyar Lake". National Highway No. 65 passes through the main city and connects the state capital Chandigarh to Hisar. It is linked with surrounding important towns viz., Karnal (60 kilometers), Jind (55 kilometers), Kurukshetra (48 kilometers), Ambala (80 Kilometers) and Patiala (65 kilometers) by road network. The Kurukshetra-Narwana branch railway-line also passes through Kaithal city. The city has a Municipal Council and was a Class-I town with a total population of 1,17,426 persons as per Census 2001. In 2011 its population was recorded as 1,44,633 persons. Being the district headquarters, Kaithal is the center of commercial business and educational activities of a large hinterland. Kaithal is known for the largest of food Grain Market in Haryana state. After 1989, with the up gradation of the administrative setup of the town, establishment of sugar mill and economic activities of the new grain market, immigration of rural population has increased manifold, resulting in haphazard development in the form of unauthorized colonies

around the walled town.

### Objectives

The main objectives of present study are:

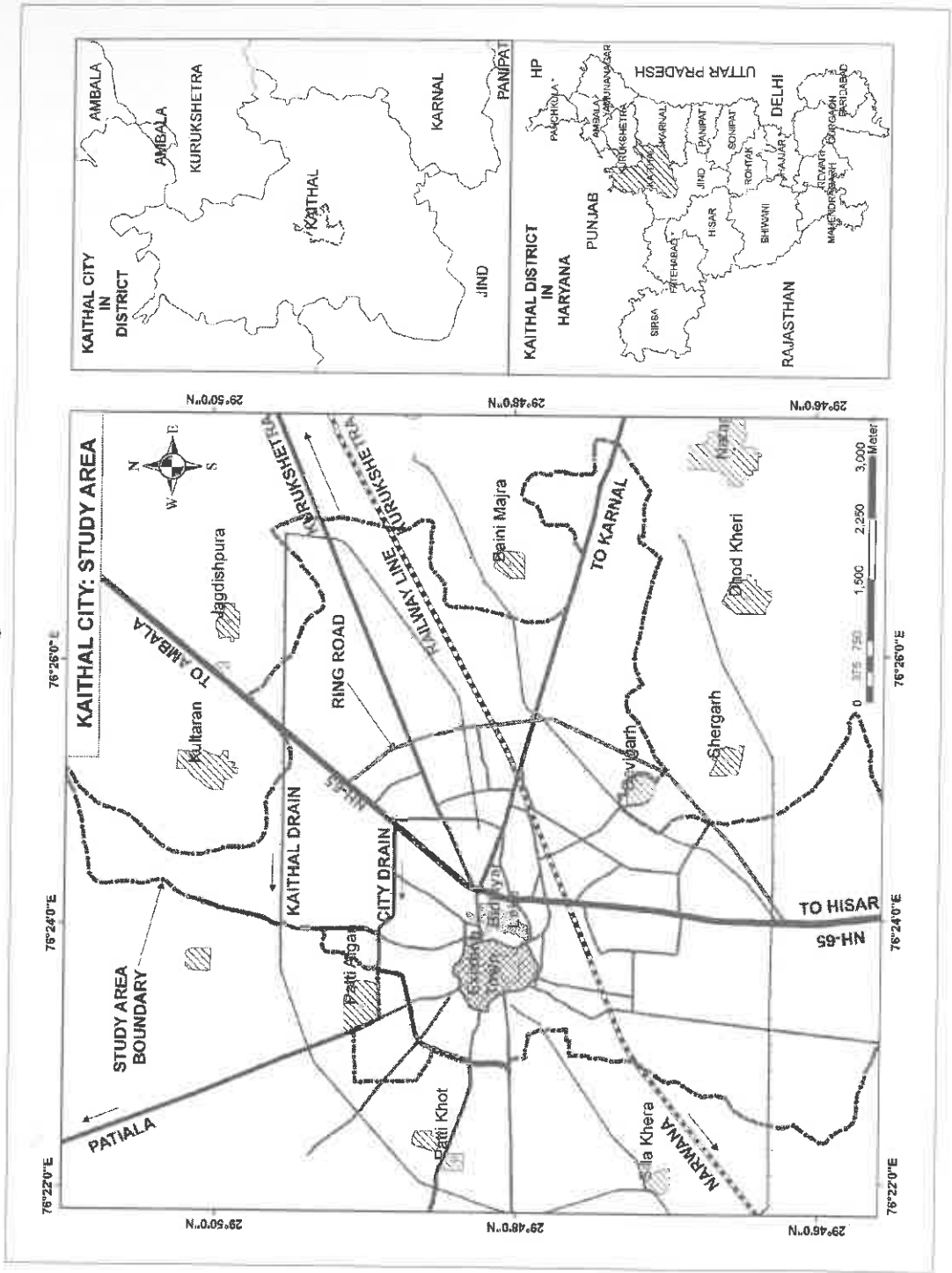
- I. To monitor urban growth with respect to physical expansion during 1971 -2009;
- II. To study the trend, pattern and directions of physical expansion and the potential factors responsible for physical expansion in future;
- III. To compare the trends in physical expansion with those of growth of population.

### Database and Methodology

The study is based on both traditional (SOI Topographical Sheets) and modern (Remote Sensing) data sources. The Survey of India Topographical Sheet (53C/5) at 1:50,000 scale was scanned and geo-referenced with appropriate projection parameters (Projection UTM, Zone-43 and Datum WGS 84). Landsat TM and MSS (30m resolution) satellite imageries scenes acquired in 1972, 1989 and 2001 covering the same area were downloaded from <http://glcfapp.glc.f.umd.edu> web site of Global Land Cover Facilities, Earth Science and for year 2009 Quick bird imagery (.61m resolution) were used and geometrically rectified with reference to the ground control points (GCP) collected from Survey of India topographical sheets in GIS environment. The Municipal Boundary map prepared by municipality was integrated with spatial data of different periods.

The data were interpreted visually as well as analysed through image processing techniques using Arc GIS 9.3 and Erdas Imagine 2010 software. The outer boundary of built up area was digitized and demarcated individually for the years 1971, 1981, 1991, 2001, and 2009. Finally, all the boundaries were overlaid to know the decade-wise physical expansion of Kaithal city during the study period. This information was collated with the changes in the population attributes viz., absolute change, per cent decadal growth, and density of population.

Fig. 1



**Table -1 : Kaithal City: Growth of Population, Built-up area, and Agricultural Land Append to Urban Built-up**

Sr. No.	Decade	Built-up Area (hectares)	Growth of Built-up Area (%)	Population	Population Growth (%)	Population Density (persons/hectare)	Agricultural land append to Built-up Area (hectares)
1	1971	337.88	----	45,199	-----	134	---
2	1971-81	506.29	49.84	58,385	29.17	115	168.41
3	1981-91	798.02	57.62	71,142	21.85	89	291.73
4	1991-01	1352.70	69.50	1,17,426	65.05	87	554.68
5	2001-09	2385.50	76.35	2,10,524	79.28	88	1032.8
<b>Total Increase 1971-2009</b>		<b>2047.62</b>		<b>1,65,325</b>			<b>2047.62</b>

Source: i. Population data obtained from Census of India 1961 to 2001

ii. Population data of 2009 Collected from Kaithal Municipality.

iii. Physical Expansion of Built-up Area of 1971 was obtained from Census of India and Survey of India Toposheet

iv. Physical Expansion of Built-up Area of 1981, 1991, 2001 was interpreted from Landsat (MSS & TM) Satellite imageries

v. Physical Expansion of Built-up Area for 2009 extracted from Quickbird High Resolution (.62m) Satellite Imagery download from Google Earth.

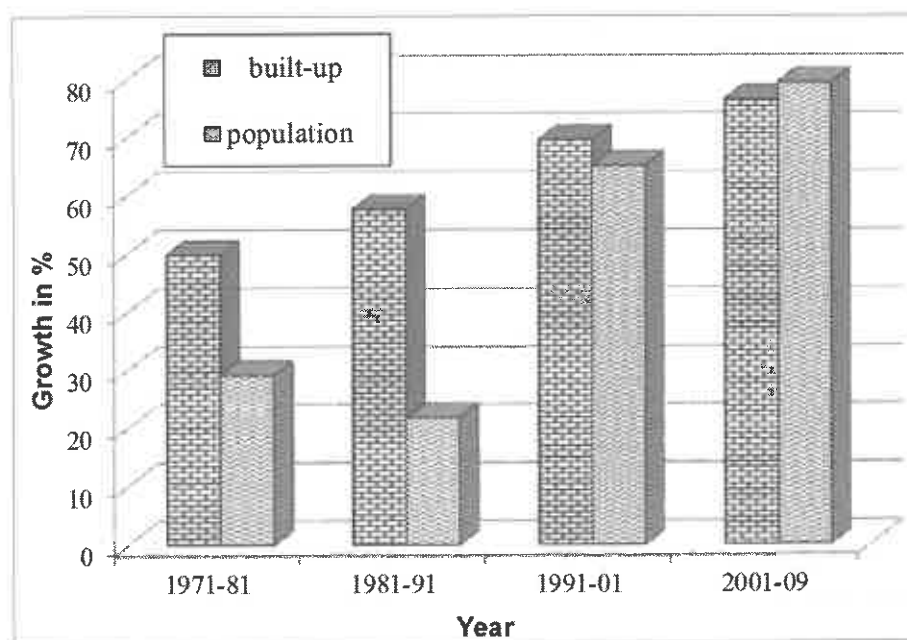
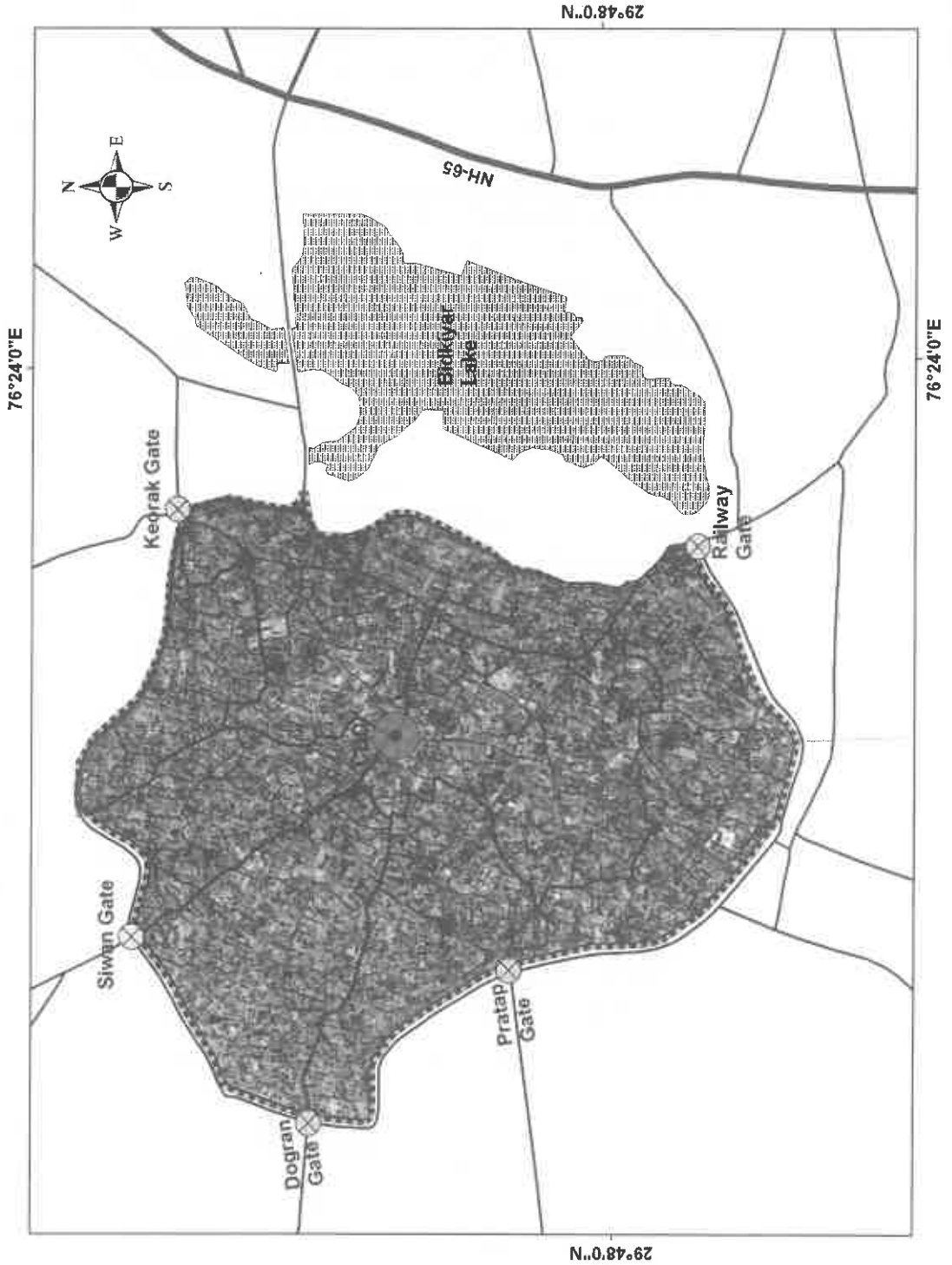
**Fig. 2 : Kaithal City -Growth of Population and Built-up Area (1971-2009)**



Fig. 3 : Kaithal City : Walled Town around 1960



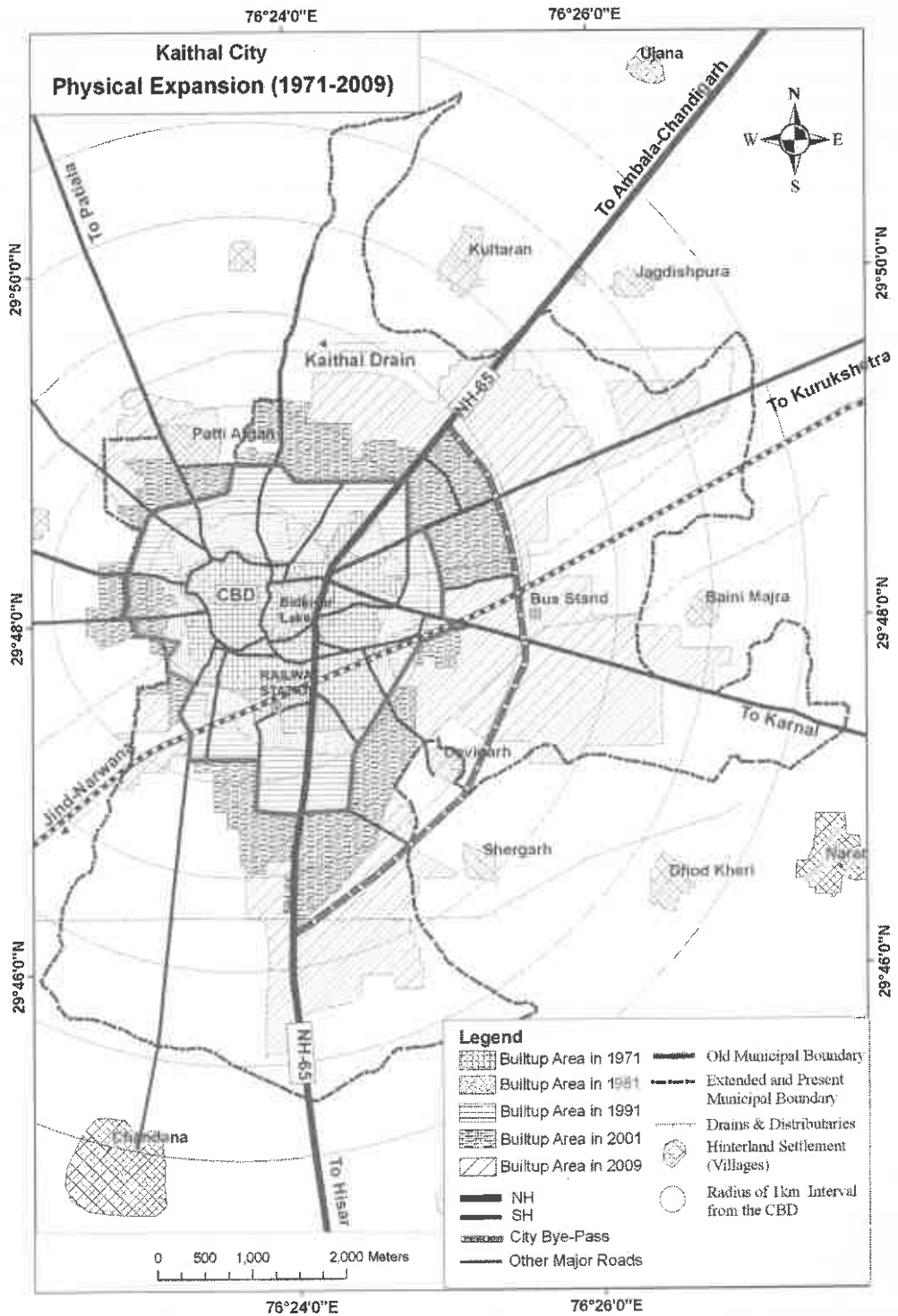


Fig. 4

## Results and Discussion

### 1. Growth of Population and Physical Expansion

Table 1 reveals that the city area has increased 7 times while the population has increased more than 4 times during the last 38 years between 1971- 2009. Apart from natural growth of city population there has been migration from outside the city from surrounding villages, towns and other states. The population growth shows considerable decadal variations ranging between 29.17 to 79.82 per cent, while the physical expansion growth rate of the city has been 49.84 to 76.35 per cent during the same period (Table 1 and Fig. 2). The city's built-up area was only 337.88 hectares with a population of 45,199 in 1971 which increased to 2385.50 (76.35 per cent) hectares in 2009. The decadal growth rate of built-up area shows that during 2001-09 the growth rate was the highest (76.35 per cent) but during the decade 1971-81 it was the lowest (49.84 per cent). The data for 1981-1991 shows that population of the city went up to 71,142 (21.85 per cent) and the total built-up area was 798.02 (57.62 per cent) hectares. During 1991-2001 city expansion attained momentum with the up-gradation of the administrative setup of the town as a district headquarter, the population as well as city areas experienced high increase of 1,17,426 persons (65.05 per cent) and 1352.70 hectares (69.50 per cent) respectively. During 2001-2009 again the city showed a sizable growth of population as well as physical growth. The built-up area outgrowth was 76.35 per cent and the population increased by 79.28 per cent and 1032.80 hectares of agriculture land were added to the built-up area during the same period. Interestingly, density of population was highest in 1971 (134 persons/hectares) and since then it shows a continuous decline to 115 in 1981, 89 in 1991 and 88 persons/hectares in 2009. The built-up part in the was restricted to the walled city in 1971 and 1981. In 1981 the agricultural land appended to the walled city built up area (506.89 hectares) equaled only 0.33 per cent (168.41 hectares) of the built-up area. It was largely unplanned and hence density remained high. Thereafter, many new sectors were developed by Haryana Urban Development

Authority. This expansion of residential as well as commercial areas was spread over a much larger area – mainly agricultural land – and was much more spacious and hence even though the city experienced high growth in population its density shows a declining trend. As compared to the figure of 0.33 per cent in 1981 the agricultural land (1032.8 hectares) appended to the built-up area of the city in 2009 equaled 43.29 per cent of the built-up area.

### 2. Kaithal City: A Historical Review

Like other cities of India, Kaithal had humble roots as a religious and cultural center. Historically, it was known as Kapisthal, meaning "Abode of Kapi" (another name of Lord Hanuman), and it is said to have been founded by the Pandava Emperor, Yudhishthira in commemoration of his victory over the Kauravas in the battle of Mahabharata. It is traditionally connected with Hanuman, and has a temple dedicated to Anjani, the mother of Hanuman (Imperial Gazetteer of India, 1909).

According to Sharma (2006) Timur stopped at Kaithal in 1398, before attacking Delhi. Later, the city became a Muslim cultural centre under the rule of Delhi Sultanate. Razia Sultan is said to have fought her last battle nearby in which she was killed. In 16th century Akbar renovated the town and built a fort here. In 1676 the town fell in the hands of Bhai Desu Singh, a Sikh chieftain whose descendants, the Bhai's of Kaithal, ruled over the area till the territory was annexed by the British in 1843. The town has numerous religious structures e.g. tombs of Sufi saints like Shekh Shahabuddin, a mosque was built during the reign of Emperor Akbar. There are also 108 Shiva Temples in the town and famous among these is "Eleven Rudri Shiva Temple" which is the second of its kind in the country, the other one is at Kashi. The old fort built by Akbar was later demolished. The Bhai's of Kaithal constructed a separate fort and palace, which stands out prominently on the banks of the Bidkiyar Lake. The palaces built by Bhai Udai Singh presently serve as Rest House-cum-Sub-divisional Magistrate office and residence. The city has many gates built by the British rulers to control the entry of trade goods

and other items into the city.

Sharma (2006) has suggested that the city had remained a walled city all through the British period having Railway Gate, Pratap Gate, Dogra Gate, Siwan Gate, Keorak Gate (Figure 3). Till 1960 the socio-economic development of city was confined to the walled town. After 1960 the city gradually became a centre for agro-based services and manufacturing units and later on developed as a main trade and commerce center. Physical expansion and renovation of the city has taken place mainly along the major radial roads.

### 3. The Old Walled Town

The walled parts of the city are characterised by over congestion and lack of facilities and infrastructure. The present density of the walled city is 434 persons per hectare and it comprises an area of 61 hectares. If the growth of population remains unchecked it will aggravate the problems in terms of facilities which are at a bare minimum level. Hence it was decided that the new residential construction would be discouraged in the walled city by putting restrictions on the number of storeys. There are a number of houses in various colonies in dilapidated condition. The notable feature of the walled city is that it still functions as a Central Business District (CBD) for the city and its region. It is getting more and more commercialized rapidly. The commercial activities particularly retail and wholesale activities and some special market such as Shashtri Market (Cloth), Talai Bazaar (Whole Sale), Old Sabji Mandi (Fruits & Vegetable), Sharafa Bazaar (Gold & Jewelers) etc., are providing services to the city and its surrounding settlements within a radius of about 7 kilometers. Due to lack of service space, parking site and narrow roads within walled city the CBD area is incapable to cater the growing demand of commercial services. Due to congestion and unhygienic environmental condition people from walled city tend to move out.

### 4. Growth Trends and Directions

Figure 4 reveals that city has grown organically more or less in radial shape up to 1990. This process has gained momentum after 1990

with the up-gradation of the administrative setup as a district headquarter of Kaithal district. The agricultural land has experienced rapid transformation and continues to coalesce in built-up area. Linear growth is noticed along the major roads mainly towards north-east, east and south-east directions. Maximum development and expansion has been observed under residential uses both in the form of planned as well as unplanned development. Considering the proposed development plan for 2021 prepared by the city Town Planning Department and existing physical growth pattern it is expected that the future growth and direction of city will be mainly governed by existing transport corridors, existing and future industrial and planned residential developments on the outskirts of the city. The following potential factors are observed for physical expansion, its pattern and direction for future development.

#### 4.1 Informal Residential Colonies

The city is experiencing an increase in the built-up area both as formal and informal development. The private developers or state housing agency are constructing houses for the high or middle income people while the low income people do not have provision in the housing market according to their affordability. As a result a lot of informal settlement pockets have developed in the periphery of the city and mainly expanding horizontally along the major roads (Fig. 4). It is difficult to provide infrastructure facilities to the city dwellers due to this horizontal expansion.

#### 4.2 Planned Housing

In the north-east, the city has planned residential sectors viz. Sector-19, Sector-20, Sector-21, Sector-22 developed by Haryana Urban Development Authority (HUDA) and a modern township (Sun city) being developed by a private builder with all efficient infrastructure, amenities, facilities and services as per appropriate standards in size and magnitude. It will continue to attract city citizens residing in dilapidated and unhygienic environmental condition within old walled city as well as in the countryside.

#### 4.3 Favorable Physiographic Conditions

North and north-east of the existing town

has favorable site conditions as it is comparatively free from any kind of water logging and flooding and thus shall continue to attract new development.

#### 4.4 Accessibility and Public & Semi Public Facilities

North, north-east, east and south-east part of the city are highly accessible to all major facilities and locations such as main Bus Stand, Colleges, Secretariat, and Govt. Hospital etc. by wide roads which contribute to physical expansion of city in these directions.

### Conclusions

Kaithal city has grown considerably both in terms of its population as well as physical expansion between 1971 and 2009. Much of the physical expansion has taken place over agricultural land which is appended to the built-up area of the city. During 1971-1981 the extent of this type of land was only 168.41 hectares which has increased to 1032.8 hectares during 2001-09. Preservation of agriculture land is essential because our food and raw materials originate from it and it is a habitat for a variety of flora and fauna. Land is a scarce commodity and with increase in

population and urbanization conversion of agricultural land into built-up area is irreversible. Following suggestions may help for sustainable and balanced growth of Kaithal city. Safeguarding of fertile land around the city, control of urban expansion into agricultural land, jurisdictional and legal limitations for encroachment of rural land and control over natural growth of the city population. Preservation of prime agricultural lands on the periphery of Kaithal city is necessary for maintaining open space and environmental quality. While urban expansion is inevitable in the background of growing urbanization to cater the socio-economic, public & semi-public needs and demands but optimum use of land resources instead of haphazard utilization should be encouraged. Hence, there is a need for scientific, aesthetic and orderly disposition of land resources, facilities and services with a view to securing the physical, economic and social efficiency, health and well-being of communities.

The study results emphasize the potential of using satellite imageries and GIS in monitoring urban growth because these technologies can save time, effort, and money as compared to traditional approaches.

### References

- Arora, A. and Pushkarna, R. (2009):** "Development Plan for a Township using GIS", *Map World Forum*, Hyderabad, India. (Retrieved February 25, 2011, from [www.gisdevelopment.net/mapworldforum](http://www.gisdevelopment.net/mapworldforum))
- Barnes, K.B. et al. (2001):** "Sprawl Development: Its Patterns, Consequences, and Measurement", Towson University, Towson.
- Eleventh Five Year Plan (2007-2012):** Report of the Steering Committee on Urban Development. (Retrieved February 20, 2011, from [http://planning.commission.nic.in/about\\_us/committee/.../str11\\_hud1.doc](http://planning.commission.nic.in/about_us/committee/.../str11_hud1.doc))
- Epstein, J. et al. (2002):** "Techniques for Mapping Sub-urban Sprawl", *Photogrammetric Engineering Remote Sensing*, Vol. 63 (9), pp.913-918.
- Hanjagi, A. (2008):** "Monitoring the Physical Growth of Mandya City, Using GPS", *Map India -2008*.
- Imperial Gazetteer of India (1909):** Vol. 14, Kaithal Town, pp. 288-289.
- Rajendran, S and Chandrasekaran, V.A. (2001):** "Monitoring Urban Expansion of Tiruchirapalli Town of Tamil Nadu State (India) Using IRS-1C Satellite Data", (Paper presented in the International Conference organized by FIG at Seoul, Korea), 6-11 May, 2001.
- Sharma, S. K. (2006):** *Haryana: Past and Present*, New Delhi: Mittal Publications, p. 144.
- Tamilenth S. and Baskaran R. (2011):** "Geomatic Based Urban Sprawl Detection of Salem City, India", *Recent Research in Science and Technology*, Vol. 3(2), pp. 70-76
- Torrens, P.M., and Alberti, M. (2000):** "Measuring Sprawl", Working Paper No. 27, Centre for Advanced Spatial Analysis, University College, London. (<http://www.casa.ac.uk/Workingpapers>)

## GROWTH OF SCHEDULED TRIBE POPULATION IN INDIA: A GEOGRAPHICAL ANALYSIS (1991-2011)

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### Abstract

Scheduled tribes are one of the important ethnic segments of our population. Tribal communities have historically, politically and geographically experienced isolation from the mainstream society and the situation has not changed much after independence. Their backwardness is more a product of their way of living rather than the society. Against this backdrop, their demographic makeup is bound to be different from the general masses. Scheduled tribes constituted 8.61 per cent of India's population in 2011. However, their percent share in the population has grown marginally from 8.08 per cent in 1991 to 8.61 per cent in 2011. The present study aims at analyzing the pattern of population growth among Scheduled tribes of India from 1991 to 2011. The study is based on Census of India data. The percentage method, comparative tables and choropleth technique have been used to present the spatial variations in growth of Scheduled Tribe population. In order to examine the pattern of population growth among Scheduled tribes, the regions of high, moderate and low growth have been identified on the basis of decadal growth (1991-2001 and 2001-2011). The study indicates that the Scheduled tribes recorded a high growth rate (24.45 per cent in 1991-2001 and 23.66 per cent in 2001-2011) in comparison to growth of general population (21.54 per cent and 17.69 per cent respectively). However, as in the case of general population the growth rate among Scheduled tribes also has witnessed a progressive downward trend since 1971-1981. The study reveals that there have been marked regional variations in growth pattern of Scheduled tribe population at district level and this variation is more pronounced in rural and urban areas of the country during the study period.

*Keywords:* Scheduled Tribe, Rural, Urban, Distribution, Growth

### Introduction

The tribal people of India are a part and parcel of the Indian population and represent a true synthesis of Indian culture (Narayan, 2002, p. 11). The term 'tribe' is commonly used in social science literature, particularly in anthropology, to denote certain categories of pre-literate cultures. In the evolutionary perspective, it refers to a societal form intermediate between the land and the nation. In this sense, it represents a territorially defined ethnic group (Dube, 1998, pp. 3-4). A tribe is an age-old indigenous, by and large unstratified, and

egalitarian ethnic group in both appearance and content. The other characteristics of tribes may include speaking a common language, claiming a common descent, living in a particular geographic area, having a primitive economy, technology and lack of scientific temperament, almost pre-literate and unaware about the so-called modern knowledge and information, and observing social and political customs based on the principle of kinship (Thakur and Sharma, 2012, p. 189).

The Scheduled tribes are among the

weakest sections of our society. They live in comparative isolation in geographic conditions ranging from hills, forests, inaccessible areas and plains. At present, they are at different stages of socio-economic development and do not constitute a unified group and differ from each other in social ethos and anthropological characteristics. Majority of the population practice marginal and subsistence agriculture, or not even that. Some are totally dependent on food provided by nature. In general, most tribal populations inhabit under-developed areas of the country supporting sparse and low population, lacking basic infrastructure relating to health, transport, communication and other supporting amenities (Planning Commission, 2005, p. 89).

### Objective of the Study

The present study attempts to describe the spatial patterns of growth of total, rural and urban Scheduled Tribe population between 1991-2001 and 2001-2011 with the objective of identifying areas which recorded high, moderate, low and even negative rates of growth during the study period.

### Materials and Methods

The study is based on district level data of Census of India for 1991, 2001 and 2011. The percentage decadal growth rate constitutes the measure used to describe the regional variations in the growth of total, rural and urban Scheduled Tribe population. The decadal growth rate has been calculated by using the following formula:

DECADAL GROWTH RATE

$$PGR = \frac{P2 - P1}{P1} \times L$$

Where; PGR means percent growth rate

P2-Data of the latest year under study

P1- Data of the base year under study

L- Hundred

Notably, there have been changes in the number of districts between 1991 and 2011 in India. Therefore, the growth of population has

been computed only for those districts available in the base census year e.g. 466 for 1991-2001 and 593 for 2001- 2011. The newly carved districts not available for both the consecutive census years have been kept under the data not available category for analysis purpose.

The percentage of Scheduled Tribe population to total population has been calculated by using the following formula:

PERCENTAGE OF SCHEDULED TRIBE POPULATION TO TOTAL POPULATION

$$PSTTP = \frac{TST}{TP} \times L$$

Where; PSTTP means Percentage of Scheduled Tribes to Total population

TST- Total Scheduled Tribe Population

TP- Total Population

L- Hundred

### Distribution of Scheduled Tribe Population in India (1991 and 2011)

The total population of Scheduled tribes was 6, 77, 58,389 persons in 1991 which constituted about 8.08 per cent of total population of India (Fig. 1a). The majority of tribal population i.e. 92.61 per cent resided in rural areas and only 7.39 per cent in urban areas. It is evident from Table 1 that in 1991 only 51 districts (10.95 per cent of all districts) had more than 50 per cent proportion of Scheduled Tribes. The majority of districts i.e. 268 (57.51 per cent of all districts) had less than 10 per cent share of Scheduled Tribes. A high proportion of Scheduled Tribes (above 50 per cent) was recorded in Meghalaya, Nagaland, Manipur and Arunachal Pradesh. In addition, a cluster of districts was observed in southern and eastern part of Madhya Pradesh and southwest Odisha (Fig. 1a). In 2011 the total population of the Scheduled tribes in India stood at 10,42,81,034 persons constituting 8.61 per cent of the total population of the country (Fig. 1b). Out of their total population, 89.96 per cent inhabited rural areas and the remaining one-tenth (10.03 per cent) were enumerated in urban areas. In fact, about 67

Fig. 1a

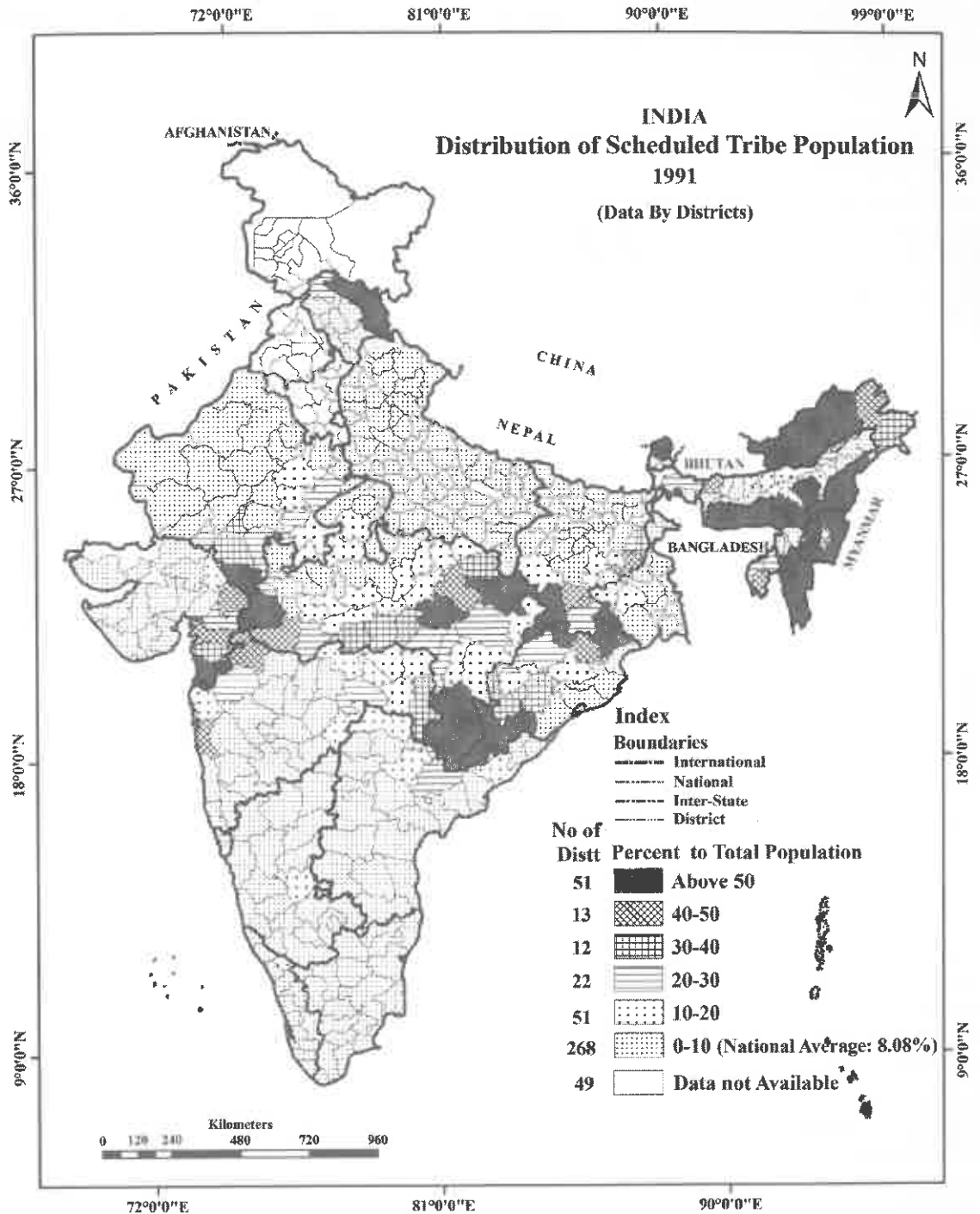
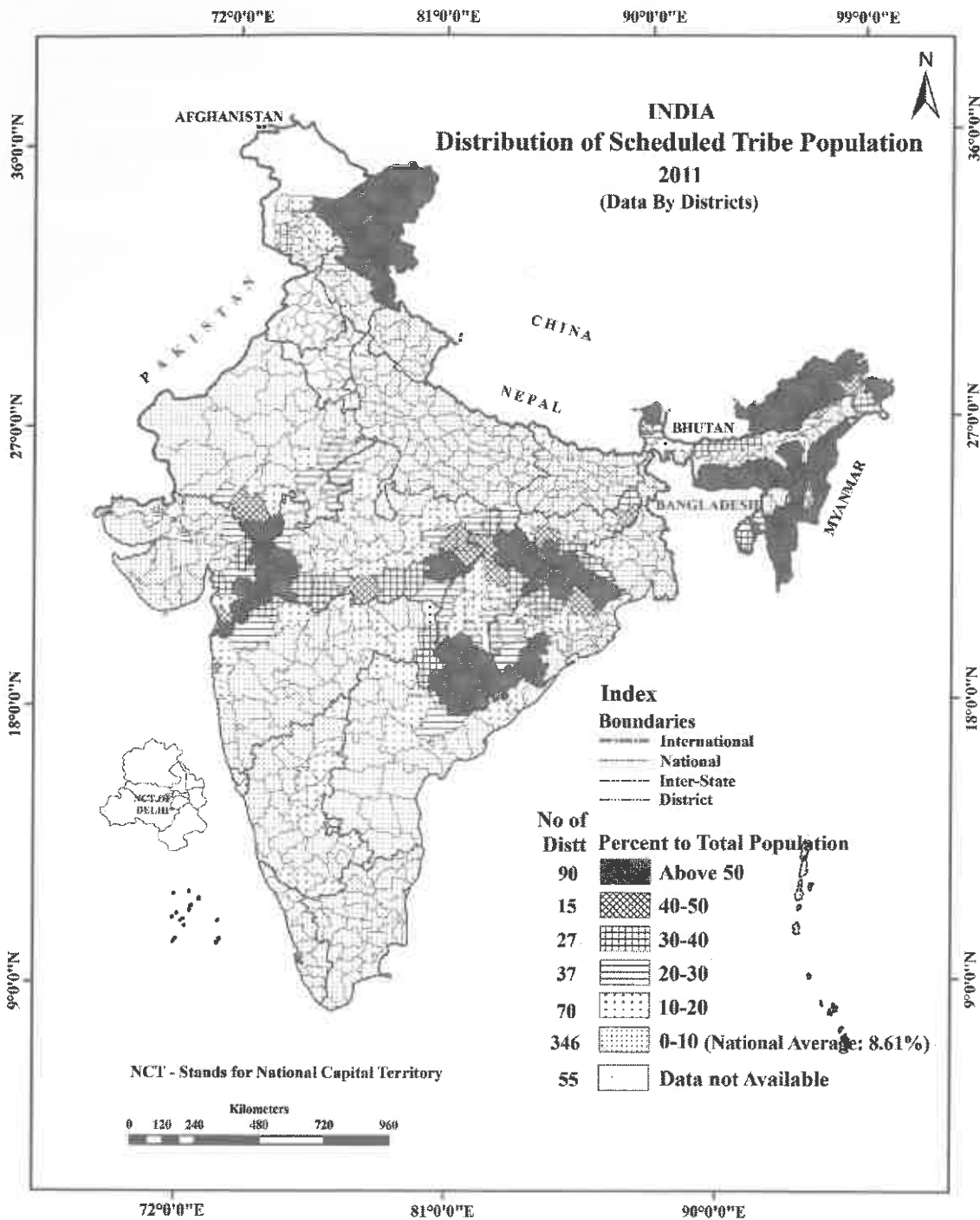




Fig. 1b



**Table-1 : India: Proportion of Scheduled Tribe Population by Districts (1991 and 2011)**

Percentage of STs to Total Population	No. of Districts	
	1991	2011
Nil	49(10.51)	55(8.59)
Less than 1.00	137(29.40)	157(24.53)
1.00 - 5.00	87(18.67)	125(19.53)
5.00 - 10.00	44(9.44)	64(10.0)
10.00 - 20.00	51(10.94)	70(10.94)
20.00 - 30.00	22(4.72)	37(5.78)
30.00 - 40.00	12(2.58)	27(4.22)
40.00 - 50.00	13(2.79)	15(2.35)
Above 50.00	51(10.95)	90(14.06)
<b>Total</b>	<b>466(100.0)</b>	<b>640(100.0)</b>

Source: Computed from Census Data 1991 and 2011.

Figures in parentheses show the percentage to total.

**Table-2 : India: Percent Decadal Growth of Total and Scheduled Tribe Population (1971-2011)**

Period	Total Population	Scheduled Tribes
1961-1971	24.8	26.3
1971-1981	24.7	35.8
1981-1991	23.9	31.4
1991-2001	21.5	24.4
2001-2011	17.6	23.6

Source: Computed from Census Data 1971 to 2011.

**Table-3 : India: Per cent Growth of Population by Residence (1991-2011)**

Period	Rural Population		Urban Population	
	General	Scheduled Tribes	General	Scheduled Tribes
1991-2001	17.97	23.25	31.13	39.55
2001-2011	12.50	21.31	31.80	49.72

Source: Computed from Census Data 1991 to 2011.

per cent of the country's Scheduled tribe population lived in only seven states which include Madhya Pradesh (14.69 per cent), Maharashtra (10.08 per cent), Odisha (9.20 per cent), Rajasthan (8.86 per cent), Gujarat (8.55 per cent), Jharkhand (8.29 per cent) and Chhattisgarh (7.50 per cent).

It is evident from the Table 1 that out of 640 districts in 2011, 55 districts did not record any Scheduled Tribe population. In 1991 this number was 49 out of a total of 466 districts. Punjab, Haryana and Delhi among the states and Chandigarh and Puducherry (UTs) do not have notified tribal communities. At the district level there are 90 districts (14.06 per cent of all districts) where Scheduled tribe population is 50 per cent and above. These are largely concentrated in northeast India (Fig. 1b).

At the district level, the highest proportion of Scheduled Tribes (98.58 per cent) to total population has been registered in Kurung Kumey district of Arunachal Pradesh closely followed by 98.19 per cent in Champhai district (Mizoram), 97.82 per cent in West Khasi Hills (Meghalaya), 97.11 per cent in Tuensang and 97.02 per cent in Zunheboto district of Nagaland. There are 27 districts in which the proportion of Scheduled Tribes to total population has been 90 per cent and above in 2011 and majority of them are located in northeast India except Lakshadweep (94.80 per cent) and The Dangs district (94.65 per cent) of Gujarat. The study reveals that 79 districts (12.34 per cent of all districts) had a Scheduled Tribe population between 20-50 per cent of their total population. In majority of districts (346 districts or 54 per cent of all districts) the share of Scheduled Tribe population to the total population is less than 10 per cent in 2011. In 1991 this number was 268 (Table 1). The lowest proportion (0.10 per cent) of Scheduled Tribes has been recorded in Hailakandi district of Assam followed by 0.14 per cent in Tehri Garhwal district (Uttarakhand), 0.15 per cent in Theni (Tamil Nadu) and 0.16 per cent in Patna district of Bihar. Therefore the spatial distribution of tribal communities in the country is highly uneven (Fig. 1b). The comparison of Figs. 1a and 1b shows that the clusters of districts with high share of Scheduled Tribes (above 50 per cent) in

central India have become more distinct in 2011.

Table 2 reveals that the decadal growth rate of total population during 1991-2001 was 21.5 per cent whereas among the Scheduled Tribes it was 24.4 per cent. The table also indicates that this was the fourth decade since 1971-1981 when the total population registered a decrease in population growth. However, in case of Scheduled Tribes it was the third decade since 1981-1991 experiencing decrease in growth rate. However, the decline in decadal growth rate of total population was 2.4 per cent point, while it was much higher i.e. 6 per cent points for Scheduled Tribes during 1991-2001. During next decade (2001-2011), the decline in growth of general population has been 3.9 per cent point while among Scheduled Tribe population it was just 0.8 per cent point.

Table 3 reveals that there have been marked variations in the growth of general and Scheduled Tribe population in both rural and urban areas during the study period. During 1991-2001 general rural population of India grew at an average rate of 17.97 per cent while the growth rate was higher by 5.28 per cent points i.e. 23.35 per cent among Scheduled Tribes. The comparative figures for the urban areas also show a similar trend with the growth of urban Scheduled Tribe population being higher by 8.42 per cent points. The next decade registered an even wider gap between the growth of general and Scheduled Tribe population in rural and urban areas. The growth rate of general population in rural areas declined significantly to 12.50 per cent whereas among Scheduled Tribes it witnessed a marginal decline and recorded 21.31 per cent growth. The decade wise growth of total Scheduled Tribe population as well as by their areas of residence i.e. rural and urban at the district level has been discussed under separate headings below.

### **Growth of Scheduled Tribe Population (1991-2001)**

The Scheduled Tribe population grew at an average rate of 24.45 per cent during 1991-2001. There were marked regional variations in growth

Fig. 2a

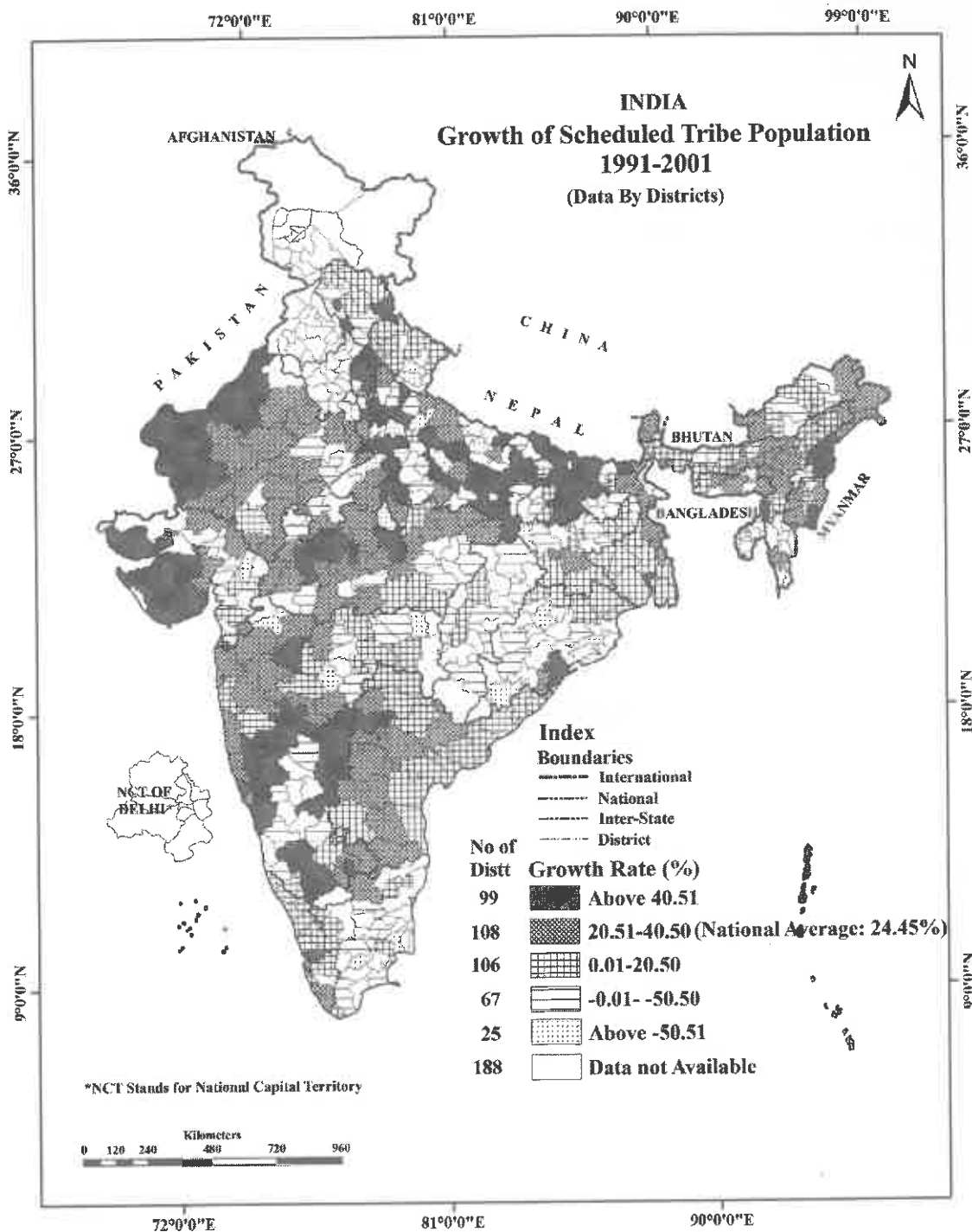
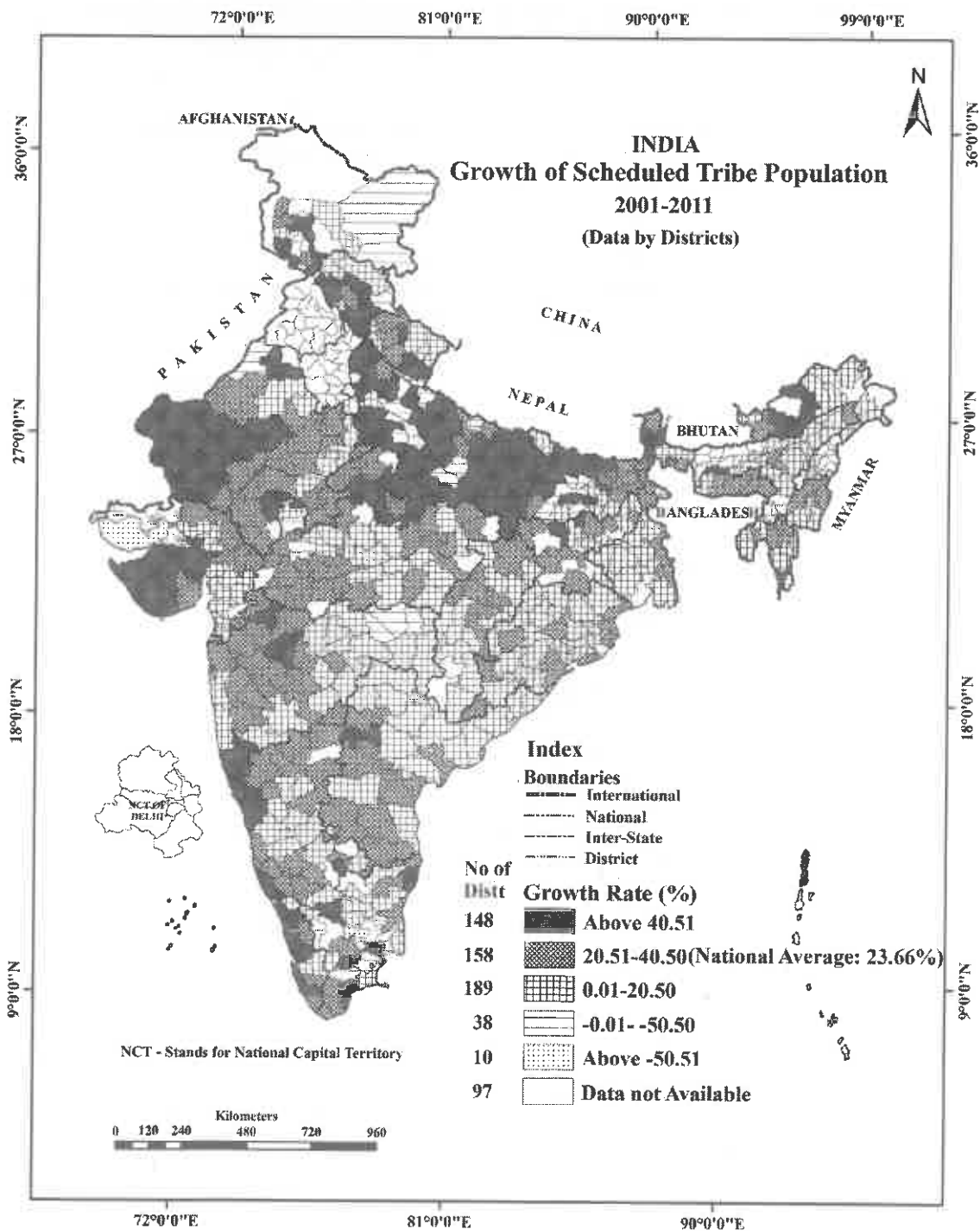


Fig. 2b



**Table - 4 : India: Number of Districts by Growth Rate of Scheduled Tribe Population (1991-2011)**

Growth Rate (Per cent)	Number of Districts					
	1991-2001			2001-2011		
	Total	Rural	Urban	Total	Rural	Urban
High (40.51 and Above)	99(16.69)	83 (13.99)	199(33.56)	148(23.12)	127(19.84)	314(49.06)
Moderate (20.51-40.50)	108 (18.21)	107(18.04)	53(8.9)	158(24.69)	129(20.15)	103(16.10)
Low (20.50 and Below)	106(17.88)	106(17.87)	51(8.6)	189(29.53)	218(34.07)	65(10.15)
Negative Growth Rate (-0.01 and below)	92(15.51)	103(17.37)	83(14.0)	48(7.5)	59(9.22)	46(7.19)
Data Not Available*	188* 31.7)	194(33.22)	207(34.90)	97**(15.16)	107(16.72)	112(17.50)
<b>Total</b>	593(100)	593(100)	593(100)	640(100)	640(100)	640(100)

Source: Computed from Census Data 1991, 2001 and 2011.

\* including newly created 127 districts and \*\*47 districts as per 2001 and 2011 Census respectively.

Figures in parentheses show the percent to total districts.

**Table-5 : India: Districts Recording Abnormally High Growth Rate among Scheduled Tribe Population (1991-2001)**

District Name	State	Absolute Change	Growth (%)	% of Total Population
Mainpuri	Uttar Pradesh	699	6354.55	0.04
Mirzapur	Uttar Pradesh	1243	2106.78	0.06
Khagaria	Uttar Pradesh	297	848.57	0.03
Mau	Uttar Pradesh	377	725.00	0.02
Rampur	Uttar Pradesh	307	601.96	0.02
Samastipur	Bihar	2820	520.30	0.10
Jhansi	Uttar Pradesh	883	472.19	0.06
Hardoi	Uttar Pradesh	167	463.89	0.01
Jehanabad	Bihar	1075	451.68	0.09
Varanasi	Uttar Pradesh	614	396.13	0.02
Sitamarhi	Uttar Pradesh	1392	353.30	0.07
Budaun	Uttar Pradesh	79	292.59	0.00
PurbaChampanan	Bihar	3534	276.53	0.12
Jaunpur	Uttar Pradesh	272	261.54	0.01
Sonbhadra	Uttar Pradesh	354	254.68	0.03
Azamgarh	Uttar Pradesh	485	225.58	0.02
Agra	Uttar Pradesh	600	225.56	0.02
Aurangabad	Bihar	1136	225.40	0.08
Darbhanga	Bihar	582	224.71	0.03
Siddharthnagar	Uttar Pradesh	157	221.13	0.01
Gandhinagar	Gujarat	12079	215.62	1.32

Source: Computed from Census Data 1991 and 2001

of Scheduled Tribe population at district level during 1991-2011 as shown in Table 4. It is evident from Table 4 that in 1991-2001, the number of districts with high growth i.e. more than 40.5 per cent was 99 (16.99 per cent of all districts) while during the next decade (2001-11) their number increased to 148 (23.12 per cent of all districts). The number of districts with low growth rate (less than 20.5 per cent) increased from 106 (17.88 per cent of all districts) to 189 (29.53 per cent of all districts) during the same period.

Fig 2a portrays the growth of Scheduled Tribe population at district level during 1991-2001 decade. On the basis of the variations in growth rate at the district level following three broad categories have been identified:

**High Growth (above 40.51 per cent):** It is evident from Table 4 and Fig. 2a that there were 99 districts which experienced high growth rate of above 40.51 per cent. Fig. 2a reveals that major concentration of these districts was in central and western parts of Bihar, eastern parts of Uttarakhand, western parts of Gujarat and Rajasthan. In peninsular plateau of India, a contiguous belt of districts has been observed in southern parts of Maharashtra and north and western parts of Karnataka. In northeast India, almost all districts in Nagaland state had high growth rate.

Table 5 reveals that 21 districts had very high growth rate during 1991-2001. However, in these districts the proportion of Scheduled Tribes to total population was insignificant e.g. Mainpuri district located in Uttar Pradesh registered 6355 per cent growth in Scheduled Tribe population followed by 2107 per cent in Mirzapur district, 849 per cent in Khagaria and 725 per cent in Mau district of Uttar Pradesh. The study shows that these districts are dispersed in different pockets of the country.

**Moderate Growth (20.51 to 40.50 per cent):** It is clear from Fig 2a that the major concentration of districts experiencing moderate growth is located near the districts of high growth. A cluster of districts covering central parts of Rajasthan, north

western parts of Maharashtra, and Andhra Pradesh and central parts of Madhya Pradesh have witnessed moderate growth during 1991-2001. Besides, almost entire Sikkim state, central Assam and eastern parts of Arunachal Pradesh also fell in this category.

**Low Growth (less than 20.50 per cent):** In 106 districts (18 per cent of all districts) of the country, the growth of Scheduled Tribes was below 20.50 per cent during 1991-2001. Fig. 2a shows that a major concentration of districts registering less than 20 per cent growth has been observed in southern parts of Jharkhand, western parts of West Bengal and northern parts of Odisha. Besides, a narrow strip of districts registering low growth in tribal population extended from north to south of Andhra Pradesh during this period.

**Negative Growth:** There were 92 districts (16 per cent of all districts) which recorded a decrease in tribal population during 1991-2001. However, there were marked spatial variations in magnitude of decrease among these districts. Out of these 92 districts, 67 districts recorded less than -50.50 per cent decline, while remaining 25 districts recorded more than -50.51 per cent decrease in population. Fig. 2a shows that the districts in southern and western parts of Odisha and eastern parts of Chhattisgarh had a negative growth in tribal population. Besides, many other individual districts scattered over different parts of the country also experienced negative growth.

### **Growth of Scheduled Tribe Population (2001-2011)**

The Scheduled Tribe population increased from 8,43,26,240 persons in 2001 to 10,42,81,034 persons in 2011 at an average rate of 23.66 per cent during 2001-2011. However, there was a remarkable variation in growth of Scheduled Tribe population at district level. On the basis of magnitude of variations the following three broad categories have been identified:

**High Growth (above 40.51 per cent):** As per 2011 Census, 148 districts (about 23 per cent of all districts) recorded a high growth rate of Scheduled

**Table-6 : India: Districts Recording Abnormally High Growth Rate among Scheduled Tribe Population (2001-2011)**

District Name	State Name	Absolute Change	Growth (%)	% of Total Population
Lalitpur	Uttar Pradesh	71608	3580400.00	5.86
Sonbhadra	Uttar Pradesh	384525	77996.96	20.67
Ballia	Uttar Pradesh	109841	40234.80	3.40
Chitrakoot	Uttar Pradesh	365	36500.00	0.04
South Goa	Goa	92384	32415.44	14.47
Deoria	Uttar Pradesh	109361	20518.01	3.54
North Goa	Goa	27673	20044.48	6.92
Kushinagar	Uttar Pradesh	79850	19057.28	2.25
Una	Himachal Pradesh	8550	16764.71	1.65
Chandauli	Uttar Pradesh	41472	16392.09	2.14
Ghazipur	Uttar Pradesh	28430	10081.56	0.79
Mau	Uttar Pradesh	22486	5241.49	1.04
Kangra	Himachal Pradesh	82967	5195.18	5.60
Siddharthnagar	Uttar Pradesh	11793	5172.37	0.47
Varanasi	Uttar Pradesh	27848	3621.33	0.78
Gorakhpur	Uttar Pradesh	17274	1923.61	0.41
Hamirpur	Himachal Pradesh	3761	1863.87	0.67
Ghaziabad	Uttar Pradesh	27848	1816.91	0.08
Mirzapur	Uttar Pradesh	18830	1446.24	0.81
Basti	Uttar Pradesh	3385	1440.43	0.15
Meerut	Uttar Pradesh	3154	1336.44	0.10
Azamgarh	Uttar Pradesh	8627	1232.43	0.20
Firozabad	Uttar Pradesh	2372	1229.02	0.10
Jaunpur	Uttar Pradesh	4360	1159.57	0.11
Etawah	Uttar Pradesh	153	956.25	0.01
Mahoba	Uttar Pradesh	582	895.38	0.07
Gopalganj	Uttar Pradesh	54650	887.61	2.37
Bareilly	Uttar Pradesh	2852	760.53	0.07
Agra	Uttar Pradesh	6389	737.76	0.16
Sant Ravidas Nagar	Uttar Pradesh	1648	732.44	0.12
Solan	Himachal Pradesh	22103	624.03	4.42

Source: Computed from Census Data, 2001 and 2011



Tribe population. A cluster of districts has been observed in northern India comprising almost entire Uttar Pradesh, northern Bihar, southwest Rajasthan and Himachal Pradesh. Besides, western Gujarat, northern part of Kerala have also witnessed high growth rate of Scheduled Tribes (Fig.2b). An abnormally high growth rate (above 600 per cent) of Scheduled Tribe population has been recorded in 31 districts (Table 6). Among these Lalitpur district recorded an absolute change of 71608 persons during 2001-11. As per 2001 census there were only 2 persons belonging to Scheduled Tribes and their population has increased to 71610 persons in 2011. This phenomenal decadal growth of 3580400 per cent is quite inexplicable and could be attributed to enumeration or statistical fallacy.

**Moderate Growth (20.51 to 40.50 per cent):** About one-fourth (158) of all districts recorded moderate growth between 20.01 to 40.50 per cent and majority of these districts shared boundaries with the districts of high growth. Notably, identifiable cluster of districts with moderate growth rate can be observed in central parts of Rajasthan, Maharashtra and Andhra Pradesh. In addition districts in northern and southern parts of Madhya Pradesh also fall in this category (Fig.2b).

**Low Growth (less than 20.50 per cent):** There were 189 districts (30 per cent of all districts) which registered a low growth of less than 20.50 per cent. A contiguous belt comprising eastern Maharashtra, northern Andhra Pradesh and Odisha witnessed a low growth in Scheduled Tribe population during 2001-2011. Besides, some districts of Karnataka and Tamil Nadu are also included in this category. In northeast India, many individual districts of Assam, Arunachal Pradesh, Nagaland and Manipur registered low growth of population during the same period (Fig. 2b). The districts recording very low growth (less than 2 per cent) are Akola district (0.19 per cent) of Maharashtra followed by 1.33 per cent in Pithoragarh (Uttarakhand), 1.35 per cent in Ratnagiri (Maharashtra), 1.71 per cent in Wokha (Nagaland).

**Negative Growth:** There were a total 48 districts (8 per cent of all districts) which observed a decrease in Scheduled Tribe population during 2001-2011. Out of total these 10 recorded a decrease of above -50.51 per cent and remaining 38 districts recorded less than -50.50 per cent decrease. Fig 2b shows that there is no identifiable cluster of such districts and these are scattered over different parts of the country.

### **Distribution Pattern of Rural Scheduled Tribe Population (1991 and 2011)**

The share of rural Scheduled Tribe population to total rural population of India increased slightly from 10.07 per cent in 1991 to 11.25 in 2011. However, there was uneven distribution of Scheduled Tribes at the district level. Table 7 shows that in 1991 the share of rural Scheduled Tribe population was above 50 per cent in 58 districts. A large concentration of these districts can be identified in northeast and central part of India (Fig. 3a). A majority of districts 252 (54.08 per cent of all districts) had less than 10 per cent share. These districts were scattered over different parts of the country (Fig. 3a). In contrast, as per 2011 Census, there were 101 districts (16 per cent of all districts) where the concentration of rural Scheduled Tribes was 50 per cent and more (Table 7). The study shows that 317 or about half of all districts recorded less than 10 per cent share of rural Scheduled Tribe population. Fig. 3b portrays the uneven spatial distribution of Scheduled Tribe population in India in 2011.

At the district level the highest proportion (98.86 per cent) of rural Scheduled Tribe population was recorded in Zunheboto district (Nagaland) followed by 98.80 per cent in Kurung Kumey (Arunachal Pradesh), 98.65 per cent in Serchhip, 98.65 per cent in Saiha and 98.93 per cent in Lunglei (Mizoram). Besides, 46 districts (13.75 per cent of all districts) had rural Scheduled Tribe population between 20 and 50 per cent (Table 7).

Fig. 3a

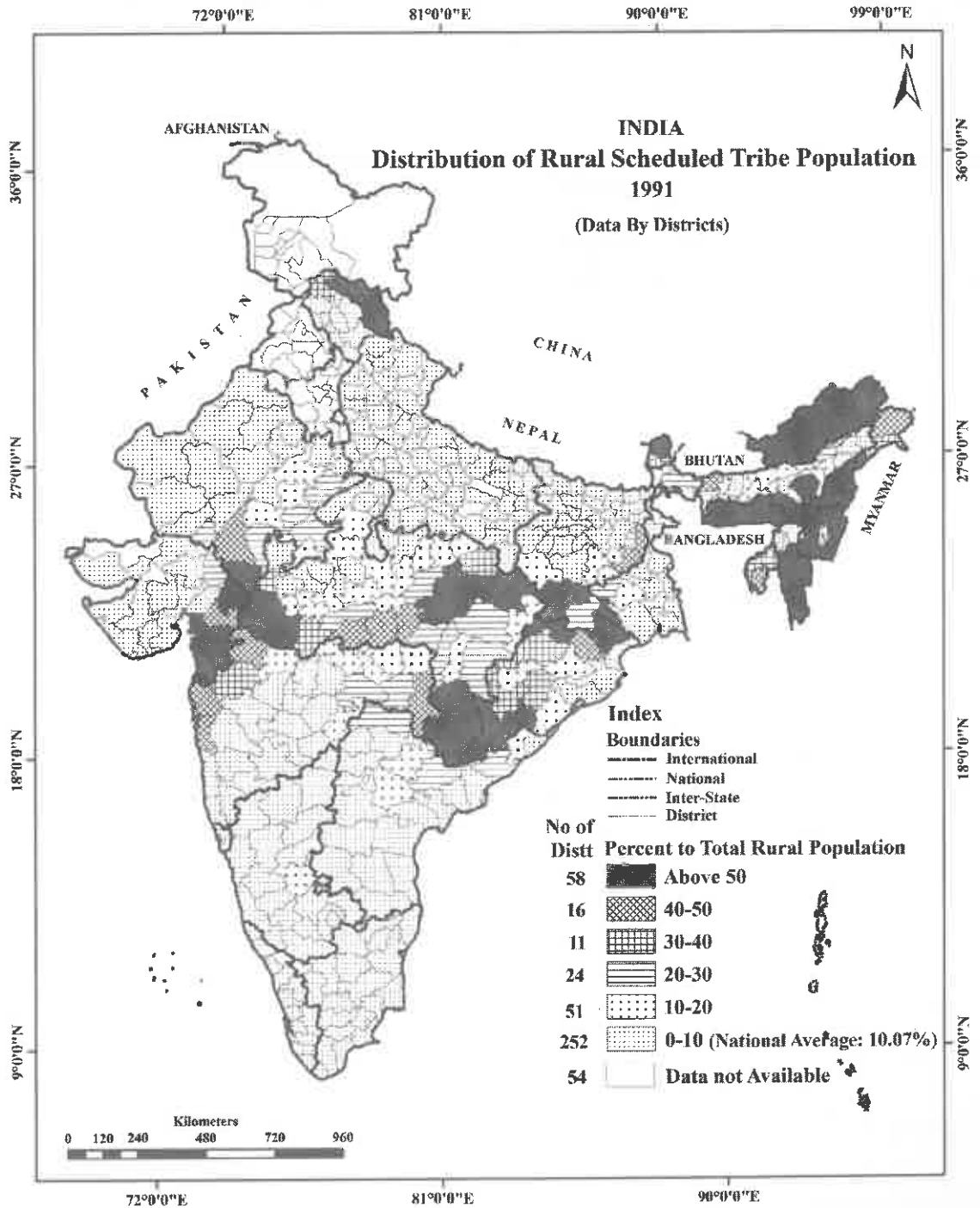
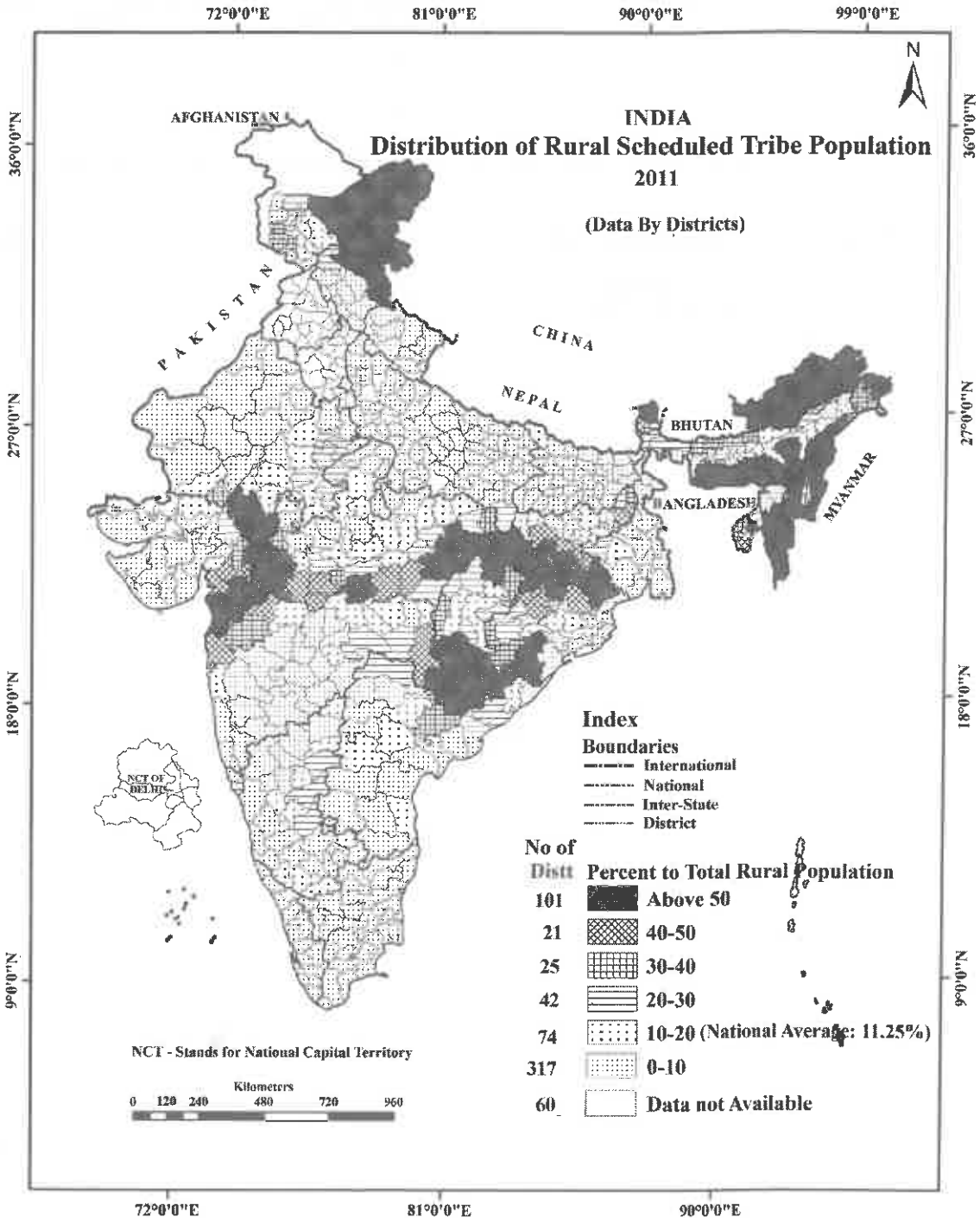


Fig. 3b



**Table-7 : India: Number of Districts by Proportion of Rural Scheduled Tribe Population (1991 and 2011)**

Percentage of STs to Total Rural Population	No. of Districts	
	1991	2011
Nil	54(11.59)	60(9.38)
Less than 1.00	126(27.04)	148(23.12)
1.00 - 5.00	85(18.24)	109(17.03)
5.00 - 10.00	41(8.80)	60(9.38)
10.00 - 20.00	51(10.94)	74(11.56)
20.00 - 30.00	24(5.15)	42(6.56)
30.00 - 40.00	11(2.36)	25(3.91)
40.00 - 50.00	16(3.43)	21(3.28)
Above 50.00	58(12.45)	101(15.78)
<b>Total</b>	<b>466(100.0)</b>	<b>640(100.0)</b>

*Source: Computed from Census Data, 1991 and 2011*  
*Figures in parentheses show the percent to total districts.*

### **Growth of Rural Scheduled Tribe Population (1991-2001)**

The decadal growth rate of rural tribal population has not been uniform at the district level. It varied from -100 per cent in Moradabad district to 2049 per cent in Mirzapur district of the same state i.e. Uttar Pradesh. On the basis of spatial variations at the district level (Fig. 4a) the following three broad categories have been identified:

**High Growth (above 40.51 per cent):** There were 83 districts (about 14 per cent of all districts) which registered high growth rate of above 40.51 per cent. A cluster of districts can be identified in western parts of Bihar and eastern part of Uttar Pradesh. Besides, another concentration of districts was recorded in south west parts of Rajasthan and western parts of Gujarat. In southern parts of India, minor concentration of districts was observed in eastern and western parts of Karnataka (Fig. 4a).

At the district level 23 districts have shown very high growth rate during 1991-2001 (Table 8). However, these districts have an insignificant

proportion of rural Scheduled Tribes to total rural population. Notably, Mirzapur district located in Uttar Pradesh registered 2049 per cent growth in Scheduled Tribe population (increase of only 1209 persons) followed by 1625 per cent in Khagaria (increase of only 260 persons) and 1371 per cent in Jhansi district (increase of only 631 persons) of Uttar Pradesh. Thus in these districts even a small increase in the Scheduled Tribe population resulted in a very high percentage growth. All these districts do not reveal any clear geographic pattern and are dotted in different parts of the country.

**Moderate Growth (20.51 to 40.50 per cent):** Only 107 districts (18 per cent of the total) witnessed a moderate growth rate between 20.51 to 40.50 per cent. A cluster of such districts has been observed in central and western Rajasthan, central Madhya Pradesh and Andhra Pradesh. In addition, central Assam, Manipur and eastern Arunachal Pradesh also witnessed moderate growth rate (Fig. 4a).

**Low Growth (less than 20.50 per cent):** There were 106 districts (about 17 per cent) which experienced less than 20.50 per cent growth during 1991-2001. A group of districts in this category can

**Table-8 : India: Districts Recording Abnormally High Growth among Rural Scheduled Tribe Population (1991-2001)**

District Name	State Name	Absolute Change	Growth (%)	% of Total Rural Population
Mirzapur	Uttar Pradesh	1209	2049.15	0.07
Khagaria	Uttar Pradesh	260	1625.00	0.02
Jhansi	Uttar Pradesh	631	1371.74	0.07
Saharanpur	Uttar Pradesh	423	1175.00	0.02
Samastipur	Uttar Pradesh	2713	1717.09	0.40
Rampur	Uttar Pradesh	154	1026.67	0.01
Gandhinagar	Gujarat	4121	716.70	0.54
Mathura	Uttar Pradesh	116	610.53	0.01
Jehanabad	Bihar	994	546.15	0.08
Mau	Uttar Pradesh	265	563.83	0.02
Darbhangha	Bihar	464	418.02	0.02
Sitamarhi	Bihar	3236	384.93	0.07
Rajkot	Odisha	157	315.40	0.28
PurbaChampanan	Bihar	3310	265.86	0.12
Jaunpur	Uttar Pradesh	269	258.65	0.01
Azamgarh	Uttar Pradesh	485	249.48	0.02
Aurangabad	Bihar	1136	214.39	0.07
Belgaum	Karnataka	147423	225.95	6.64
Agra	Uttar Pradesh	324	207.69	0.02
Budaun	Uttar Pradesh	56	207.41	0.003
Siddharthnagar	Uttar Pradesh	147	207.04	0.01
Ernakulam	Kerala	4466	202.82	0.41
Muzaffarpur	Uttar Pradesh	1964	200.82	0.09

Source: Computed from Census Data, 1991 and 2001.

be observed in western parts of West Bengal, southern parts of Jharkhand and northeastern parts of Odisha, northern part of Uttarakhand and Himachal Pradesh. Another concentration of such districts was in eastern parts of Kerala, central and eastern parts of Maharashtra. The remaining districts registering growth below 20 per cent in population were scattered over different parts of the country (Fig. 4a).

**Negative Growth:** Fig. 4a shows that southern parts of Odisha, northern parts of Chhattisgarh, and a majority of the districts in Tamil Nadu recorded a decline in rural tribal population.

### **Growth of Rural Scheduled Tribe Population (2001-11)**

During 2001-11 the growth of rural

Fig. 4a

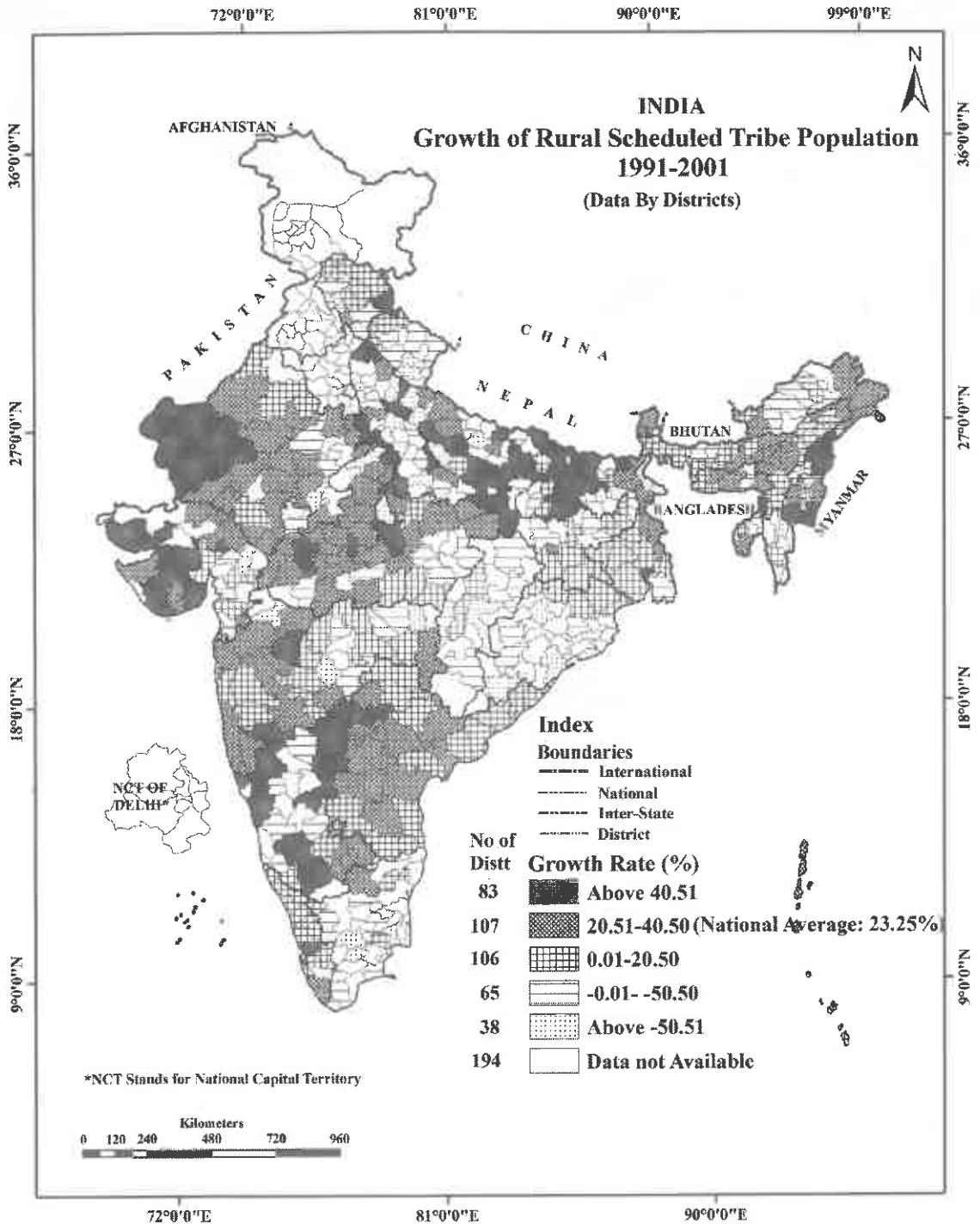
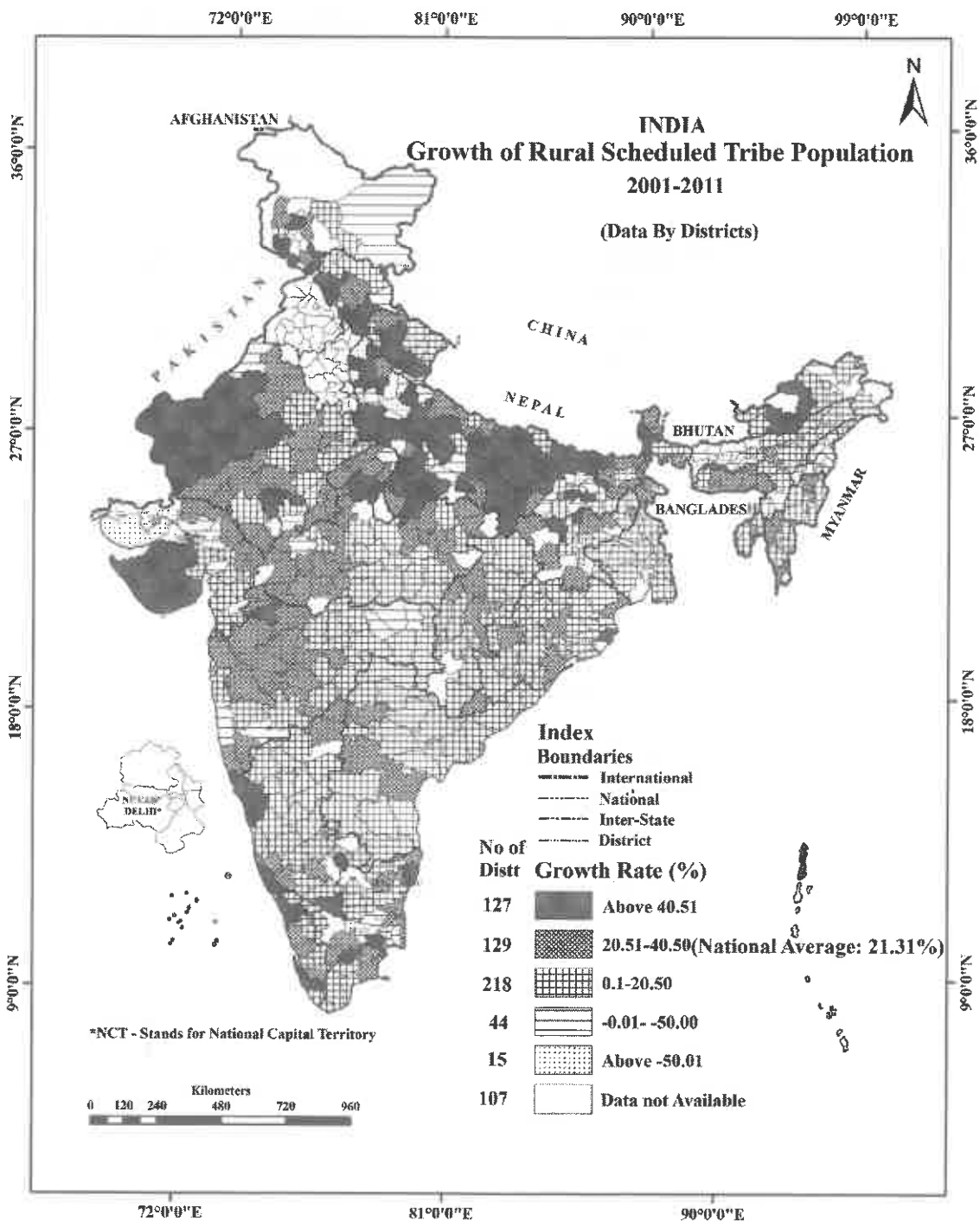


Fig. 4b



**Table-9 : India: Districts Recording Abnormally High Growth among Rural Scheduled Tribe Population (2001-2011)**

District Name	State Name	Absolute Change	Growth (%)	% of Total Rural Population
Sonbhadra	Uttar Pradesh	374649	140318.00	24.22
South Goa	Goa	59873	83156.94	26.43
Ballia	Uttar Pradesh	98933	40380.82	3.38
Una	Himachal Pradesh	8430	38318.18	1.77
North Goa	Goa	27576	23369.49	8.52
Deoria	Uttar Pradesh	102450	20655.24	3.70
Kushinagar	Uttar Pradesh	76438	18507.99	2.26
Chandauli	Uttar Pradesh	37482	18195.15	2.20
Hamirpur	Himachal Pradesh	2801	15461.11	0.66
Ghazipur	Uttar Pradesh	26965	10658.10	0.81
Varanasi	Uttar Pradesh	18916	8296.49	0.92
Mau	Uttar Pradesh	20990	6727.56	1.25
Kangra	Himachal Pradesh	78862	5747.96	5.64
Jalaun	Uttar Pradesh	588	5345.46	0.05
Siddharthnagar	Uttar Pradesh	10372	4757.80	0.44
Ghaziabad	Uttar Pradesh	558	3985.71	0.04
Jyotiba Phule Nagar	Uttar Pradesh	30	3000.00	0.00
Gorakhpur	Uttar Pradesh	13926	2430.37	0.40
Meerut	Uttar Pradesh	209	1607.69	0.01
Mirzapur	Uttar Pradesh	17920	1413.25	0.89
Basti	Uttar Pradesh	3005	1278.72	0.14
Azamgarh	Uttar Pradesh	7598	1120.65	0.20
Jaunpur	Uttar Pradesh	4113	1102.68	0.11

Source: Computed from Census Data, 2001 and 2011

population in India was 12.50 per cent and for Scheduled Tribe population it was 21.31 per cent i.e. 8.81 per cent higher than the growth of total rural population.

However, the growth rate of 21.31 per cent recorded by the Scheduled Tribes in rural areas was not uniformly distributed over the space. The growth of rural Scheduled Tribe population at the district level during 2001-11 is depicted in Fig 4b. On the basis of the growth rates at the district level

the following three types of areas have been identified:

**High Growth (above 40.50 per cent):** Out of 640 districts, 127 districts (about 20 per cent of all districts) recorded a high growth rate i.e. above 40.50 per cent. These districts were spatially so distributed that one cluster of districts has been observed in southwest Rajasthan, eastern and central Uttar Pradesh, northern and western Bihar to southern Uttarakhand and western Himachal



Pradesh. Another group of districts with more than 40.50 per cent growth has been found in central Gujarat. In southern India, some individual districts in Kerala, Karnataka and Tamil Nadu also witnessed high growth rate. The comparison of Figs. 4a and 4b shows the spatial expansion of districts with high growth in northern part while southern India has shown a reduction in districts of high growth rate (more than 40.50 per cent) during 2001 and 2011.

Table 9 indicates that 23 districts witnessed abnormally high growth (above 1000 per cent) of rural Scheduled Tribe population during 2001-2011. The Sonbhadra district of Uttar Pradesh stood at the top followed by South Goa, Ballia, Una, North Goa and Deoria (Table 9).

**Moderate Growth (20.50 to 40.50 per cent):** 129 districts forming 20.15 per cent of all districts witnessed a growth rate between 20.50 to 40.50 per cent. These are located adjacent to the districts of high growth rate. A large concentration of such districts can be identified in central and western India, mostly in Maharashtra, Madhya Pradesh and Rajasthan (Fig 4b).

**Low Growth (less than 20.50 per cent):** An overwhelming 218 or 34.07 per cent of all districts recorded a low growth of less than 20.50 per cent in rural Scheduled Tribe population. A large concentration of such districts is located in central and southern India. Almost entire Andhra Pradesh, Odisha, Karnataka and Chhattisgarh recorded a low growth of less than 20.50 per cent. Besides, in northeast India, Mizoram, Tripura, Manipur and Assam also registered low growth rate. At district level, the lowest growth of Scheduled Tribe population in rural areas has been registered in Akola (Maharashtra) 0.14 per cent, followed by 1.51 per cent in Coimbatore (Tamil Nadu), 2.85 per cent in Phek (Kohima), 2.92 per cent in Thanjavur (Tamil Nadu) and 3.11 per cent in Thiruvanthapuram (Kerala).

**Negative Growth:** Fig. 4b reveals that the rural Scheduled Tribe population has recorded a negative growth in 59 districts (9 per cent of the total) during 2001 and 2011. Out of total 59

districts, as many as 44 districts registered less than -50.50 per cent growth while it was above -50.51 per cent in the remaining 15 districts.

### **Distribution Pattern of Urban Scheduled Tribe Population (1991 and 2011)**

The tribes mainly inhabit the rural areas and in urban areas their share was merely 2.32 per cent in 1991 which has only marginally changed to 2.66 per cent in 2011. However, the urban areas also have uneven distribution of Scheduled Tribe population at district level. Table 10 shows that in 1991 only 17 districts (3.65 per cent of all districts) recorded more than 50 per cent Scheduled Tribes living in urban areas. Notably, near about 72 per cent of all districts (340) recorded a proportion of less than 10 per cent and these districts are scattered over different parts of the country. A high proportion of urban Scheduled Tribe population (above 50 per cent) has been observed in districts of Meghalaya, Mizoram and Nagaland in 1991 (Fig. 5a). In comparison to only 17 districts in 1991 in 2011 there were 43 districts (6.72 per cent of all districts) which had more than 50 per cent share of urban Scheduled Tribe population to total urban population (Table 10). A large concentration of these districts has been observed in northeast India mostly in districts of Meghalaya, Mizoram, Nagaland, Manipur and central parts of Arunachal Pradesh (Fig. 5b). A majority of the districts i.e. 457 (71 per cent of all districts) have recorded less than 10 per cent of urban Scheduled Tribes in 2011 (Table 10).

At district level, the highest proportion (98.93 per cent) of urban Scheduled Tribes was recorded in West Khasi Hills district of Meghalaya followed by 98.33 per cent in Champai, 94.99 per cent in Serchhip district (Mizoram), 94.69 per cent in Lakshadweep and 94.0 per cent in Saiha district of Mizoram. A total of 40 districts (6.25 per cent) registered urban Scheduled Tribe population between 20 and 50 per cent in 2011.

Notably, out of 640 districts in India a total of 58 districts including 55 districts of Punjab,

Fig. 5a

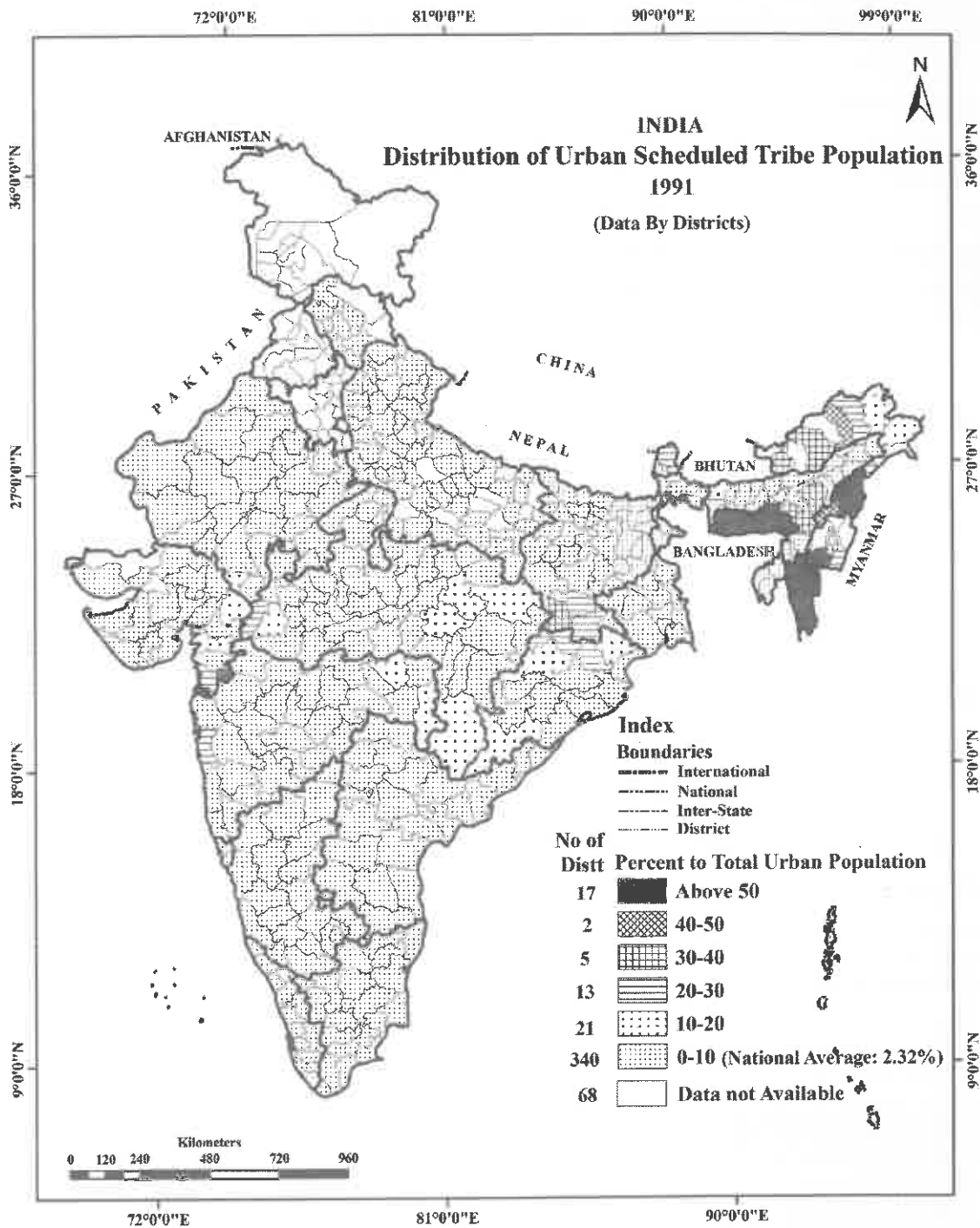
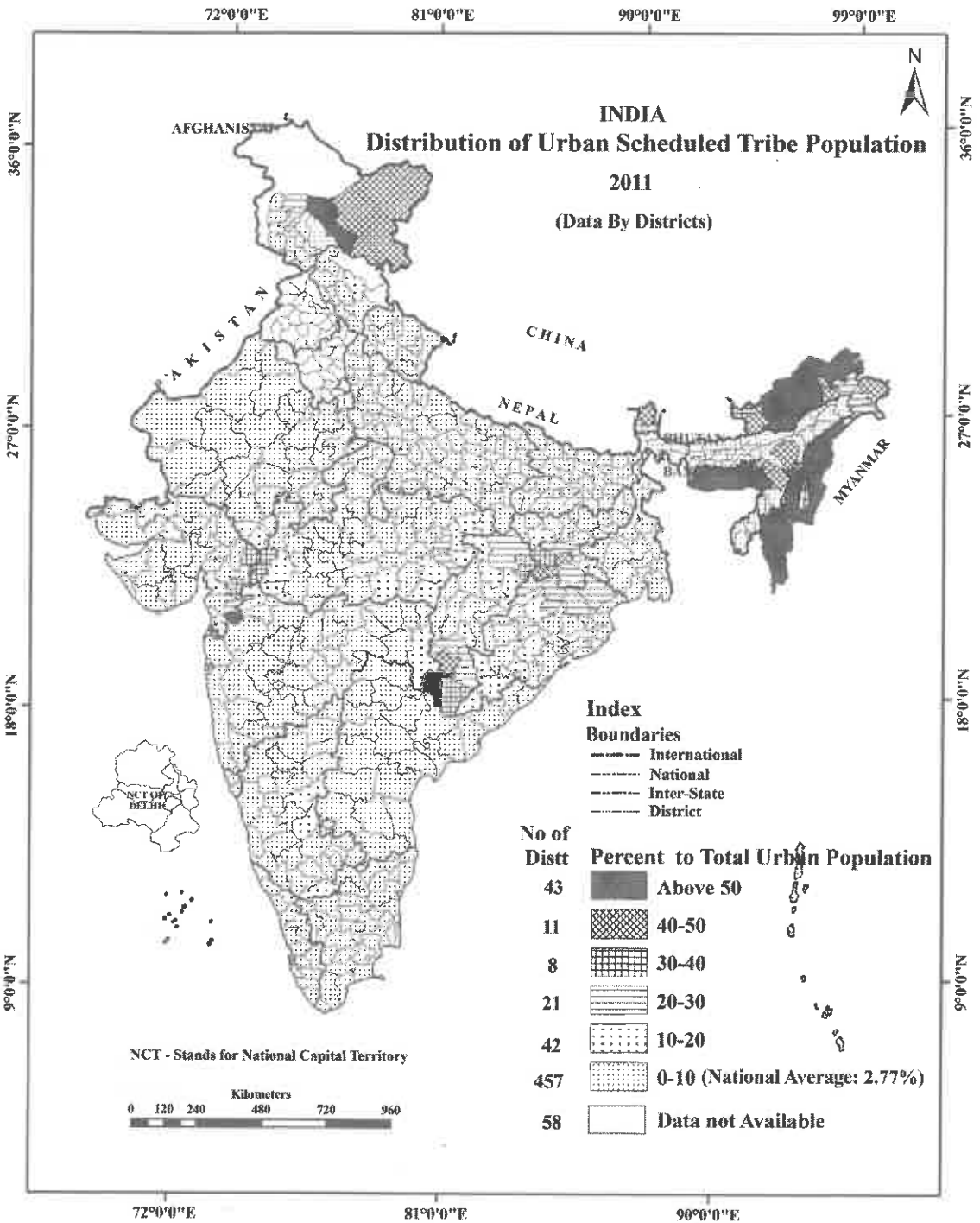


Fig. 5b



**Table - 10 : India: Districts by Proportion of Urban Scheduled Tribe Population (1991 and 2011)**

Percentage of STs to Total Urban Population	No. of Districts	
	1991	2011
Nil	68(14.59)	58(9.06)
Less than 1.00	176(37.77)	193(30.16)
1.00 - 5.00	118(25.32)	190(29.69)
5.00 - 10.00	46(9.87)	74(11.56)
10.00 - 20.00	21(4.51)	42(6.56)
20.00 - 30.00	13(2.79)	21(3.28)
30.00 - 40.00	5(1.07)	8(1.25)
40.00 - 50.00	2(0.43)	11(1.72)
Above 50.00	17(3.65)	43(6.72)
<b>Total</b>	<b>466(100.0)</b>	<b>640(100.0)</b>

*Source: Computed from Census Data, 1991 and 2011*

*Figures in parentheses show the percent to total districts.*

Haryana, Chandigarh, Delhi and Puducherry do not have notified Scheduled Tribes and 3 districts namely Kinnaur, Lahual & Spiti (Himachal Pradesh) and Nicobar (Andaman and Nicobar Islands) districts have no Scheduled Tribes in urban areas as per 2011 Census.

### **Growth of Urban Scheduled Tribe Population (1991-2001)**

The urban Scheduled Tribe population in India grew at an average rate of 39.55 per cent during 1991-2001. However, there were distinct regional variations at district level. Fig. 6a shows the spatial pattern of their growth at district level in India during 1991-2001. On the basis of the magnitude of variations the following three broad categories of growth rate have been identified:

**High Growth (above 40.51 per cent):** There were 199 districts (about 34 per cent of all districts) which had a high growth rate of more than 40.51 per cent during 1991-2001 (Fig. 6a). A major concentration of these districts was in Deccan plateau covering central and southern parts of Maharashtra and north eastern parts of Karnataka.

Another concentration of the districts has been observed in almost all the districts of Assam, Nagaland and eastern parts of Arunachal Pradesh. Western parts of Uttar Pradesh, Uttarakhand and southern parts of Himachal Pradesh also experienced high growth rate during this period.

Table 11 shows that 31 districts recorded abnormally high growth rate during 1991-2001. However, these districts have an insignificant proportion of Scheduled Tribes to total population. Notably, Kamrup district in Assam registered 16569 per cent growth in urban Scheduled Tribe population followed by 4700 per cent in Mainpuri district, 2700 per cent in Ballia and 2300 per cent in Banda district, 2240 per cent in Mau district and 1241 per cent in Hamirpur district of Uttar Pradesh.

In these districts even a small increase in the Scheduled Tribe population resulted in a very high percentage growth. Fig. 6a shows that all these districts are located in different pockets of the country and lack any definite pattern.

**Moderate Growth (20.51-40.50 per cent):** A moderate growth in urban Scheduled Tribe population was recorded in 53 districts (8.9 per

**Table-11 : India: Districts Recording Abnormally High Growth among Urban Scheduled Tribe Population (1991-2001)**

District Name	State Name	Absolute Change	Growth (%)	% of Total Urban Population
Kamrup	Assam	32311	16569.74	3.58
Mainpuri	Uttar Pradesh	517	4700.00	0.23
Ballia	Uttar Pradesh	27	2700.00	0.01
Banda	Uttar Pradesh	23	2300.00	0.01
Mau	Uttar Pradesh	112	2240.00	0.09
Hamirpur	Uttar Pradesh	149	1241.67	0.03
Pilibhit	Uttar Pradesh	129	921.43	0.05
Hardwar	Uttarakhand	159	722.73	0.04
Sonbhadra	Uttar Pradesh	198	707.14	0.08
PurbaChampan	Bihar	224	678.79	0.10
Varanasi	Uttar Pradesh	471	672.86	0.04
Firozabad	Uttar Pradesh	159	662.50	0.03
Muzaffarnagar	Uttar Pradesh	34	485.71	0.00
Rampur	Uttar Pradesh	153	425.00	0.04
TehriGarhwal	Uttarakhand	351	523.88	0.70
Malappuram	Kerala	183	446.34	0.06
Salem	Tamil Nadu	4097	371.78	0.37
Uttara Kannada	Karnataka	3702	338.39	1.24
Uttarkashi	Uttarakhand	176	293.33	1.03
Aurangabad	Bihar	212	290.41	0.17
Agra	Uttar Pradesh	276	250.91	0.02
Sidhi	Madhya Pradesh	19527	276.00	10.19
PashchimChampan	Bihar	1016	273.85	0.45
Dhemaji	Assam	4635	263.95	16.46
Kanniyakumari	Tamil Nadu	1338	245.96	0.17
Cachar	Assam	352	239.46	0.25
Nalanda	Bihar	135	232.76	0.05
Rajgarh	Madhya Pradesh	14595	44.53	3.78
Thrissur	Kerala	334	208.75	0.06
East Garo Hills	Meghalaya	20758	205.20	85.98
Bongaigaon	Assam	2722	200.74	3.71

Source: Computed from Census Data, 1991 and 2001

Fig. 6a

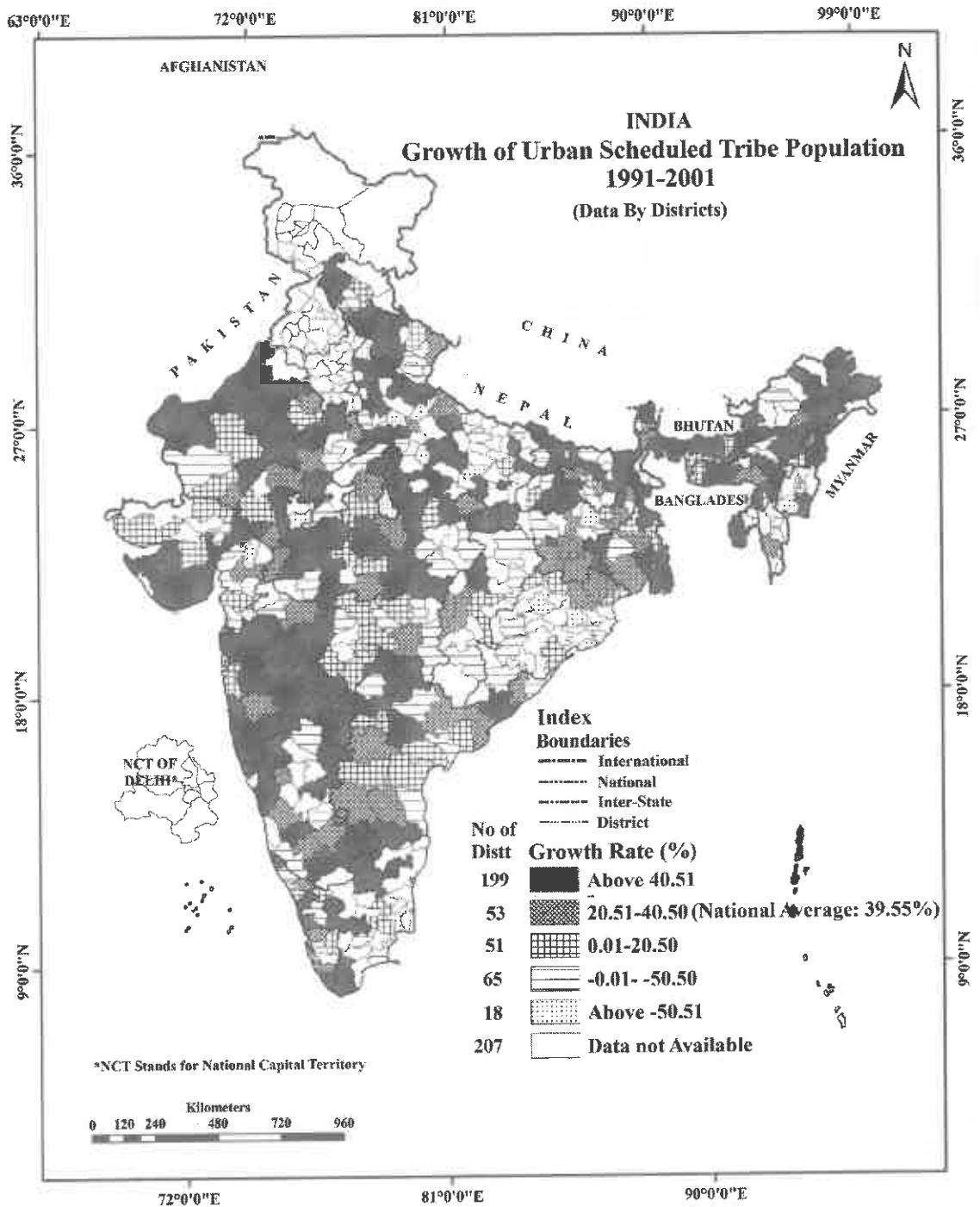
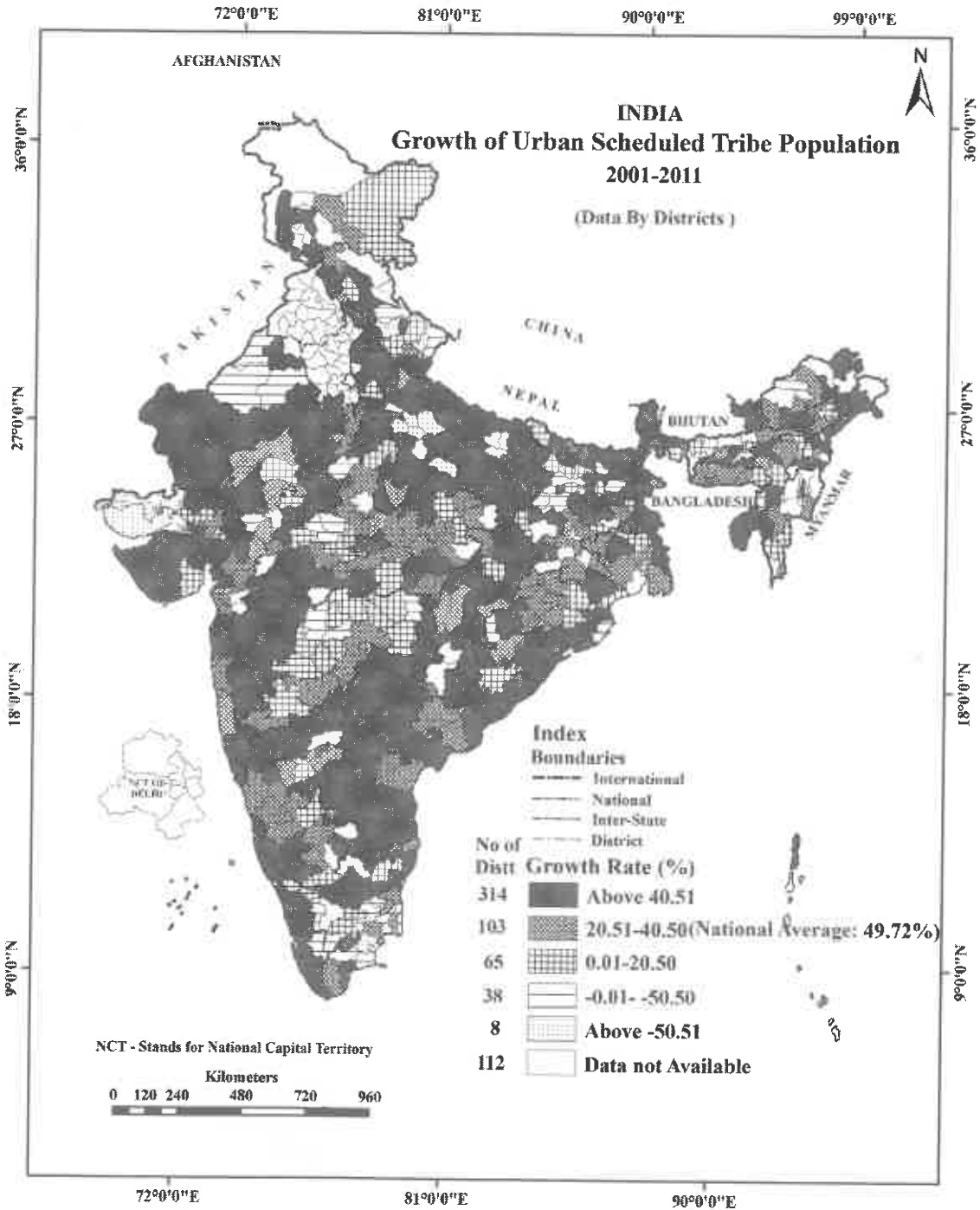


Fig. 6b



**Table - 12 : India: Districts Recording Abnormally High Growth among Urban Scheduled Tribe Population (2001-2011)**

District Name	State Name	Absolute Change	Growth (%)	% of Total Urban Population
Lalitpur	Uttar Pradesh	1833	91650.00	1.05
Kushinagar	Uttar Pradesh	3412	56866.67	2.03
Ballia	Uttar Pradesh	10908	38957.14	3.60
Deoria	Uttar Pradesh	6911	18678.38	2.19
North Goa	Goa	28749	17637.42	5.86
South Goa	Goa	32511	15263.38	7.91
Siddharthnagar	Uttar Pradesh	1421	14210.00	0.89
Pratapgarh	Uttar Pradesh	268	13400.00	0.15
Chandauli	Uttar Pradesh	3990	8489.36	1.66
Jaunpur	Uttar Pradesh	247	8233.33	0.07
Ghazipur	Uttar Pradesh	1465	5051.72	0.54
Azamgarh	Uttar Pradesh	1029	4677.27	0.27
Sonbhadra	Uttar Pradesh	9876	4369.91	3.21
Mirzapur	Uttar Pradesh	910	2676.47	0.27
Saharanpur	Uttar Pradesh	793	2033.33	0.08
Etah	Uttar Pradesh	101	2020.00	0.04
Malappuram	Kerala	4519	2017.41	0.26
Gautam Buddha Nagar	Uttar Pradesh	1895	1895.00	0.20
Kangra	Himachal Pradesh	4105	1824.44	5.02
Ghaziabad	Uttar Pradesh	3203	1659.59	0.11
Varanasi	Uttar Pradesh	8932	1651.02	0.59
Pulwama	Jammu and Kashmir	393	1572.00	0.52
South Sikkim	Sikkim	4203	1501.07	21.15
Agra	Uttar Pradesh	5756	1491.19	0.30
Meerut	Uttar Pradesh	2945	1320.63	0.18
Mahoba	Uttar Pradesh	369	1317.86	0.21
Mau	Uttar Pradesh	1496	1278.63	0.32
Mahrajganj	Uttar Pradesh	1295	1257.28	1.04
Firozabad	Uttar Pradesh	2274	1242.62	0.29
Sant Ravidas Nagar	Uttar Pradesh	106	1177.78	0.05
Mathura	Uttar Pradesh	1111	1157.29	0.16
Gorakhpur	Uttar Pradesh	3348	1030.15	0.44
Bahraich	Uttar Pradesh	180	1000.00	0.07

Source: Computed from Census Data, 2001 and 2011



cent of all districts). A group of such districts was located in northern parts of Odisha, western parts of Jharkhand and south western parts of Andhra Pradesh. Besides, there were a number of individual districts located in different parts of the country which registered a moderate growth.

**Low Growth (less than 20.50 per cent):** There were 51 districts (8.6 per cent of all districts) which recorded low growth of urban Scheduled Tribe population. Majority of districts registering low growth in urban scheduled tribal population were located in central parts of Rajasthan and north western parts of Gujarat (Fig. 6a).

**Negative Growth:** Fig. 6a shows that growth of urban scheduled tribal population has not been uniform on a spatial scale. There were 83 districts (about 14 per cent) which recorded a negative growth in urban tribal population during this decade. However, there were variations in magnitude of decrease in urban tribal population in these districts. A negative growth (less than -50.50 per cent) in urban Scheduled Tribe population has been observed in 65 districts, while remaining 18 districts registered more than -50.51 per cent decline 1991-2001.

### Growth of Urban Scheduled Tribe Population (2001-11)

As compared to 1991-01 decade at the national level the growth of Scheduled Tribe population in urban areas registered a high increase from 39.55 per cent to 49.72 per cent. There were marked variations in growth rates at the district level (Fig. 6b) which forms the basis for the identification of the following three types of areas:

**High Growth (above 40.50 per cent):** Out of the total of 640 districts half (314) of the districts have shown above 40.50 per cent growth among urban Scheduled Tribes. A group of districts with high growth rate can be observed in Uttar Pradesh, Bihar, West Bengal and Sikkim. Another cluster with high growth can be identified in southwest and central Rajasthan, Western Maharashtra and

Chhattisgarh. Almost all the districts in Kerala, Andhra Pradesh and Goa also witnessed a high growth rate (Fig. 6b).

Table 12 shows that 33 districts of the study area have recorded abnormal growth of urban Scheduled Tribe population. The study reveals that majority of these districts (i.e. 27 districts are located in Uttar Pradesh. The highest growth of urban Scheduled Tribe population has been registered in Lalitpur district followed by Kushinagar, Ballia, Deoria, North and South Goa.

**Moderate Growth (20.51 to 40.50 per cent):** Fig. 6b shows that in 103 districts (16.10 per cent of all districts) the growth rate was between 20.51 per cent to 40.50 per cent. Spatially, the districts registering moderate and high growth are located adjacent to each other.

**Low Growth (less than 20.50 per cent):** The study reveals that about 10 per cent (65) of all districts experienced a low growth of less than 20.50 per cent. The central part of Maharashtra, Uttarakhand and Mizoram recorded a low growth rate during 2001-2011 (Fig. 6b).

**Negative Growth:** During 2001-2011 decade 46 districts (7 per cent of all districts) recorded a decline in Scheduled Tribe population in urban areas of the country. A decline of less than -50.50 per cent was registered in 38 districts while the remaining 8 districts recorded above -50.51 per cent negative growth in population (Fig. 6b).

The comparative analysis of Fig. 6a and Fig. 6b shows that the growth of Scheduled Tribes in urban areas shows a trend of spatial expansion during the later decade. This trend was more pronounced in districts of Uttar Pradesh state in northern India and Kerala state in south India.

### Conclusion

The district wise analysis of the growth of Scheduled Tribe population in India shows that the decade 2001-11 was the fourth decade when India has experienced the lowest (17.69 per cent) growth rate of population. In comparison with regard to Scheduled Tribes it was the third decade since

1981-1991 witnessing the lowest growth rate i.e. 22.66 per cent. The study brings out remarkable spatial variations in overall growth of Scheduled Tribes across rural and urban areas at both national and district levels. The study indicates that during 1991-2001 high growth (more than 40.51 per cent) of Scheduled Tribe population was recorded in about 17 per cent of all districts, moderate growth (20.51 to 40.50 per cent) in 18 per cent and 17 per cent districts experienced low growth i.e. less than 20.50 per cent. About 15 per cent of the total 593 districts experienced negative growth in Scheduled Tribe population. The high growth of Scheduled Tribes was observed in central and western parts of Bihar, eastern parts of Uttar Pradesh, western parts of Gujarat and Rajasthan. In comparison central parts of Rajasthan, north western parts of Maharashtra, Andhra Pradesh and central parts of Madhya Pradesh registered moderate growth. A low growth of Scheduled Tribe population was recorded in southern parts of Jharkhand, western parts of West Bengal and northern parts of Odisha.

A high growth rate of rural Scheduled Tribe population was observed in western parts of Bihar, eastern parts of Uttar Pradesh and south western parts of Rajasthan. It was moderate (20.50 to 40.50 per cent) in Madhya Pradesh, central and southern parts of Rajasthan and central parts of Andhra Pradesh. The low growth (less than 20.50 per cent) of rural Scheduled Tribe population was the characteristic feature in western parts of West Bengal, southern parts of Jharkhand and northern parts of Odisha. Besides, the growth of urban Scheduled Tribes was high (more than 40.51 per cent) in Deccan plateau sprawling over central and southern parts of Maharashtra, north parts of Karnataka and entire Assam and Nagaland in north eastern India. On the other hand, low growth among urban Scheduled Tribes during 1991-2001 was observed in central part of Rajasthan and some pockets in north western Gujarat.

During next decade (2001-11) high growth (more than 40.51 per cent) of Scheduled Tribe population has been observed in northern India comprising almost entire Uttar Pradesh, northern Bihar, southwest Rajasthan and Himachal Pradesh. A cluster of districts with moderate growth has been identified in central part of Rajasthan, Maharashtra and Andhra Pradesh. A contiguous belt comprising eastern Maharashtra, northern Andhra Pradesh and Odisha has witnessed low growth of Scheduled Tribe population during 2001-2011. The growth of Scheduled Tribe population in rural and urban areas also shows different patterns at district level during the study period. In rural areas, high growth has been found in southwest Rajasthan, eastern and central Uttar Pradesh, northern and western Bihar, southern Uttarakhand and western part of Himachal Pradesh. Moderate growth has been recorded in central and western part of India which includes Maharashtra, Madhya Pradesh and Rajasthan. The study shows that almost entire Andhra Pradesh, Odisha, Karnataka and Chhattisgarh have shown low growth (less than 20.50 per cent) among Scheduled Tribes in rural areas. In urban areas a high growth rate has been recorded in Uttar Pradesh, Bihar, West Bengal, Sikkim, southwest and central Rajasthan, Western Maharashtra and Chhattisgarh. The study reveals that the central part of Maharashtra, Tamil Nadu, Uttarakhand and Mizoram have registered low growth (less than 20.50 per cent). The important feature of growth pattern among the Scheduled Tribes over the period 1991 to 2011 affirms that it has been abnormally high in those districts where the percentage share of Scheduled Tribe population to total population is insignificant therefore even a small increase in the Scheduled Tribe population has resulted in a very high percentage growth. There is a need for detailed analysis of the processes associated with the changing pattern of growth among Scheduled Tribe population in India.

## References

**Census of India. (1991):** As per the CD issued by the Office of Registrar General, New Delhi, India.

**Census of India. (2001):** As per the CD issued by the Office of Registrar General, New Delhi, India.

**Census of India. (2011):** As per the CD issued by the Office of Registrar General, New Delhi, India.

**Dube S C. (1998):** Development designs and tribal people. In: SC Dube (Ed.): *Antiquity to Modernity in Tribal India*. Vol. 1. Continuity and Change among Indian Tribes. INTER-India Publication, New Delhi.

**Narayan Sachindra. (2002):** *The Dynamics of Tribals Development: issues and challenges*. Gyan Publishing House, New Delhi.

**Planning Commission. (2005):** *Report of the Task Group on Development of Scheduled Caste and Scheduled Tribe*. Government of India, New Delhi.

**Thakur, B. R. and Sharma, D. D. (2009):** "Evaluation of Tribal Development Programmes with Special Reference to Bharmaur Region of Himachal Pradesh", *Studies of Tribes and Tribals*, 10 (2), p.189.

## NEW MAP SERIES : 3 SIZE OF THE HOUSEHOLD IN METROPOLITAN CITIES OF INDIA (2011)

**GOPAL KRISHAN**  
Chandigarh, India

Population geographers have rather been shy of affirming the significance of and exploring regional variations in size of the household. Practically all books on Population Geography in India skip this aspect of population in their coverage. This is not surprising as their content framework is largely in line with the pattern set by John I. Clarke in his text book *Population Geography*, first published in 1965 by Permagon Press, New York. In all probability, in his own turn, he may not have missed this item if Glen T. Trewartha had included it in his tentative structural scheme of content and organization of the subject while making 'A Case for Population Geography' in his presidential address to the Association of American Geographers in 1953.

A household in the Indian census is a group of persons who commonly live together and would take their meals from a common kitchen unless the exigencies of work prevented them from doing so. 'It is basically an economic unit composed of related or unrelated persons. A family, by comparison, is a social unit based on marriage and united by ties of kinship.' Although household is not necessarily a family but in the Indian context the two are virtually synonymous with each other.

Census enumerations and variety of studies in social sciences adopt household as the primary unit for collection of their data. Economists in their inquiry of income and expenditure patterns, sociologists in tracing the family dynamics, demographers in analyzing vital statistics, marketing experts in devising strategies for packaging of their products, and planners in

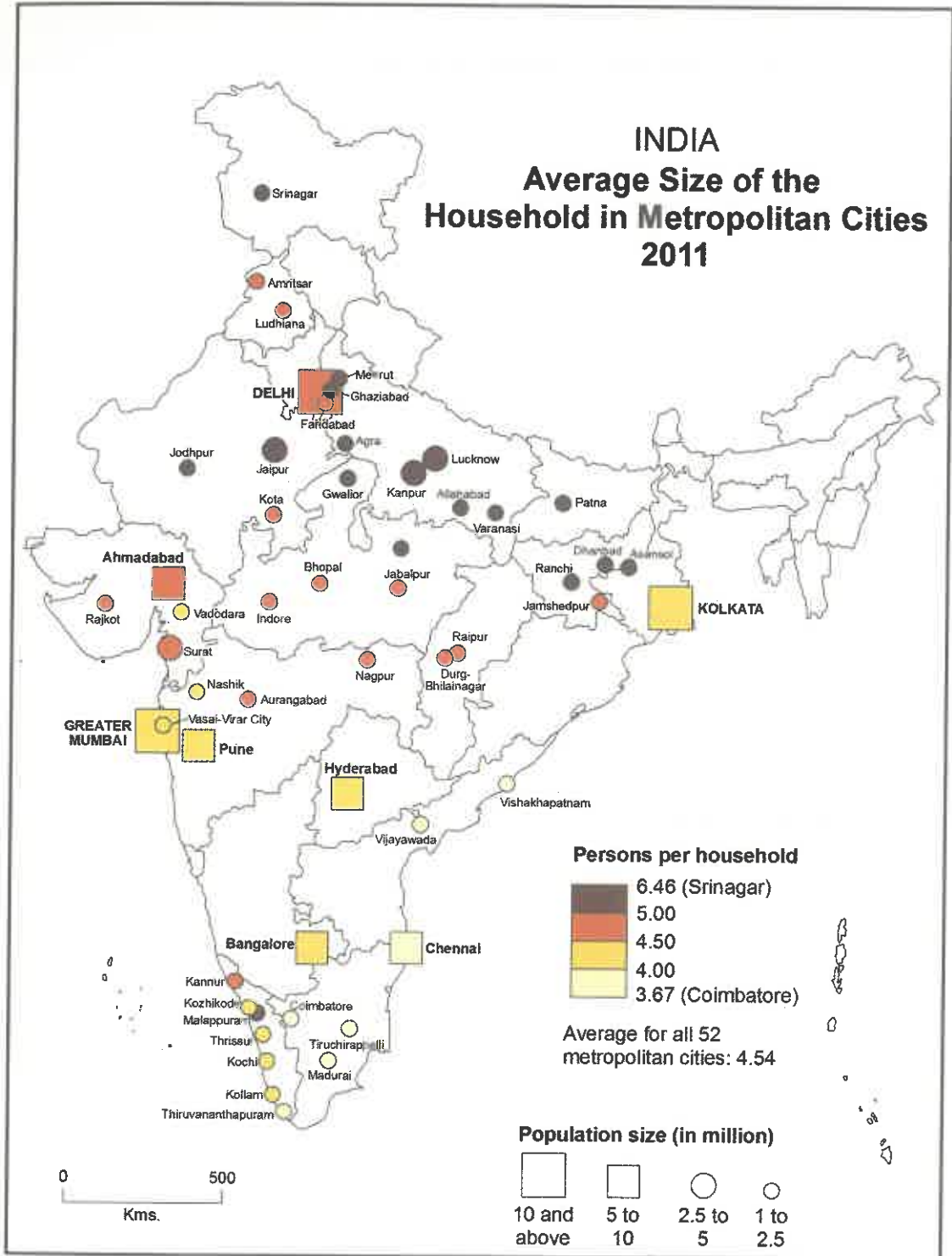
understanding of housing situation and problems use data generally at the level of individual households.

The geographical distinction in studying household size lies in discerning spatial variations in family organization (relative share of nuclear and joint families), mode of production (whether entails pooling together of family resources or favours individual effort), degree of modernization (represented by attitude toward family size) and demographic situation (in respect of natural increase, migration and marital status). Size of the household would be large under conditions of predominance of joint families over nuclear families. This size depends also on rate of natural increase, which is the function of the gap between birth rate and death rate. A high rate of natural increase manifests itself in a large number of children in a household, resulting in its big size. Migration, both in and out, generally leads to a relatively small size of a household. Out movement of individuals would cause a decrease in size of a household. They would also generally form small households at the place of their new settlement. In terms of marital status in India, some categories of persons normally continue living with their parents, in-laws and other relatives, such situations enlarge the household size.

The role of government policies in influencing the household size cannot be ruled out. This happens when any subsidized facility is provided on household basis. Several households, living jointly otherwise, recorded themselves as split into two or even more units when a decision to

# INDIA

## Average Size of the Household in Metropolitan Cities 2011



Map showing the average size of the household in metropolitan cities in India for 2011. The map uses color-coded squares to represent the average household size and circles to represent the population size (in million) of the metropolitan cities.

**Persons per household:**

- 6.46 (Srinagar)
- 5.00
- 4.50
- 4.00
- 3.67 (Coimbatore)

**Average for all 52 metropolitan cities: 4.54**

**Population size (in million):**

- 10 and above
- 5 to 10
- 2.5 to 5
- 1 to 2.5

**Scale:** 0 to 500 Kms.

supply only a limited number of LPG gas cylinders at subsidized rate per household was announced. Similarly a number of joint households in a slum locality get split when a residential unit in a new settlement colony is to be allotted on per household basis. A natural outcome of this is a reduction in size of the household.

Urbanization and its concomitants of industrialization and modernization are said to have a negative effect on size of the household. These factors work by way of creating an environment for nuclear families, reduction in birth rate, and enhancement in mobility. By virtue of being on the higher steps of urbanization ladder, the metropolitan cities, each with a population of at least one million, are expected to be characterized by small size of the household.

The 2011 Census of India brought forth that 52 metropolitan cities in the country, with an aggregate population of 159.6 million organized into 35.2 million households, had 4.54 persons per household on an average. The comparable figures for total population of India were 4.85, for rural areas 4.94 and for urban areas 4.66. Such differentials are just in decimal points defying the popular perception of these being wide. The cross interplay of various factors determining the size of the household size is such that the expected differences between urban and rural areas as also between big cities and small towns gets narrowed down. On disaggregation, of course, the picture becomes significantly differentiated.

The average size of household in metropolitan cities ranges from 3.67 in Coimbatore to 6.46 in Srinagar. By and large, metropolitan cities located in South India are distinguished by smaller household size than that of their counterparts in North India. Metropolitan cities in Western India are marked by relatively small size and those in Central India fall in the category of comparatively large households. In determining such spatial patterns is the paramount role of the factors of incidence of joint households and the rate of natural increase.

Cutting across this influence of regional setting or location is the imprint of the relative

population size of a metropolitan city. The average household size shows a gentle descent from 4.68 in metropolitan cities in the population range of 1 to 2.5 million, to 4.66 in those in population range of 2.5 to 5 million, and further to 4.22 in those belonging to population range of 5 to 10 million. Household size in megacities with a population of 10 million and over rises to 4.52 under extremely intense pressure on residential space enjoining several households to stay together out of compulsion rather than choice. Notwithstanding an overall decrease in household size with population size, only a weak negative correlation of -0.233 was observed between population size and household size of metropolitan cities.

Across the play of regional setting and population size was the role of religious composition of metropolitan cities. A high proportion of the Muslim population (here only 2001 Census data could be put in service since the 2011 Census data on religious composition is yet to be released) was noted as associated with larger size of household in association with higher incidence of joint households and higher rate of natural increase. Srinagar (93.82 % Muslim) in Jammu & Kashmir, Malappuram (70.41 % Muslim) in Kerala, Meerut (34.58 % Muslim) in Uttar Pradesh, Hyderabad (31.85% Muslim) in Telangana and Aurangabad (28.94% Muslim) in Maharashtra are all ready illustrations. Traditional metropolitan cities like Varanasi, Allahabad, Patna, Agra, and Lucknow are also noted for relatively large size of household.

Regional location, population size and functional base are usually adduced as the three basic determinants of the characteristics of any city. The play of location and size of metropolitan cities has been covered in our analysis above. Lack of data on their 'function' was a constraint in discerning the contribution of this factor.

As it emerges, the household size is a reliable indicator of the *shade of blend* of modernity (as represented by the rate of natural increase) and tradition (as reflected in persistence of joint households) in the context of metropolitan cities of India.

### India: Size of the Household in Metropolitan Cities (2011)

	Metropolitan City	Number of		Persons per Household
		Households	Population	
1	Srinagar UA	194483	1256831	6.46
2	Varanasi UA	229001	1432280	6.25
3	Agra UA	298318	1760285	5.9
4	Patna UA	354196	2049156	5.79
5	Allahabad UA	213469	1212395	5.68
6	Meerut UA	253415	1420902	5.61
7	Jodhpur UA	212332	1138300	5.36
8	Gwalior UA	208157	1102884	5.3
9	Malappuram UA	320952	1699060	5.29
10	Kanpur UA	553061	2920496	5.28
11	Dhanbad UA	227036	1196214	5.27
12	Lucknow UA	553966	2902920	5.24
13	Ranchi UA	217476	1126720	5.18
14	Asansol UA	243287	1243414	5.11
15	Ghaziabad UA	467004	2375820	5.09
16	Jai pur (M Corp.)	599507	3046163	5.08
17	Aurangabad UA	239922	1193167	4.97
18	Indore UA	441161	2170295	4.92
19	Jamshedpur UA	272765	1339438	4.91
20	Delhi UA	3352894	16349831	4.88
21	Faridabad (M Corp.)	290675	1414050	4.86
22	Amritsar UA	244016	1183549	4.85
23	Jabalpur UA	264778	1268848	4.79
24	Kota (M Corp.)	210135	1001694	4.77
25	Ahmadabad UA	1346716	6357693	4.72
26	Ludhiana (M Corp.)	344333	1618879	4.7
27	Bhopal UA	402490	1886100	4.69
28	Raipur UA	240221	1123558	4.68
29	Kannur UA	352069	1640986	4.66
30	Durg-Bhilainagar UA	228759	1064222	4.65
31	Raikot UA	301408	1390640	4.61
32	Surat UA	1006471	4591246	4.56
33	Nagpur UA	550116	2497870	4.54
34	Kozhikode UA	451305	2028399	4.49
35	Vadodara UA	408995	1822221	4.46
36	Nashik UA	352629	1561809	4.43
37	Hyderabad UA	1744154	7677018	4.4
38	Greater Mumbai UA	4190812	18394912	4.39
39	Kolkata UA	3252717	14057991	4.32
40	Vasai-Virar City (M Corp.)	291229	1222390	4.2
41	Pune UA	1213341	5057709	4.17
42	Thrissur UA	451175	1861269	4.13
43	Kollam UA	272421	1110668	4.08
44	Kochi UA	526288	2119724	4.03
45	Bruhat Bangalore UA	2121301	8520435	4.02
46	Chennai UA	2176584	8653521	3.98
47	Thiruvananthapuram UA	424636	1679754	3.96
48	Tiruchirappalli UA	259063	1022518	3.95
49	Visakhapatnam	439335	1728128	3.93
50	Madurai UA	381614	1465625	3.84
51	Vijayawada UA	392551	1476931	3.76
52	Coimbatore UA	581702	2136916	3.67
	<b>All Million Cities</b>	<b>35166441</b>	<b>159573844</b>	<b>4.54</b>

Source: Census of India, Primary Census Abstract, 2011.

## BOOK REVIEW

**K. R. Dikshit and Jutta K. Dikshit (2014): *North-East India: Land People and Economy*, Springer, Heidelberg (Germany), pp.xliii+800, Figures 55, Photographs 65, Tables 195, Price €199.99 (ISBN 978-94-007-7055-3)**

Any one interested to know more and the latest about North-East India or desiring to undertake any research work on the region feels greatly constrained by the dearth of literature, especially of the serious nature. In that respect, the book under review authored by two highly experienced senior geographers, Professors K. R. Dikshit and Jutta K. Dikshit, is like the showers of monsoonal rains in the prevailing drought like conditions, so far as the academic literature on North-East India is concerned.

In fact, the peripheral location from the mainland, rugged topography and disturbed law and order situation combined with non-availability of time-series data/information discourages scholars to undertake studies on North-East region, as a whole or a part of it. On one hand, non-availability of time-series data/information compels the interested scholars to undertake extensive fieldwork. On the other side of the scale, uneven topography, inclement weather conditions and disturbed law and order situation dissuade potential researchers from undertaking such visits. For any geographical study, the kind under review here, undertaking extensive field work is a must.

The authors of the book under review defied not only all such odds but also their fragility due to old age. Even the physical distance of two thousand kilometers between their residence in Pune (Maharashtra) and North-East India failed to have any dent in their determination. They undertook several long duration field visits and spent considerable time in the region between 2006 and 2012. Each of the twenty chapters in the book is a testimony to this.

The book, organized into five parts, divided further into twenty chapters, deals comprehensively with the historical developments, the land, the people, the economy and the future prospects of the North-East, in a sequential order. Before moving to Part I, which traces in detail the historical developments leading to shaping of the present politico-administrative map of North-East India, the authors provide a brief introductory note penned over sixteen pages. The note begins with a comprehensive and critical review of the previous writings on the region followed by a discussion on the organizational structure of the book and the rationale behind it. Such a review of existing writings on the region adds not only to the beauty but also to the value of the book. One does not generally come across a book on regional geography which also presents a review of existing literature on the region under reference. Such a review along with bibliographic references at the end of this introductory note is going to help a great deal to the prospective scholars interested to pursue research work on North-East India. The concluding part of this note is worth quoting where the authors share their experiences with the readers, "North-East India is a very fascinating region, suffused with natural beauty, but riddled with disputes and controversies. Writing about the region..... is a cautious enterprise if one wants to keep away from any controversy. Yet, the possibility of being accused of bias is always there. We...have tried to keep away from being judgmental unless - convinced of the facts and their interpretation offered" (p.13).

Part I, devoted to historical developments traces the historical geography of the region through six historical phases: from early time to sixth century A.D.; early history of Kamarupa; the rule of Koches; the



Ahoms rule to the Birth of Assam; the British rule; and territorial reorganization of North-East after 1947. The authors have succinctly examined not only the politico-administrative changes and their implications but also traced the socio-economic conditions with focus on the British rule. Tables, placed in between the text, summarize beautifully the territorial annexations that took place during the British period along with their implications in a sequential order (Table 2.2, p.47).

Part II, focusing on the land and its resources with related problems, is organized into seven chapters: geological structure, relief features, drainage pattern, weather and climatic conditions, natural hazards, resource endowment, and natural vegetation, in a sequential order. Dikshits, blessed with in-depth grounding in geomorphology, dig well enriched material from all possible sources, take help from topographic maps by blending all this with extensive field work, present a remarkable depiction of geology, relief and drainage system of the North-East region. Maps, sketches, diagrams and the beautiful photographs taken during the field work add further value to the quality of the text. This apart, a separate chapter on Natural Hazards (Chapter VII, pp.175-191) is not only a valuable addition but also rarely found in regional geography books written by the Indian authors. Three main natural hazards: floods, earthquakes and landslides, prevalent in the region are dealt with in precise details supplemented with photographs and information/data in a tabular form. At one place in this chapter, the authors state that the natural hazards, episodic events by nature, "are the balancing acts of nature"(p.176). Such a statement about natural hazards can be debatable. However, the discussions in the chapter are quite informative and analytical. Similarly Chapter IX, devoted to natural vegetation, apart from the discussions on distribution and typology of forests, biodiversity and efforts made to conserve nature in the North-East region, two appendices, at the end of the chapter, listing National Parks and Wildlife Sanctuaries in the region, are quite informative and useful.

Part III of the book, comprising six chapters, is devoted to human resources in the region. Beginning with early colonization and moving through the racial characteristics of different socio-cultural and ethnic groups of the region, population distribution and density in different states, migration and its impact on socio-economic milieu, and rural settlements, and an examination of urbanization process and urban landscape. Discussions in each chapter are organized systematically and coherently along with organized data analysis. Tables, photographs, maps and diagrams are quite revealing. All possible efforts have been made to provide the latest information/data on various demographic attributes of population in the region. Important tribes of the region have been discussed, individually. Definitely, this enriches the literature presented in the book, but increases size of the book, and ultimately the cost.

Part IV of the book, which focuses on economy of the region, examines agricultural and industrial development along with an objective assessment of infrastructure development and trade in the region. It begins with discussions on agricultural development followed by industrial development, transport, trade and socio-economic development, in a sequential order. Discussions on socio-economic development are quite exhaustive and revealing. The authors make a comprehensive and objective assessment of the socio-economic development in the region along with impediments hindering the development in the region. The authors have covered per capita income and growth rates of economy by states along with distributional aspects and poverty levels. However, tourism as a component of economy of regional economy, has not been discussed without offering any explanation for its exclusion.

The Fifth and final part of the book, comprising a single chapter, is in the form of an epilogue in which the authors raise a variety of questions about the past, present and future development of the region and reflect on all such questions in the light of their impressions and scholarly discussions held with various sections of society and scholars living and working in the region. Briefly, they have discussed various issues and problems, including boundary disputes within North-East, ethnic conflicts, illegal immigration of Bangladeshis, illegal cross border trade, frequent economic blockade and extortions by various militant

groups, faced by the region. In their own assessment, some of the problems and issues are emotive and often inconsequential, hence a wastage of huge energy of the people that can be diverted to reconstruction and development of the region. They are of the opinion that the past, how glorious it may be, can not be a guarantee for present health and happiness of the region, but deep concern and commitment of people to region's economic growth and social wellbeing can make a big difference. While expressing their full faith in the bright future of the North-East, the authors state that "a stable, prosperous and tension-free Assam with a harmonious societal organization can prove a model for the other states to emulate". However, they have not dwelled upon this in detail. Whether one agrees or disagrees with the authors, the way they have diagnosed problems, built arguments and presented logic with frankness is worth reading and enjoying.

On the whole, the book is written and edited in a serious scholarly manner. It is voluminous, running over more than eight hundred pages, yet not only an interesting but also a worth reading work. One must keep a personal copy of the book, if she/he can afford it. Happily, one can purchase through the internet individual parts of the book related to one's area of interest. However, an individual theme can not be a substitute for a holistic understanding of the region. It is recommended that each geography department in the country must have at least a few copies of the book in their departmental libraries. The book will help all those interested in doing research on North-East or any individual state in the region. Even the planners, policy-makers and administrators, working in the region, will be enormously benefitted.

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**OBITUARY****PROFESSOR GURDEV SINGH GOSAL****(April 1, 1927 – January 3, 2014)**

I deem it a privilege to write this obituary. It is my tribute to my esteemed teacher who was indeed a role model for all those persons whose lives and careers he shaped during his life journey. Professor Gosal was among rare persons imbued with immense qualities of head and heart.

The academia in the state of Punjab, nay India, and even abroad are familiar with his intellectual acumen and the heights he touched in academics and administration. Born in a small village Gosalan, District Ropar, Punjab, he passed his matriculation from Khalsa School, Kurali. When he left his birthplace to pursue higher studies he carried with him his father's wish for the village lad to remain *awwal* (first) in whatever he chose to pursue. And this remained with him throughout. Master's in Geography from Panjab University (1949); M. S. from Wisconsin, USA (1954) and Ph. D. from Wisconsin (1956). He was awarded fellowship for all the three years he studied and researched at the University of Wisconsin which was indeed a rare honour for a student from India. Professor Gosal wrote his doctoral dissertation on the Geographical Analysis of India's Population under Professor Glen T. Trewartha. This marked his initiation as a population geographer and from then onwards there was no looking back. He pioneered research on such aspects of population as growth, literacy, sex ratio, religious composition, migration, urbanization etc.. His high quality research with innovative methodology became the basis for Professor Gosal's students.

Professor Gosal headed several professional associations of geographers at the national and international levels and always remained aloof from petty politics and thereby earned respect in the distinguished positions he held : President, Indian Council of Geographers; International Geographical Union's Commission on Population Geography; Member, Standing Committee on Geography, ICSSR; Geography Panel, UGC; President, National Association of Geographers, India; Founder President, National Association of Population Geographers, India; Member, National

Committee on Geography, Indian National Science Academy; National Lecturer, UGC..... and many more.

Professor Gosal presented his researches at national and international fora and earned applause for his precision, innovative methodology, lucid and flawless style of his presentations across the globe : Kuala Lumpur, Malaysia, 1962; London, 1964 and 1969; USA, 1967; Canada, 1972; Soviet Union, 1978 and 1985; France, 1981, 1983... etc.. In addition, Professor Gosal visited several reputed universities in India where he lectured on population, geographic thought and methodological issues.

At the Panjab University, Chandigarh Professor Gosal not only ably headed the Department of Geography for two decades but was also nominated /elected to its Senate and Syndicate, and served as Dean, Students Welfare; Dean, Alumni Relations; Dean, Foreign Students; Dean, University Instructions; Dean, College Development Council; Honorary Director, North-Western Regional Centre of ICSSR... Professor Gosal pioneered several programmes of reforms and left an indelible mark of commitment and integrity when he relinquished these positions. The qualities of head got Professor Gosal due recognition. The latest being the Professor Emeritus status accorded to him by the Punjab University, which he was occupying at the time of his passing away.

Professor Gosal's qualities of heart were no less and endeared him to his students, associates both seniors and juniors. Many of his students have done well in life and career and Professor Gosal honestly expressed his joy and satisfaction at the achievements of his students.

Unassuming, helpful and cooperative by nature, Professor Gosal never ever hankered after positions. In fact, positions and prestige always followed him. On a personal level, he bore with fortitude the untimely loss of his only son (a young and promising geographer) a few years ago. He proved a very caring husband, a supporting father-in-law and a loving grandfather.

Like a saint he had a peaceful exit from this world.

The corridors of Geography Department at Panjab University, Chandigarh would keep echoing his hearty laughter and reflect his disarming smile. Adieu to this great scholar, an able administrator and above all a superior human being. We, the fraternity of social scientists shall all miss him.

**Swarnjit Mehta**  
Former Professor  
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Panjab University  
Chandigarh.

*Note: Professor Gurdev Singh Gosal passed away while the matter for the 2013 volume was being processed. We are therefore obliged to include his obituary in this volume instead of the one for 2014.*  
Editor.