

POPULATION GEOGRAPHY

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DISTRIBUTION OF ARGENTINA'S POPULATION SINCE 1947

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Abstract

A distinctive feature of distribution trend in Argentina during the last few decades, has been the growing concentration of population in a limited number of areas due to an accelerated urbanization and metropolization process. The spatial distribution of population in the country shows close relation to the organization of regional socio-economic structures, which in turn were greatly influenced by State Policies and the country's socio-economic development process. The study aims to analyze changing pattern of population distribution of population in the country both at national and regional levels, taking into account provincial jurisdictions in an attempt to identify concentration-diffusion trends. The basic sources of information are the data available at INDEC (National Institute of Statistics and Census) that correspond to population and housing national census for the years 1947, 1960, 1970, 1991, and 2001.

Distribution of population is both a condition for and a result of a country's development process. A distinctive feature of population distribution trend in Argentina during the last about five decades, has been its concentration in a limited number of areas due to an accelerated urbanization and metropolization process.

Decentralization and local development processes have a significant influence on population distribution in a territory, as well as on socio-demographic dynamics. "Economic upturns, increase in resources and responsibilities, and improvement in living conditions in areas other than great metropolitan concentrations constitute

appropriate mechanisms to modify concentrating historical trends, of which some social, economic, and environmental consequences have been negative."(CELADE, 1997, p.3)

In order to reduce the high level of concentration in Argentina's population, effort is on to implement actions towards the diversification of economic activities. Economic incentives, industrial promotion laws, and encouragement to exports are among the various steps taken in this regard. These are specially pronounced in the case of Pantagonia. A notable manifestation of interest in introducing changes in promoting

population settlement in southern parts of the Republic is also seen in the attempt to move Buenos Aires Federal District. This project was promoted in the second half of the 1980s, when Viedma-Carmen de Patagones was chosen as the new headquarters for the federal district, and it shows a certain concern for the development of Patagonia.

Within the national context, the reduced number of inhabitants in Patagonia should be noticed. For this reason, the area is called the "empty" region. Among the general features that describe Patagonia, the following could be easily mentioned: lack of large urban centers, attributable mainly to low diversity in the production of goods and services; general weakness of some highly specialized rural productive structures, such as livestock, wool, and fruit; lack of strong spatial interaction as reflected in the fact that Patagonia's urban centers do not have a significant area of influence. Although in the last few years, the region has experienced a notable development of international tourism, great traveling distances, both within the region and with the rest of the country, create a sense of isolation for this region. Besides towards the South end, the prevalence of rather unfavorable environmental conditions for human settlement further add to the isolation of Patagonia. However, in spite of all the settlement restrictions mentioned above, this region has shown a notable population growth in the last few decades which was mainly the result of immigration.

The profound changes in population distribution between 1947 and 2001 are the result of migration, urbanization, and economic dynamics in the country. The most significant trends in Argentina's population during the period under study are increase in urban population and the redistribution of population. Needless to say that all these factors were greatly influenced by State policies and the country's socio-economic development process.

General features of total growth components

Mazzeo is on the right point in saying that the present situation of Argentina population is the result of: "low total growth, early reduction of fertility, stagnant mortality rate, early population aging, deep regional inequalities and heavy urban concentration". (1995: 65). National growth rate of population was marked by decreases since 1950, then an increase in the 1970s, and subsequently followed by decrease. The rise in population growth in the 1970s is attributable to an increase in the birth rate. The estimates of a global fertility rate of 2.58 per woman and a gross reproduction rate of 1.26 daughters per woman during 1995-2000 implying an 18% reduction in fertility in the second half of the 20th century, show a trend toward small family pattern, albeit with great spatial and social differences throughout the country (Mazzeo, 1995:53). Although the mortality rate recorded an important decrease in the last few decades, "there are still high levels in higher risk groups, closely related to causes that can be avoided" (Celton, 1995:340). Possibilities of mortality decline are related to a change in eating habits and, regarding infant mortality, adequate access to health care. Values for life expectancy at birth, also allow to establish a continuous decrease in the mortality rate between 1950 and 2000, with estimated values at the end of the period being 70 years for men and 77 for women.

In the second half of the 20th century, population growth due to migration showed a general decreasing trend, except for an increase in the first five-year period of the 1970s. The most remarkable features are the decreasing importance of international migration in the country and the change in the countries of migrants' origin. In the period under study, the last important immigration wave from European countries was recorded between 1948 and 1952; since the mid 1950s, a prevalence of immigration flow from neighboring countries is recorded. (Mazzeo, op.cit.:55).

Argentina: Regions and Provinces



- 1 - Region Metropolitana
- 2 - Region Pampeana
- 3 - Region Cuyo
- 4 - Region Nordeste
- 5 - Region Noroeste
- 6 - Region Patagonia

Map 1

It should be mentioned that the estimated growth due to immigration for the last decade, i.e., 1991-2001, is not significant. In addition, the effects of the economic crisis at the beginning of the 21st century have caused a net migration of Argentines, a distinctive characteristic of the current situation in the country. From the analysis of the data and trends observed, it is evident that internal migrations has become the main variable accounting for Argentine population redistribution.

Regarding prevailing population trend in the territory, the most remarkable feature is the growing level of urbanization in Argentina. From the beginning of the 1930s, the country has been marked by a continuous decrease in rural population growth rates due to a sustained rural-urban flow.

The results of the 2001 census show a much slower growth of Argentine population than it was foreseen. According to INDEC's projections, the estimated total population for the date when the census was taken was 37,243,173, while provisional data give a total of 36,223,947 (Map 1).

SPATIAL DIMENSIONS OF DEMOGRAPHIC DYNAMICS

The trend towards diffusion

Historically, Metropolitan and Pampeana regions have been the territorial units that housed a greater proportion of the country's population (Tables 1 and 2). It is mainly the result of the centralization of national political decisions and to the high concentration of economic activities as a consequence of the development style adopted by the country.

The macrocephalia of the Argentine urban system is expressed in the fact that the area called Great Buenos Aires still concentrates more than thirty percent of the country's total population, in spite of the diffusion process evidenced since 1970. The unequal distribution in Argentine territory and the population

concentration in the Pampeana-Littoral area is manifested by the fact that, at present, 66.5% of the population lives there, notwithstanding relative loss of its importance since 1947, when the region accounted for 71.8% of the total population.

In spite of the persistent concentration pattern, it is necessary to point out some significant differences. Although the highest proportion of population is found in Pampeana region, it is in the Metropolitan region where the greatest concentration and density is recorded in what is the country's main urban center, containing Argentina's federal district. There are also differences regarding the trend that these two spaces present. In the Metropolitan region, in the 1970s, the change is reflected in a decrease in its percentage share in the national population, a trend that persisted in later records also. In case of the Pampeana region also, there was a continuous decrease in the relative importance of its share in the country's population (Table 2). If the effects in the two main regions are added since the 1970s, a process of population diffusion and redistribution expressed in the growing rates in the other regions can be seen.

Cuyo region has presented a relative population stability since 1895 census, when it recorded 6.8% of the national total population; ever since it has recorded small variations up to the current census. In this region, it is Mendoza province which shows the most important attraction to migrants.

The Northeastern region shows a similar process, although there are slightly more important variations. In this case, it is worth mentioning that Corrientes province towards the end of the 19th century stood out as an important population center (5.8% of the country's total). Settlement in the region, together with the changes that occurred through time in the territory and in its agro-industrial activities, have resulted in a less concentrated distribution by the end of the 20th century.

Table - 1
Argentina's Total Population by Regions and Provinces, 1947-2001

Regions and provinces	Year (In thousand)					
	1947	1960	1970	1980	1991	2001*
TOTAL	15.894	20.014	23.364	27.949	32.616	36.223
Metropolitan	4.722	6.739	8.353	9.766	10.918	11.453
City of Buenos Aires (1)	2.981	2.967	2.972	2.923	2.965	2.768
24 countries of Buenos Aires Province (2) (3)	1.741	3.772	5.380	6.843	7.953	8.684
PAMPEANA	6.690	7.597	8.573	10.012	11.488	12.647
Córdoba	1.498	1.754	2.060	2.408	2.764	3.061
Entre Rios	787	805	812	908	1.020	1.156
La Pampa	169	159	172	208	260	298
Rest of Buenos Aires Province (2)	3.533	2.994	3.394	4.022	4.642	5.133
Santa Fe	1.703	1.885	2.136	2.466	2.798	2.997
CUYO	1.015	1.355	1.546	1.876	2.228	2.565
Mendoza	588	824	973	1.196	1.412	1.576
San Juan	261	352	384	466	529	622
San Luis	166	174	183	214	286	366
NORTHEAST	1.316	1.616	1.808	2.248	2.823	3.361
Chaco	431	543	567	701	840	983
Corrientes	525	533	564	661	796	929
Formosa	114	179	234	296	398	485
Misiones	246	361	443	589	789	963
NORTHWEST	1.788	2.201	2.382	3.012	3.678	4.457
Catamarca	147	168	172	208	264	333
Jujuy	167	241	302	410	512	611
La Rioja	111	128	136	164	221	289
Salta	291	413	510	663	866	1.079
Santiago del Estero	479	477	495	595	672	806
Tucumán	593	774	766	973	1142	1.336
PATAGONIA	362	510	707	1035	1.482	1.737
Chubut	92	142	190	263	357	413
Neuquén	87	110	155	244	389	473
Río Negro	134	193	263	383	507	552
Santa Cruz	43	53	84	115	160	197
Tierra del Fuego, Argentine Antarctica and South Atlantic Islands (4)	5	11	16	29	69	100

1) Official denomination : "Ciudad Autónoma de Buenos Aires".

2) Only for comparison between 1991 and 2001, political division correspond to 2001. Official denomination of county is Partido.

3) In 2001 Census, 24 Counties of Buenos Aires Province are : Almirante Brown, Avellaneda, Berazategui, Esteban Echeverría, Ezeiza, Florencio Varela, General San Marón, Quilmes, San Fernando, San Isidro, San Miguel, Tigre, Tres de Febrero y Vicente López.

They represents similar surface than 19 counties of 1991 Census.

Source : INDEC. 2001 National Population Census.

Table - 2

Argentina : Relative Distribution of Total Population by Regions and Provinces 1947-2001

Regions and provinces	Year (In Per cent)					
	1947	1960	1970	1980	1991	2001
TOTAL	100	100	100	100	100	100
METROPOLITAN	29.7	33.7	35.8	34.9	33.5	31.6
City of Buenos Aires	18.7	14.8	12.7	10.4	9.1	7.6
24 counties of Buenos Aires Province	11.0	18.9	23.1	24.5	24.4	24.0
PAMPEANA	42.1	38.0	36.7	35.8	35.2	34.9
Córdoba	9.4	8.8	8.8	8.6	8.5	8.4
Entre Rios	5.0	4.0	3.5	3.3	3.1	3.2
La Pampa	1.1	0.8	0.7	0.7	0.8	0.8
Rest of Buenos Aires Province	15.9	15.0	14.5	14.4	14.2	14.2
Santa Fe	10.7	9.4	9.1	8.8	8.6	8.3
CUYO	6.4	6.7	6.6	6.7	6.8	7.1
Mendoza	3.7	4.1	4.2	4.3	4.3	4.4
San Juan	1.7	1.7	1.6	1.7	1.6	1.7
San Luis	1.0	0.9	0.8	0.7	0.9	1.0
NORTHEAST	8.3	8.1	7.7	8.0	8.7	9.3
Chaco	2.7	2.7	2.4	2.5	2.6	2.7
Corrientes	3.3	2.7	2.4	2.4	2.5	2.6
Formosa	0.7	0.9	1.0	1.0	1.2	1.3
Misiones	1.6	1.8	1.9	2.1	2.4	2.7
NORTHWEST	11.3	11.0	10.2	10.8	11.3	12.3
Catamarca	0.9	0.8	0.7	0.7	0.8	0.9
Jujuy	1.1	1.2	1.3	1.5	1.6	1.7
La Rioja	0.7	0.6	0.6	0.6	0.7	0.8
Salta	1.8	2.1	2.2	2.4	2.6	3.0
Santiago del Estero	3.0	2.4	2.1	2.1	2.1	2.2
Tucumán	3.8	3.9	3.3	3.5	3.5	3.7
PATAGONIA	2.3	2.5	3.0	3.7	4.5	4.8
Chubut	0.6	0.7	0.8	0.9	1.1	1.1
Neuquén	0.5	0.5	0.7	0.9	1.2	1.3
Rio Negro	0.8	1.0	1.1	1.4	1.5	1.5
Santa Cruz	0.3	0.2	0.3	0.4	0.5	0.6
Tierra del Fuego, Arg. Ant. and S. Atl. Islands	0.1	0.1	0.1	0.1	0.2	0.3

Source : INDEC. 2001 National Population Census.

The case of the Northwestern region is quite interesting, since it is the one where the most important industrial activities were concentrated in colonial times, and also in the first decades following the country's independence. The region had benefited greatly from being close to Potosí, the most dynamic area of the colonial period, and its good road connectivity including that with Peru. (Roccatagliata, 1992, p. 151) Thus, in the 1895 census this region recorded 17% of the national population. The decay of economic activities because of the rise in agro-exporting activities concentrated on the Atlantic coast, in Buenos Aires port area in particular, is a factor that has influenced the process of diffusion and loss of importance of this regional population.

Regarding the role of Patagonia in the total population, it can be seen that it is the only region that has been constantly increasing its relative importance during this period. By 1895, it only represented 0.7% of the country's population. In the studies on population distribution in Argentina, it is common to find references to the high concentration in the industrial littoral, a fact that opposes the relative depopulation affecting the South of the country i.e. Patagonia, that is sometimes referred to as an "empty" region. The use of this term makes reference to the low density of population at provincial level. In spite of this sustained increase in its relative importance, data show that in 2001 Patagonia's population represented only 4.8 percent of the national total and, thus, it is still very sparsely populated region in Argentina notwithstanding its very large areal extent.

Tables 1 and 2 reveal considerable difference in population distribution between Patagonia and the rest of the regions at the beginning of the period under study. This difference is expressed in the sparse scatter of population in the Southern provinces. In the following decades, the southern parts of the country registered notable increase in population in absolute number. However, in comparison to total population of the country

that change does not appear to be significant, since the growth of population between 1947-2001 represented an increase of 4.8 times.

When analyzing the data between 1947 and 2001, the grouping of provinces into regions makes it easier to make certain important generalizations, such as the following.

Except for the case of the City of Buenos Aires, where there has been a decrease in the number of inhabitants in three inter-census periods (1947-1960, 1970-1980 and 1991-2001), the rest of the spatial units have always registered a growth in population numbers. The changes observed correspond to variations in the intensity of demographic growth. Population concentration in the Metropolitan region shows an increase in the population living in metropolitan rings. This regional group increased its relative demographic strength in the national context until the 1970s, and then it showed a continuous decrease in both urban and total population.

It is evident that the heart of the country, Buenos Aires, has reached a certain point of saturation due to a high residential density and the competition of other specialized land uses and functions that correspond to its hierarchy as a metropolis in the world's urban system. The sub-urbanization process is evident in the continuous increase in the population living in Buenos Aires province counties. Although this proportion has decreased between 1991 and 2001, it is necessary to have further information, since in the last decade an important expansion process in the surroundings of the metropolis took place, particularly with new residential styles, such as closed neighborhoods, country-club estate developments, farms, etc. Thus, it is necessary to adjust the spatial definition of metropolitan suburbs in order to fully grasp this phenomenon.

Pampeana region is the most important one regarding its population size in the national context. The provinces that form part

of the region show the common trend of relative of importance between 1947 and 2001, indicative of spatial redistribution of population.

The change is important in the interior regions, such as the Northwest and the Northeast. For several decades, these regions expelled population due to important problems in their economic structures. The demographic growth in the 1970s indicates that these regions have begun to retain their population, although with some redistribution within provincial limits.

Cuyo has been a significant region since colonial times, as it is the main link with Chile. This region has remained are population growth, although with a moderate pace. In the region, Mendoza stands out prominently. This province has a dynamic economic structure which has been constantly increasing its relative importance.

Regarding Patagonia, the rapid settlement process in the second half of the 20th century has significantly changed the importance of this region within the national context.

The trend towards regional population increase has continued during the study period. This phenomenon was particularly noticeable in Tierra del Fuego province, since this province has multiplied its population several times, a fact that was specially relevant in the last few decades. It is interesting to point out that this population is, in practice, concentrated in only two cities in Tierra del Fuego, i.e. Ushuaia and Rfo Grande. In this case, demographic changes are linked to internal migratory movements, which became attractive mainly because of industrial promotion policies.

A slower growth

Table 3 shows, annual average growth rates for the period 1947-2002 for Argentine regions and provinces. It shows a marked decrease in the growth rate during the last inter-census period, with a much lower rate than estimated in growth projections. It is worth noticing that the lower growth was recorded

in those provinces where main urban areas are located (Buenos Aires, Córdoba and Santa Fe).

When comparing growth rates, important differences appear regarding growth intensity and trends in the period under study, both at regional and provincial level. While in the 1960s and 1970s only the Metropolitan and Patagonia regions recorded a growth rate higher than the national average rate, in the next decade, the Metropolitan and Pampeana regions were the only regions which showed a growth pace lower than the national average in this regard.

Although Patagonia recorded the highest regional rates of population increase between 1960 and 1991, its growth rate has come down in the last decade from 3.4 to 1.5 percent. In brief, although the growth in Patagonia's relative demographic importance is not highly significant at national level, it is relevant at regional level and is specially important when considering how this increase took place and where it got mainly concentrated. In effect, this fact has noticeable implications at local scale, mainly regarding employment, housing, and service rendering.

The Northwestern and Northeastern regions call for attention since from being out-migration regions until the 1960s they have begun to retain population. It is significant to note that during the 1991-2001, the highest growth rates were recorded in these areas. These changes in growth dynamics are indicative of the differences found in the regional population distribution, since these two regions have kept an important growth rate since the 1970s. No wonder, the relative share of these regions in the country's population has gone up during this period.

Prevalence of high urbanization levels

Urbanization, in its demographic meaning, is defined as the process by which an increase in the proportion urban population

Table - 3

Argentina : Growth Rate of Total Population by Regions and Provinces, 1947-2001

Regions and provinces	Year (In Per cent)				
	1947-1960	1960-1970	1970-1980	1980-1991	1991-2001
TOTAL	1.72	1.55	1.78	1.46	1.01
METROPOLITAN	2.66	2.15	1.78	1.46	1.01
City of Buenos Aires	-0.04	0.02	-0.17	0.14	-0.66
24 counties of Buenos Aires Province	5.77	3.55	2.39	1.42	0.85
PAMPEANA	0.95	1.21	1.54	1.30	0.92
Córdoba	1.18	1.61	1.55	1.32	0.97
Entre Rios	0.17	0.08	1.12	1.10	1.21
La Pampa	-0.49	0.80	1.90	2.10	1.32
Rest of Buenos Aires Province	1.25	1.26	1.69	1.36	0.97
Santa Fe	0.76	1.25	1.43	1.20	0.66
CUYO	2.13	1.32	1.96	1.62	1.36
Mendoza	2.52	1.66	2.05	1.57	1.05
San Juan	2.24	0.87	1.92	1.20	1.56
San Luis	0.39	0.51	1.55	2.74	2.38
NORTHEAST	1.53	1.12	2.16	2.16	1.68
Chaco	1.74	0.42	2.12	1.70	1.51
Corrientes	0.11	0.56	1.58	1.75	1.49
Formosa	3.36	2.71	2.33	2.82	1.90
Misiones	2.86	2.04	2.83	2.77	1.92
NORTHWEST	1.55	0.79	2.33	1.89	1.85
Catamarca	1.00	0.24	1.86	2.28	2.24
Jujuy	2.77	2.25	3.02	2.11	1.70
La Rioja	1.09	0.61	1.86	2.80	2.61
Salta	2.62	2.11	2.61	2.53	2.11
Santiago del Estero	-0.05	0.39	1.82	1.15	1.75
Tucumán	1.98	-0.10	2.37	1.52	1.51
PATAGONIA	2.56	3.28	3.78	3.40	1.53
Chubut	3.23	2.88	3.24	2.89	1.40
Neuquén	1.76	3.41	4.53	4.42	1.89
Rio Negro	2.72	3.07	3.76	2.64	0.83
Santa Cruz	1.57	4.68	3.06	3.12	2.02
Tierra del Fuego, Arg. Ant. and S. Atl. Islands	5.96	3.34	6.26	8.13	3.60

Source : INDEC. 2001 National Population Census.

takes place⁵. This has been a continuous and rapid process, in the country and its different regions. In 2001, 89.3 percent of Argentines lived in urban areas. However, the Argentine urban system presents a high supremacy rate, and "it tends to be less and less a macrocephalic system" (Vapñarsky, 1995, p.239). The population figures for the first four cities in the urban hierarchy are given below for reference purposes.

As a reference, the first four cities in the Argentine urban hierarchy and their population figures corresponding to the years 1991 and 2001 are presented below :

City	Province	Population	
		1991	2001
Great Buenos Aires	Federal District and Buenos Aires	11,298,030	12,045,921
Great Córdoba	Córdoba	1,208,554	1,368,109
Great Rosario	Santa Fe	1,118,905	1,159,004
Great Mendoza	Mendoza	773,113	846,904

As shown in Table 4, urban population growth rates virtually represent the region's total population growth, since its rural population's growth is very low or even negative⁷. When comparing with earlier periods, a decrease in the growth rate in this last inter-census period can also be observed. It is interesting to point out that the Northeastern and Northwestern regions stand out with relatively low urbanization levels in this period. Consequently, the provinces that form part of these regions have notably increased their urbanization level. Patagonia, although having a slower pace of urbanization, also presents some cases that are worth mentioning: Tierra del Fuego and Santa Cruz, show the highest urbanization levels (Table 5).

In general, the relatively high level of urbanization is recorded at all three levels: national, regional, and provincial. An important part of this situation is related to the strong incidence of Great Buenos Aires and Pampeana region. The former is an urban region and the latter has almost 84 percent of its population in urban areas. Population concentration is

also evident in the high figures reached by the urbanization level by provinces, since the lowest values correspond to Santiago del Estero (66 %) and Misiones (70%).. Patagonia stands out with a regional value very close to the national average and the high urbanization level in all its provinces. Río Negro and Neuquén provinces show relatively low level of urbanization in this area. In these two provinces, rural population devoted to intensive farming in low irrigation areas becomes important. Of the remaining provinces, Santa Cruz and Tierra del Fuego provinces are notable where rural population share is extremely low. In Tierra del Fuego, urban population is present in two cities, Ushuaia and Río Grande, which experienced rapid growth in the last few decades, as a consequence of the important migratory flows attracted by promotion policies. The rest of the population is located in a small town and rural settlements.

Regarding the urban⁷ ratio, data reveals population distribution which is very close to that of the total population. The greatest differences in this respect can be found in those places in which rural population is more representative. The following provinces present the most significant cases: the rest of Buenos Aires in Pampeana region, Misiones in the Northeast, Santiago del Estero in the Northwest and Mendoza in Cuyo region. The decrease in the urban ratio of an important population cluster, such as Great Buenos Aires, shows the double effect of population decrease in the City of Buenos Aires and the lower urban growth rate of the metropolitan ring.

As a result of this differential growth, the changes in the relative distribution of urban population in the country, indicated as urban ratio, can be noticed. In the first place, it is worth mentioning that in this relationship appears a situation similar to that shown in the total population distribution. Accordingly, an important concentration of population can be seen in the Great Buenos Aires- Pampeana region. However, between 1960 and 2001 this urban population

Table - 4

Argentina's : Urban Population and its Growth Rate by Regions and Provinces, 1991-2001

Regions and provinces	Population		Growth Rate %
	1991	2001	
GREAT BUENOS AIRES	11 298030	12 045 921	0.62
City of Buenos Aires	2 965 403	2 768 772	-0.66
Counties of Bs Aires Province (1)	8332 627	9 277 149	1.03
PAMPEANA	9 447 953	10 605 936	1.11
Córdoba	2 380 024	2 718 369	1.28
Entre Rios	791685	951796	1.77
La Pampa	192 871	242 483	2.20
Rest of Buenos Aires Province	3 654 082	4 020 380	0.92
Santa Fe	2 429 291	2 672 908	0.92
CUYO	1 756 342	2 092 136	1.68
Mendoza	1 099 526	1 243 863	1.18
San Juan	424 416	528 267	2.10
San Luis	232 400	320 006	3.07
NORTHEAST	1 929 244	2 566 449	2.74
Chaco	575 913	780 440	2.92
Corrientes	589 853	737 905	2.15
Formosa	270 061	375 153	3.15
Misiones	493 417	672 951	2.98
NORTHWEST	2 736 907	3 499 285	2.36
Catamarca	184 483	247 001	2.80
Jujuy	418 153	521 561	2.12
La Rioja	167 142	241 289	3.52
Salta	684 101	898 402	2.62
Santiago del Estero	407 820	530 608	2.53
Tucumán	875 208	1 060 424	1.84
PATAGONIA	1 267 634	1 543 182	1.89
Chubut	313 692	370 011	1.58
Neuquén	335 553	419 350	2.14
Rio Negro	405 010	466 253	1.35
Santa Cruz	146 076	189 577	2.50
Tierra del Fuego	67 303	97 991	3.61
TOTAL	28 436 110	32 352 909	1.24

1) a. Counties all included : Lomas de Zamora, Quilmes, Lanús, Gral. San Martín, Tres de Febrero, Avellaneda, Morón, San Isidro, Malvinas Argentinas, V. López, San Miguel, José C. Paz, Hurlingham, Ituzaingó.

b. Counties partially included : La Matanza, A. Brown, Merio, Moreno, . Varela, Tigre, Berazategui, E. Echeverría, San Fernando, Ezeiza.

c. Additional counties to traditional definition and partially included: Pilar, Escobar, Gral. Rodríguez, Pde. Perón, San Vicente, M. Paz, Cañuelas, La Plata.

Source : INDEC. 2001 National Population Census.

Table - 5
Argentina : Urbanization Level and Urban Ratio 1991-2001 (In Per cent)

Regions and provinces	Urbanization Level		Urban Ratio	
	1991	2001	1991	2001
Region and provinces				
GREAT BUENOS AIRES	100	100	39.7	37.2
City of Buenos Aires	100	100	10.4	8.6
24 counties of Buenos Aires Province	100	100	29.3	28.7
PAMPEANA	82.2	83.9	33.2	32.8
Córdoba	86.0	88.8	8.4	8.4
Entre Ríos	77.6	82.3	2.8	2.9
La Pampa	74.2	81.2	0.7	0.7
Rest of Buenos Aires Province	78.7	78.3	12.9	12.4
Santa Fe	86.8	89.2	8.5	8.3
CUYO	78.8	81.5	6.2	6.5
Mendoza	77.8	78.9	3.9	3.8
San Juan	80.3	84.9	1.5	1.6
San Luis	81.1	87.2	0.8	1.0
NORTHEAST	68.3	76.3	6.8	7.9
Chaco	68.6	79.4	2.0	2.4
Corrientes	74.1	79.4	2.1	2.3
Formosa	67.8	77.2	0.9	1.2
Misiones	62.5	69.8	1.7	2.1
NORTHWEST	74.4	78.5	9.6	10.8
Catamarca	69.8	74.0	0.6	0.8
Jujuy	81.6	85.3	1.5	1.6
La Rioja	75.7	83.3	0.6	0.7
Salta	79.0	83.2	2.4	2.8
Santiago del Estero	60.7	65.8	1.4	1.6
Tucumán	76.6	79.3	3.1	3.3
PATAGONIA	85.5	88.8	4.5	4.8
Chubut	87.8	89.5	1.1	1.1
Neuquén	86.3	88.6	1.2	1.3
Río Negro	79.9	84.4	1.4	1.4
Santa Cruz	91.4	96.1	0.5	0.6
Tierra del Fuego	97.0	97.1	0.2	0.3
TOTAL	87.2	89.3	100	100

Source : INDEC. 2001 National Population Census.

has lost its relative importance, while the other regions in the country have increased their share in this regard. This represents an increase in the proportional importance of small and medium size urban centres. This explains the fact that its rural population registered very low or even negative growth rates (excluding Tierra del Fuego) in almost all the provinces. It can be concluded that the country is becoming less rural since, in most provinces a reduction in rural population in absolute terms has been taking place.

In brief, three important aspects can be mentioned. First, the Argentine population distribution pattern is highly concentrated, both with regard to its spatial distribution and its settlement trend. Second, since the 1970s, a change in the above mentioned trend is observed as the provinces have begun to retain their population simultaneous with increase in their urbanization level. In other words, the relative importance of small and medium urban centers, particularly smaller, have begun to have a greater impact at national level than that in the previous decades. Finally, Patagonia region stands out in the national context because of rapid growth rate of its population and its intense urbanization in the period under study, even though its relative demographic importance is still of not much significance for the country as a whole. In general, Patagonia's population distribution pattern is of a high concentration marked by a very high share of the urban component. A prevalence of very low or even negative rural population growth rates can be found which are indicative of concentration and migration of population. In some cases, area re-classification of settlements also influences these results, since it affects an important proportion of previously rural population.

Population redistribution as deconcentration

In several studies on changes in population distribution in previous decades, the following aspects are generally mentioned:

relative and absolute growth in medium size urban centers, decrease in relative terms of the importance of the metropolitan region since 1970, and population increase in urban centres with less than 50,000 inhabitants. "Leaving the supremacy of Buenos Aires safe, the industrialization of the years 1945-75 generated, within the inherited urban system, a subsystem of genuine regional metropolitan areas. Economic policies after 1975, which decelerated industrialization, also decelerated that process" (Vapřarsky and Gorosovsky, p.120).

In order to quantify these changes, the redistribution volume (RV) by provinces and the redistribution rate (RR) by 8 provinces are adopted as process indicators.

For the period under study, in Tables 6 and 7, the calculations for volumes and rates have been presented. These results prove previous observations and trends. Negative values are indicative of a loss or decrease in the population percentage in a given the spatial unit. From this, a more intense redistribution process indicated by negative values can be seen at the beginning of the period. This process can also be seen by the size of population involved. Although an impressive population growth has been recorded between 1947 and 2001, the size of redistribution volumes are reduced considerably in Pampeana region. The change in the direction of movements is also expressed in the change of sign, as the regions that lost population at the beginning, became gainers in the last decades (Northeast and Northwest). Also Patagonia shows its attraction effects here, although marked by inter-census changes. When examining redistribution rates, the decrease in the redistribution process and the gradual decline of growth rates is also seen, and, thus, more significant change values appear in the first columns. In addition to the continuous loss of relative importance that prevailed in the case of the City of Buenos Aires and Pampeana region, Cuyo's values are indicative

of a situation of greater stability, as has been already mentioned. Similarly, the change in the direction of the population distribution in several of the provinces that form part of the Northeastern and Northwestern is noteworthy. On the whole, the highest positive rates are found in Patagonia, where the case of Tierra del Fuego stands out, which correspond to significant redistribution volumes when compared to the national context.

As a complement to the results obtained in studies on this subject (Lattes and Sana, 1992; Lattes, 1995), the following general observations on Argentine population's interprovincial redistribution between 1960 and 1991 can be made:

- At the national level, interprovincial redistribution is a decreasing trend notwithstanding the fact that there is a growing importance of population redistribution among urban centres, i.e. intraprovincial redistribution in particular.
- The process of population redistribution is marked by inter-provincial variations since important changes can be seen regarding the movement, direction and population volumes involved.
- Identified as the main component in this process, migration rate has been on the decline in case of both native and non-native population.
- An important change can be seen in redistribution composition by sex, since women have come to have greater participation in the spatial movement now.

The changes observed in population distribution show the need to focus attention on the changes that take place at intraprovincial level. The exodus recorded in certain regions, from small scattered settlements, is particularly interesting. This exodus implies the depopulation of large rural areas and has its roots in the processes of modernization and mechanization of agricultural activities, as well as in the economic crisis affecting rural sectors

which remain linked to more traditional socio-economic structures. On the other hand, the deconcentration process that stems from the important role played by medium size cities is very interesting. "Urbanization in Argentina had gone far ahead a long time ago. From the second half of the 20th century, it is not the subject that deserves more study in the national settlement system evolution. A subject that does deserve to be studied is urban growth, differential urban growth in particular" (Vapñarsky, 1995, p. 228).

In the analysis of population growth between 1950 and 1991, medium size urban centers - 50,000 inhabitants or more - stand out conspicuously, except for the Great Buenos Aires. It is interesting to notice that the increase has been greater in the group of towns which reached such category during those years. That is to say that urban centers with a smaller size in the 1950s have been more dynamic. In addition, medium size urban centers located outside Pampeana region are the ones which showed higher growth rates. In this differential growth, the regions that stand out because of a "more rapid growth, even in the most far away areas of that region are: Northern regions and, above all, Southern regions of the country, i.e. Patagonia." (Vapñarsky, 1995, p.238).

TOWARDS A MORE IMPORTANT ROLE OF PERIPHERAL REGIONS

Demographic data analysis allows to foresee a future scenario in which peripheral regions, and in particular those regions which present the greatest disadvantages, such as the Northwest, the Northeast, and Patagonia, might consolidate their populations in an appropriate manner. This aspect requires adequate conditions in their regional socio-economic structures.

There are still some interesting aspects pending, which can not be covered due to the limitations imposed by the type of information /data available. It would be extremely

Table - 6
Argentina : Redistribution of Population, 1947-2001

Regions and provinces	Year				
	1947-1960	1960-1970	1970-1980	1980-1991	1991-2001
INTERPROVINCIAL	1934522	1207449	897689	728522	826424
METROPOLITAN	792538	485628	-226048	-478401	-672218
City of Buenos Aires	-787149	-490844	-632940	-445380	-524708
24 counties of Buenos Aires Province	1579687	976472	406892	33021	-147510
PAMPEANA	-828039	-294897	243829	-195847	-110681
Córdoba	-132452	12603	-56579	-43035	-11164
Entre Rios	-186103	-128496	-62665	-39695	23666
La Pampa	-54666	-13294	2472	16968	9699
Rest of Buenos Aires Province	-195318	-100809	-37932	-51348	-22232
Santa Fe	-259499	-64901	-89125	-78737	-110649
CUYO	72625	-36056	33430	37740	91468
Mendoza	83325	11082	32196	16548	7834
San Juan	23443	-27098	6280	-15054	34885
San Luis	-34143	-20039	-5046	36246	48750
NORTHEAST	-40890	-79271	85081	199643	227015
Chaco	1168	-67681	23587	21191	50512
Corrientes	-128471	-58321	-13402	23713	45621
Formosa	35240	25661	15877	53129	43209
Misiones	51174	21069	59019	101611	87672
NORTHWEST	-50654	-187586	162727	162246	372996
Catamarca	-17142	-24073	1577	21840	40193
Jujuy	31550	20549	48222	33872	42473
La Rioja	-11233	-13449	1245	29097	44671
Salta	46641	27830	53023	92620	117442
Santiago del Estero	-127258	-60858	2280	-22251	60014
Tucumán	26789	-137586	56380	7069	68202
PATAGONIA	54419	112182	188639	274618	91420
Chubut	25990	23666	35926	50147	16533
Neuquén	545	26283	58947	104273	41463
Rio Negro	24116	36970	69195	59419	-10162
Santa Cruz	-1087	22691	13910	25709	19668
Tierra del Fuego, Arg. Ant. and S. Atl. Islands	4856	2572	10661	35070	23916

Source : INDEC. 2001 National Population Census.

Table - 7
Argentina : Rate of Population Redistribution, 1947-2001

Regions and provinces	Year				(Percent)
	1947-1960	1960-1970	1970-1980	1980-1991	1991-2001
INTERPROVINCIAL	1.44	0.56	0.35	0.23	0.23
METROPOLITAN	1.03	0.64	-0.25	-0.44	-0.58
City of Buenos Aires	-1.98	-1.65	-2.13	-1.43	-1.76
24 counties of Buenos Aires Province	4.28	2.13	0.66	-0.04	-0.17
PAMPEANA	-0.87	-0.36	-0.26	-0.17	-0.09
Córdoba	-0.61	0.07	-0.25	-0.16	-0.04
Entre Ríos	-1.75	-1.59	-1.72	-0.39	0.21
La Pampa	-2.49	-0.80	0.13	0.69	0.33
Rest of Buenos Aires Province	-0.53	-0.32	-0.10	-0.11	-0.04
Santa Fe	-1.08	-0.32	-0.39	-0.28	-0.37
CUYO	0.46	-0.25	0.19	0.17	0.37
Mendoza	0.88	0.12	0.30	0.12	0.05
San Juan	0.57	-0.74	0.15	-0.29	0.58
San Luis	-1.50	-1.12	-0.25	1.37	1.43
NORTHEAST	-0.21	-0.46	0.42	0.75	0.70
Chaco	0.02	-1.22	0.37	0.26	0.53
Corrientes	-1.81	-1.06	-0.22	0.31	0.51
Formosa	1.80	1.24	0.60	1.45	0.94
Misiones	1.26	0.52	1.14	1.40	0.96
NORTHWEST	-0.19	-0.82	0.60	0.46	0.88
Catamarca	-0.81	-1.41	0.08	0.88	1.29
Jujuy	1.15	0.76	1.35	0.70	0.73
La Rioja	-0.70	-1.02	0.08	1.43	1.68
Salta	0.99	0.60	0.90	1.15	1.16
Santiago del Estero	-1.99	-1.25	0.04	-0.33	0.78
Tucumán	0.29	-1.79	0.64	0.06	0.53
PATAGONIA	0.93	1.84	2.15	2.07	0.55
Chubut	1.65	1.42	1.58	1.53	0.41
Neuquén	0.04	1.99	2.94	3.12	0.92
Río Negro	1.10	1.62	2.13	1.26	-0.18
Santa Cruz	-0.17	3.30	1.39	1.77	1.06
Tierra del Fuego, Arg. Ant. and S. Atl. Islands	4.46	1.91	4.70	6.73	2.70

Source : INDEC. 2001 National Population Census.

interesting to analyze the process in smaller spatial units and towns, based on final census data.

Moreover, in order to understand the reasons for population movement, it is necessary to carry out a deeper analysis so as to identify push and pull factors as well as migrants' characteristics. Within the territorial framework and local development possibilities, socio-demographic aspects acquire great relevance in strategic action formulation.

In the case of Patagonia, industrial promotion effects have been very important in those productive structures in which they were applied, because of the impact on employment generation, specially in Chubut and Tierra del Fuego. Tierra del Fuego's promotion, in particular with the establishment of factories for the manufacturing of household appliances, implied the rise of an industrial structure, which prior to this, was of little significance. As a result of these incentives, Patagonia increased its participation in national industrial production in an important way. These policies also had a positive impact on San Luis, Catamarca, and La Rioja provinces.

In the 1990s, although some benefits and incentives for industrial promotion in peripheral regions were reduced, other economic opportunities were arising such as the attraction generated by tourism-related activities.

For peripheral regions, particularly in the case of Patagonia, some relevant aspects are worth mentioning, in order to consolidate the regions' rapid growth and urbanization process. First, the fact that the region's productive structures are highly dependent on the incentives -such as industrial promotion and benefits for Patagonia ports-, their high sensitivity to external decisions should be taken into account. These policies require continuity in time in order to achieve the support for the activities already established, as well as creating the conditions needed for the policies to be really effective. For example, this is relevant with respect to port infrastructure. However, if the intention is to generate growth

on more solid grounds, a growth that creates structural linkages, both forward and backward, it would be necessary for these productive units to gradually achieve a higher degree of relative autonomy and not to depend, almost exclusively, on the incentives granted by the State and the employment generated at the public administration.

Second, those settlements whose productive specialization depends on the exploitation of non-renewable natural resources, and, more specifically, of hydrocarbons, present great vulnerability since those resources shall be depleted in time. For this reason, it is necessary to create the conditions to stimulate new activities in order to diversify their productive bases. In this respect, Patagonia has very important natural resources to be exploited and it would be economically significant to incorporate a greater added value to the primary sector's production, before shipping the products to extra-regional markets. It is very important for local governments to play meaningfully effective role in this connection.

Third, it is necessary to create links for greater interaction among the different spaces, so as to achieve a greater integration of the regional market. The population growth recorded in the region allows for the support of local markets of certain importance.

Fourth, it is necessary to take necessary steps towards population retention in these areas. In this aspect, two possible intervention lines should be considered: (a) to act on the expelling factors which mainly affect resident population, in rural areas in particular, which requires an adequate analysis of the current situation and (b) to achieve a meaningful integration of immigrants so that they become effective residents in new area. It is necessary as the rapid growth of population, particularly through migration, works to erode the social structure, as seen in Patagonia's urban centres. In this case, it shall be necessary to encourage these people's for taking roots in the region.

This shall probably require greater emphasis on social and cultural factors since Patagonia, being a frontier region, requires the provision of necessary integration mechanisms. As the above mentioned aspects, i.e. economic, social, and cultural, are closely related, it is necessary to tackle them jointly.

It follows from the above that there is a high concentration of population in the Great

Buenos Aires-Pampeana region. Similarly, Patagonia has emerged as an important destination for migrants, at least in relative terms in recent decades. Although the industrial littoral sector shall continue to have preeminence in the national economic context, the consolidation of this process requires a balanced policy and action formulation for a more efficient pattern of population distribution.

References

1. There are differences in the definitions of Metropolitan region and Great Buenos Aires since they correspond to the data supplied by the INDEC and break-up of information is not available for comparison.
2. This is the second national census. The first one corresponds to the year 1869, when there was not a complete settlement in the national territory.
3. INDEC's definition for metropolitan region and Great Buenos Aires are adopted here, since data break-up by countries is not available. When adopting this grouping, in the table Buenos Aires province appears in a partial form as rest, since one sector is formed by the Federal District and Great Buenos Aires, i.e. Metropolitan region, which constitutes the largest population cluster in the country.
4. According to census definition, places with 2,000 or more inhabitants are considered urban areas.
5. Percentage of urban population regarding the total population of each jurisdiction.
6. Because of problems in urban areas comparisons, since these areas differ in their definitions, the study is limited to the data supplied by INDEC for the year 1991 and 2001.
7. Urban population percentage in each jurisdiction regarding the country's population total number.
8. Redistribution volume (RV) for a given province i , in an inter-census period between the year t and the year $t+n$, is the difference between the population observed in province i in $t+n$ and the population which would have corresponded to it if the same percentage population distribution as in t had remained. The interprovincial rate (RR) for a given province i in the same period = quotient between the RV of the province and its average population, by year and multiplied by 100. The interprovincial RR is obtained in an analogous way, using the interprovincial RV and the total average population. (Lattes, 1998, p. 679).

Bibliography

- Bertoncello, Rodolfo (1995):** "La movilidad territorial de la población: notas para la reflexión". O. H. Senado de la Nación, *II Jornadas Argentinas de Estudios de la Población (AEPA)*, pp. 81-92. Buenos Aires, Secretaría Parlamentaria, Dirección de Publicaciones.
- Cacopardo, María Cristina et al.(1978):** *Desarrollo Regional, Migraciones y Primacía urbana*, Buenos Aires, FUDAL.(mimeo)
- CELADE (1986):** "Tendencias de la urbanización y cambios en la distribución de la población según el tamaño de los núcleos urbanos 1950-1980". Documento presentado a la *Conferencia sobre población y ciudades pequeñas y medianas en América Latina y el Caribe*. México D.F., febrero (mimeo).
- CELADE (1997):** *Población, descentralización y desarrollo local: una perspectiva sociodemográfica*. CEPAL, Santiago de Chile. LC/DEM/R.270 Serie B No.116.
- Celton, Dora (1995):** "La declinación de la mortalidad en la Argentina". En H. Senado de la Nación, *II Jornadas Argentinas de Estudios de la Población (AEPA)*, pp. 325-341. Buenos Aires, Secretaría Parlamentaria, Dirección de Publicaciones.
- Formiga, Nidia (1988):** *Urbanización y atracción migratoria en una región periférica: el caso de la patagonia argentina*. Tesis de Maestría. Centro Latinoamericano de Demografía, Santiago de Chile.
- Formiga, N., Gárriz, E. (1995):** "El proceso de urbanización y las principales ciudades en la Región Patagónica". En GAEA, *Contribuciones Científicas*, Buenos Aires, pp. 87-96.
- INDEC (2002):** *Censo Nacional de Población Hogares y Viviendas 2001. Resultados Provisionales*. Buenos Aires, INDEC, CD-Rom.
- Lattes, Alfredo (1998):** "La redistribución interprovincial de la población de la Argentina y sus componentes demográficos entre 1960 y 1991". En H. Senado de la Nación, *III Jornadas Argentinas de Estudios de la Población (AEPA)*, pp. 675-688. Buenos Aires, Secretaría Parlamentaria, Dirección de Publicaciones.
- Lattes, A. and Recchini de Lattes, Z. (1991):** "International Migration in Latin America: Patterns, Determinants and Policies". *ECE/UNFA Expert Group Meeting on International Migration*. Geneva, 16-19 July.
- Lattes, Alfredo, Sana, Mariano (1992):** "Los nuevos patrones de la redistribución de la población en la Argentina". En *Ier. Congreso Nacional de Estudios del Trabajo*. Buenos Aires, ASET.
- Lattes, Alfredo, Villa, Miguel (1994):** "La redistribución territorial de la población en América Latina: tendencias recientes". Presentado en *Seminario Distribución y Movilidad Territorial de la Población y Desarrollo Humano*, San Carlos de Bariloche, FB,CENEP, y PROLAP, 4 al 7 de mayo.
- Maguid, Alicia (1995):** "Argentina: saldos migratorios internacionales 1970-1990". En H. Senado de la Nación, *II Jornadas Argentinas de Estudios de la Población (AEPA)*, p. 93-102. Buenos Aires, Secretaría Parlamentaria, Dirección de Publicaciones.
- Mazzeo, Victoria (1998):** "Dinámica demográfica de Argentina en el período 1950-2000. Análisis de sus componentes". En H. Senado de la Nación, *III Jornadas Argentinas de Estudios de la Población (AEPA)*. Buenos Aires, Secretaría Parlamentaria, Dirección de Publicaciones, pp. 51-66.

- Roccatagliata, Juan (coord.) (1992):** *La Argentina. Geografía general y los marcos regionales*. Planeta, Buenos Aires.
- Rodríguez, Jorge, Villa, Miguel (1998):** "Distribución espacial de la población, urbanización y ciudades intermedias". En CEPAL, *Ciudades intermedias de América Latina y el Caribe: propuestas para la gestión urbana*, Santiago de Chile. CEPAL, LC/L.1117.
- Sana, Mariano (1995):** "La desconcentración de la población en Argentina entre 1960 y 1991". En H. Senado de la Nación, *II Jornadas Argentinas de Estudios de la Población (AEPA)*, p. 117-132. Buenos Aires, Secretaría Parlamentaria, Dirección de Publicaciones.
- Urzúa, Raúl et al., (1982):** *Desarrollo Regional, migraciones y concentración urbana en América Latina: Una investigación comparativa*, Santiago de Chile, CELADE, (mimeo).
- Vapñarsky, César, Gorojovsky, Néstor (1990):** *El crecimiento urbano en la Argentina*. IIED-Grupo Editor Latinoamericano, Buenos Aires.
- Vapñarsky, César (1993):** "Crecimiento migratorio diferencial de las 55 mayores ciudades argentinas en décadas recientes". Ponencia presentada en *II Jornadas Argentinas de Estudios de Población*. AEPA, Buenos Aires, 4 al 6 de agosto.
- Vapñarsky, César (1995):** "Primacia y macrocefalia en la Argentina: la transformación del sistema de asentamiento humano desde 1950". En *Desarrollo Económico*, vol. 35, No. 138 (julio-setiembre).
- Villa, Miguel, Martínez, Jorge (2001):** "El mapa migratorio internacional de América Latina y el Caribe: patrones, perfiles, repercusiones e incertidumbres". Nueva Extremadura, octubre, mimeo. <http://www.eclac.cl>

INTEGRATION OF DEMOGRAPHIC ISSUES IN SUSTAINABLE DEVELOPMENT : REFLECTIONS ON INDIA'S POPULATION POLICIES

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Abstract

Population size and growth continue to be the paramount issues regarding sustainable development in India, notwithstanding the fact that the Indian economy has grown by a little over 5 percent during the last two decades compared to the population growth of about 2 per cent during the same period. The reason is that the Malthusian concern has been the core of Indian policy planning thinking. This has while perpetuated the belief that population growth is the immediate culprit of high poverty and environmental degradation, demographic issues such as distribution of Population, age composition, migration and urbanization are being neglected in the planning for sustainable development. The paper highlights the lack of integration of comprehensive demographic issues with sustainable development planning in India and explores the political economy reasons for lopsided consideration of demographic issues in sustainable development planning during the last five decades since independence.

Introduction

The growing realisation of environmental concerns during the late 1970s culminated in the establishment of World Commission on Environment and Development by the U.N. General Assembly in 1983. The commission headed by Brundtland submitted its report entitled "Our Common Future" in 1987. The report was considered a watershed in the history of human civilisation to safeguard the environment. The commission drew the attention of the world communities among others towards the rapid population growth and its link with poverty and environmental degradation in several parts of the world. It

has noted that in many parts of the world the population is growing at rates that cannot be sustained by available environmental resources and argued for achieving sustainable development. It defined sustainable development as the ability to satisfy the needs of present generation without compromising the ability to satisfy the needs of future generation (World Commission on Environment and Development 1987). It further noted that everybody must realize that we borrowed this planet from our children, not inherited from our parents. The concept of sustainable development therefore echoes a clear concern and responsibility of the present generation towards posterity. As a

sequel, a United Nations Conference on Environment and Development was held during 3-14 June 1992 in Rio-de Janeiro. This conference further discussed at length the population, economic and trade issues between the north and south influencing environmental degradation. (United Nations 1992).

The concept of sustainable development is an effort to create a new perception of development, premised on environmental preservation and the balance between man and nature—a vital component for human survival, which also recognizes the right of the next generation to have equal claim on the natural resources. As such, sustainable development is based on a new ethics of sharing resources in the present as well as in future to the extent the delicate balance of the nature is not jeopardized. It is not in conflict with human development determined by the access to the basic needs of life and the improvement in human capability defined by educational and health status. In fact, human development is the key to sustainable development.

The International Conference on Population and Development (ICPD) held in Cairo in 1994 reemphasised the crucial link between environment and sustainable development and recognized population policy and programmes as important state instruments for improving socio-economic conditions and expanding choices for individuals (Population and Development Review, 1995). The key recognition was that focusing on people—their rights, capabilities, and opportunities—would have multiple benefits for individuals, for society, and for their sustainable relationship with the environment. In fact, ICPD resolved the contradiction between two polarized stands viz. control of population through state policy of family planning efforts and the development as the best contraceptive which emerged after Bucharest conference in 1974 (Finkle and Crane 1975). It focused on wider issues of human life and, therefore, provided the critical

input in consolidating the concept of sustainable development. It was the first UN conference in which environmental concerns had been addressed in population context (McIntosh and Finkle 1995:225).

Sustainable development ultimately aims at improving human well being, particularly through alleviating poverty, increasing gender equity, and improving health, and other aspects of human resources, along with safeguard to the natural environment. The demographic knowledge is critical to achieve these goals of sustainable development. Policies and strategies that include various dimensions of population will be sound theoretically and have the chance to be realized given the political will and determination.

During the last one decade, it has been increasingly realized that relationship between population, environment and development is a complex issue. Any attempt in Neo-Malthusian framework of simply dividing the volume of resources by the number of people on the globe will not suffice (Shrivastava 1992). But the Malthusian thinking has been very pervasive. In the context of India the Malthusian ideology has a deep root, closely linked with history of Great Britain where from ideology of Malthus grew and spread elsewhere (Caldwell 1998). This paper makes an attempt to assess the nature of evolution of population policy and its content historically, and highlights that the issue of population revolves around size. The other important aspects of population such as distribution and composition of population, and urbanisation closely associated with sustainable development are most neglected aspect in population related policies in India. Other areas, which did not receive adequate attention in the policy circle, are the migration and concern for aging. The paper highlights the lack of intergration of comprehensive demographic knowledge with sustainable development planning in India and explores the political economy reasons

for lopsided consideration of demographic knowledge in sustainable development planning during the last five decades since independence.

Indian State and the Demographic Concern :

The *Essay on Population* first published in 1798 by Malthus has a great appeal among the bureaucrats and political elites. His basic idea was the growth of population taking place geometrically, whereas food supply was growing arithmetically leading to the occurrence of positive checks like starvation deaths and epidemics wiping out the additional population and establishing a new equilibrium in the society. The vices and miseries of the society are directly product of this imbalance between the population size and its subsistence level. He further believed that passions between the sexes remained undiminished in human history and requires moral restraints in with holding the sexual urge to control the increase in population growth. There is also a tendency among man to be attached early with woman. While the rich have the moral restraint in the indulgence of sex, it goes without among the poor. The poor begets more children and further impoverish themselves and are responsible for miseries and vices of the society. It is ultimately the principle of population that arbitrates and establishes equilibrium. But the equilibrium is disturbed by the poor due to their lack of control on sexual urge. The human society, therefore, remains imperfect. On this very principle Malthus vehemently opposed the ideas of perfection of society advanced by Condorcet and the idea of political justice propounded by Godwin. He described these ideas as most utopian without having the basis of scientific truth. Malthus opposed the poor laws of England also on the basis of the principle of population he propounded and argued about it to be futile (Malthus 1798). The impact of the ideas of Malthus has been pervasive during the 19th century among the upper sections of

society who were in command of policy making in Great Britain (Caldwell 1998:678). Although, the poor law was amended in 1834, influential successors to Malthus spelled out his message in clearest term. In 1848 John Stuart Mill concluded in his *Principles of Political Economy* : "Everyone has a right to live. We will suppose this granted. But no one has a right to bring creatures into life, to be supported by other people" (Mill 1848:252 quoted in Caldwell 1998:678). Bagehot, the editor of *The Economist* not only expressed similar ideas to that of the Malthus, but also applied the principles towards politically motivated goals: "The most melancholy of human reflections, perhaps, is that, on the whole, it is a question whether the benevolence of mankind does most good or harm. Great good, no doubt, philanthropy does, but then it also does great evil. It augments so much vice, it multiplies so much suffering, and it brings to life such great population to suffer and to be vicious" (Bagehot 1869: 188-189 quoted in Caldwell 1998:768).

By the last decades of the nineteenth century, Malthusianism was deep seated in the psyche of English people and the population growth of the poor was considered dangerous (Caldwell, 1998:679).

India has witnessed a number of severe famines in the nineteenth century that took heavy toll of lives. The population grew negligibly before 1921. Even there was decline of population at some times (Myrdal 1968; Bhatia 1991; Maharatna 1996). The first half of the twentieth century also saw some of the severe famines. The famous Bengal famine in 1943-44 took millions of lives. Within a span of just three months the death toll was estimated to be 2.5 to 3 million (Myrdal 1968). During this time food production in the country had also declined severely. The estimates of trend in imperial India indicates that aggregate food production declined by 5 million tonnes during the period from 1893-94 to 1945-46 and the per capita

food production declined by 32 per cent during the same period (Myrdal 1968:1245).

The British Government took the responsibility of direct administration of India after the great revolt of 1857. Ambirajan (1976:6) believed that recurrence of famine in the later half of the nineteenth century converted many officials to a Malthusian. The Malthusian view in the administration affected the amount and timing of famine relief work as the Indians were blamed for this catastrophe (Ambirajan 1976).

The census of India started in 1872. The census reports analysed the population growth in relation to famine occurrence at the country and provincial levels. Census reports also tried to relate the cultivable area in different parts of India to the rate of population growth in order to explore Malthusian pressures (Caldwell and Caldwell 1986:37). Thus, the ideology of government apparatus during the first half of the twentieth century was increasingly Malthusian (Caldwell 1998:687).

The Gandhian legacy also was not contrary to Malthusian view of Indian political economy. Gandhi adopted *Brahmacherya* in 1906 and had been candid in his opinion on population growth, which was very close to Malthusian idea of self-restraint. Gandhi was against the use of contraception in birth control and firmly believed that there should not be sex except if children are desired (Payne 1969: 463). He held the view that sexual lust was the root cause of conjugal unhappiness and even the married couple should think of each other as brother and sister (Narayan 1968:220). Gandhi considered more number of children immoral. Gandhi said to Margarnet Sanger in January 13, 1936 who came to meet him in his Wardha Ashram:

"People should be taught that it is immoral to have more than three or four children, and after they have had three children they should sleep separately. If people were taught this, it would harden into custom. And if the social informers can not impress on

people, why not law" (quoted in Payne 1969 :464).

Thus Gandhi's ideas were very similar to that of Malthus except that Gandhi's accusation to the poor could be derived whereas Malthus was unequivocal in his accusation to the poor.

The close link of India with Britain transmitted the Malthusian tenets and attitudes from the elites of Great Britain to the newly educated elites of India. The recurrence of famines provided the fertile grounding of the Malthusian ideology among the elites of ruling congress party. The Gandhian ideology further helped promoting the Malthusian moorings.

The Govt. has set up the Health and Development Committee popularly known as Bhore committee in 1943 to assess the country's health needs. The committee advocated for the deliberate limitation of families as desirable. The Congress Party's National Planning Committee agreed with the suggestions of the Bhore Committee and advocated for intervention of family planning programmes by the Government (Shah 1947). Govt. of independent India launched the family planning programme from its first five year plan began in 1952. India became the first country to embark upon an explicit official family planning programme (Misra 1980 :298) among the world nations. Such efforts are very much applauded by the international academia irrespective of its bearing in improving the conditions of the masses. Ness and Ando (1984) has observed that in Asia population is less infused with religious significance and interpretation than in other world regions. This is the part of the reason that Asia has led the third World in adopting modern population policies and experiencing a more rapid fertility decline than others.

Neglect of Sustainability Issues :

The Malthusian influence on the socialization of India's elites and bureaucrats shaped the population policies in independent India with an overriding concern of population size allegedly thought to be hampering development. As a result, the successive policies were mainly concerned with reduction in birth rates. It is believed that reduction in fertility rates will solve some of the challenging problems like poverty, illiteracy and law and order problem in the country. This belief also suited the political elites of ruling establishment as a route to escape from being fixed for their political economic failures. It is evident from the fact that statement of National Population Policy was placed on the table of parliament in 1976 during the period of emergency imposed in the preceding year. During the period of emergency family planning was vigorously launched and sterilization was coercively followed to make it clear that Govt. was eradicating the root problem of the country. It was meant to spread the message that Govt. is serious and working. It further allowed the state government to pursue legalization of compulsory sterilization programme if the state government has the necessary infrastructure (Misra 1980; Gwatkin 1975). After the debacle of Congress party in 1977 general elections the Janata Party after assuming power initiated an immediate change in policy of government towards family planning. It was reflected in the change of family planning to family welfare and the new policy stressed its voluntary participation meant for achieving maternal and child health and the well being of the family (Government of India 1977). This change in policy did not make the population policy as much comprehensive as to include population distribution, urbanisation and composition of population in an integrated manner, although such ideas existed among the marginal section of academics and intellectual as late as 1969. It was echoed in a conference on population

policy and programme in 1969 organised by Council for Social Development. The resolution of the conference states that the population policy should be regarded not only in terms of number but also in terms of its distribution, its composition and structure in relation to resources (Council for Social Development 1969). This comprehensive vision of population as an input in sustainable development was not reflected in the thinking of population policy statement of either in 1976 or in 1977 after the change in government. The Government of India has announced the most recent changes in population policy in 2000. By this time the concept of sustainable development and sustainability issues have already acquired worldwide concern. The latest policy declaration by the government is again very much concerned about the size and growth of population along with some concern for the aged population. The new strategy of population control has been devised based on women centred approach euphemistically called reproductive and child health programmes (or popularly known as RCH programmes) and it seeks to achieve replacement level of fertility (Total Fertility Rate of 2.1 i.e., approximately two live birth per woman) by the year 2010 and population stabilization (zero population growth) by the year 2045 (Govt. of India, 2000). The policy document makes it clear that the goal of population stabilization could be achieved by the enabling role of the government with active participation of civil society through the process of social change. The underlying belief is that improving women's education and empowerment will socially engineer small family. Further, the process of population stabilization will be voluntary based on informed choice of contraceptives. The Govt can intervene in the areas of unmet needs of family planning as an important input to improving reproductive and child health. The service of abortion is also recognized as an integral part of meeting the health needs of women (Govt. of India 2000).

While it is clear that the latest policy has been able to incorporate several international concerns for gender and health, the concern for population distribution and rural to urban migration as a concern for population policy is overlooked. There is an increasing population pressure in the Himalayan tract of the country, which is fragile. The growing tourism is attracting increasing migration to this part of the country. The coastal areas are also witnessing tremendous increase in population density. The redistribution of population either through direct and indirect policy is perhaps not thought to be a feasible exercise in the country. But even if country achieves stabilization of population in the near future, the challenges of sustainable population will still be daunting. The vast inland areas of the country are lying relatively less populated and there is much greater scope to encourage population redistribution in this part of the country. This requires an explicit recognition by the government that the marginal coastal and mountainous areas cannot sustain more population. The linking of the rivers across the heart of the country would perhaps be helpful in redistributing the population in the interior of the country, which has a relatively low density of population. This concern of sustainability at disaggregated level is therefore equally important. But this is not viewed seriously as population concern, rather than sustainability, is on the priority agenda of the Central Government. Recently several state governments have also brought out the agenda of population concern in their policy and planning, but an integrated approach linking the vital issues of poverty, land, forest and water resources is lacking.

A regional perspective on population focusing on comprehensive strategy encompassing population issues is not only lacking, but the policies of the state governments are found to be at variance with the national policy. As per constitutional provisions, population and health programmes are implemented by states, and they have also the power to legislate in

this area. Several states have recently come out with legislation of two-child family norm as necessary condition for contesting election at local level. The states like Haryana, Rajasthan, Andhra Pradesh, and Orissa have introduced the two child norm since 1994 and Madhya Pradesh and Himachal Pradesh since 2000 as criteria for contesting local government seats (panchayats). The persons with more than two living children are debarred from contesting election or continuing in office. Most of the people having more than two children belong to lower socio-economic groups. On the other hand, according to the provisions of the new amendment to the constitution, 33 per cent seats will be reserved for women as panchayat heads and also for members of the panchayats. It also mandates quotas for weaker sections and tribals in proportion to their size.

Could the state legislations debarring those having more than two children neutralize the benefits granted to the women and weaker sections of the society by the 73rd amendment to Indian constitution? This is presently debated in the academic circles (Rao, 2002; 2003; Bhat 2003).

Raising the population issues in Malthusian garb are sometimes diversionary and also occasionally imbued with vested interest in the political circles. Whereas the national population policy reflects the vision of the international elites with larger concern for equity and reproductive health, the issue of sustainability does not go beyond population stabilization.

The politicization of demographic issues by virtue of political disempowerment through legislations incapacitates the masses and holds them responsible for their state of affairs. On the other hand, it allows the state to be free from its responsibilities towards the underprivileged population. The demographic wisdom learned from the experience of the demographic transition in Kerala is not needed by the poorer states like Rajasthan, Madhya

Pradesh, Uttar Pradesh and Orissa and newly rich state like Haryana. The rapid decline in fertility in the state of Andhra Pradesh (TFR 2.5 in 1997) in recent years, a socio-economically average state, is stretched too far to cite an example that fertility could decline even without social and political justice.

The urbanisation strategy of the country is mainly concerned with decongesting the million plus cities by not permitting the certain categories of industries within 25 km from the city centre. Further, the urbanisation strategy is more concerned with urban development, and the population size and rural-urban migration are considered undesirable and problematic for city governance. The recent housing and habitat policy of the government announced in 1998 also does not mention about population distribution and future urbanisation strategy of the country, but raises the problem of housing shortages and suggests how this can be facilitated by the government and local bodies in augmenting the housing supply by helping the private and group initiatives.

The level of urbanisation is nearly 28 per cent as revealed by 2001 census, and rate of urban growth has been slow down during the last two decades (Bhagat 2001). In spite of low level of urbanisation, the urban population growth is seen as a problem in policy document (Planning Commission, 2001). The Malthusian spectre is very much visible in the government perception of urbanisation. The urban policies are directed to slowing down the urbanisation process rather than viewed as a vehicle of development. Urbanisation in India is neither viewed as a vehicle of social change nor sustainable development. The issues of urban population growth and rural to urban migration are raised and alarmed to divert the attention from the inefficiency of urban governance. The perpetuation of Malthusian view that urban problems are due to the population growth often precipitates backlash on the migrants.

The national political parties after the setback of emergency in 1975 have abandoned addressing population issues explicitly in their political manifestos. However, the concern for population size and growth continues at popular level. Lack of explicit stand by political parties left the area of population for the wishful intervention by the bureaucrats who are convinced for neo-Malthusian solution to the problem. This has not allowed a proper intervention in the area of population and its integration with sustainable development. It is ironical that even the issues of environment and sustainable development are ignored in the planning process of the country. The Planning Commission has prepared approach paper to Tenth five-year plan recently. Environment does not figure in the Minimum Agenda at all. This must be rectified with explicit and independent focus on the need to infuse environmental concerns through the entire economic planning and development process in the country (Kothari 2002 : 292).

Conclusion :

The Malthusian view on population has been dominating concern in India. India's repeated famines in the past and her close link with Britain led to the genesis of the Malthusian mindset among early bureaucrats and emerging elites. This understanding has not allowed the integration of wider population issues like distribution, composition, migration and urbanization with sustainable development. This has also been diversionary to conceal inefficiency and failure in governance. The abandonment of population issues by the national political parties after 1977 has left the arena of population to be handled by the bureaucrats only.

Since India is a federal country, the issues of population and sustainable development fall under the control of state governments. A comprehensive policy of population issues in relation to sustainable development is possible only at the state level, but such agenda at the policy level must begin from the national

political parties and the initiatives at the central level.

Note :

In 1865, the Govt. had agreed in principle that a general population census would be taken in 1871. The model census schedule and questionnaire also had been worked out by 1865. The years 1867-72 were actually

spent in census taking in the areas whenever it was practicable. This is commonly known as the census of 1872, which was neither a synchronous project, nor did it cover the entire country, or even the entire territory controlled by the British. Although it was based upon a uniform schedule, yet it was not wholly centrally supervised census. However, it marked an auspicious beginning (Chandna, 2002).

References :

Ambirajan, S. (1976) : "Malthusian Population Theory and Indian Famine Policy in the Nineteenth Century", *Population Studies*, Vol. 30, No. 1, pp 5-14.

Bhagat, R.B. (2001) : "Urbanisation in India : A Demographic Reappraisal" paper presented in 24th IUSSP General Population Conference, Salvador-Brazil, August 18-24, 2001 (see also www.iussp.org/brazil2001/s80/83_03_Bhagat.pdf).

Bhat, Mari P.N. (2003) : "Two Child Norm : In Defence of Supreme Court Judgement" *Economic and Political Weekly*, November 1, 2003.

Bhatia, B.M. (1991) : *Famines in India : A Study in Some Aspects of the Economic History of India with Special Reference to Food Problem*, Konark Publishers, Delhi.

Caldwell, J.C. (1998) : "Malthus and the Less Developed World : The Pivotal Role of India" *Population and Development Review*, Vol. 24, No. 4, pp. 675-696.

Caldwell, John and Caldwell, P. (1986) : *Limiting Population Growth and the Ford Foundation Contribution*, Printer, London.

Chandna, R.C. (2002) : *Geography of Population : Concepts, Determinants and Patterns*, Kayani Publishers, Ludhiana (fifth edition).

Council for Social Development (1969) : *Resolution of the National Conference on Population Policy and Programme*, Council for Social Development, New Delhi.

Frinkle, J.C. and Crane, B.B. (1975) : "The Politics of Bucharest : Population Development and New International Order" *Population and Development Review*, Vol. 1, No. 1, pp. 87-114.

Govt. of India (1977) : *Family Welfare Programme : A Statement of Policy*, Ministry of Health and Family Welfare, June 29, 1977, New Delhi.

Govt. of India (2000) : *National Population Policy*, Ministry of Health and Family Welfare, New Delhi.

Gwatkin, D. (1979) : "Political Will and Family Planning : the Implications of India's Emergency Experiences" *Population and Development Review*, Vol 5, No. 1 (March).

Kothari, A. (2002) : "Environment, Food Security and Natural Resources : Lacunae in Tenth Plan Approach Paper" *Economic and Political Weekly*, June 26, pp. 289-292.

Malthus, Thomas Robert (1798) : *First Essay on Population*, Reprinted by MacMillan, London.

Maharatna, A. (1996) : *The Demography of Famines : A Historical Perspective*, Oxford University Press, Delhi.

McIntosh, C.A. and Finkle, J.L. (1995) : "The Cairo Conference on Population and Development : A New Paradigm" *Population and Development Review*, Vol. 1995, Vol. 21, No. 2, pp. 223-260.

Misra, B.D. (1980) : *An Introduction to the Study of Population*, South Asian Publishers Pvt. Ltd., New Delhi.

Myrdal, G. (1968) : *Asian Drama : An Inquiry into the Poverty of Nations*, Vol. 2, Penguin Books, Hamondsworth.

Narayan, S. (1969) : *The Selected Works of Mahatma Gandhi*, Vol. 4, The Basic works, Navjivan Publishing House, Ahmedabad.

Ness, G.D., and Ando, H. (1984) : *The Land is Shrinking : Population Policy in Asia*, Johns Hopkins University Press, Baltimore, Maryland.

Planning Commission, Govt of India (2001) : *Approach to Tenth Five Year Plan, 2002-7*, Planning Commission, New Delhi.

Payne, R. (1969) : *The Life and Death of Mahatma Gandhi*, the Bodley Head, London.

Population and Development Review (1995) : "Program of Action of the 1994 International Conference on Population and Development (Chapter 1-VIII)", *Documents*, Vol. 21, No. 1, March, pp. 187-213.

Rao, Mohan (2002) : "Population Policy : from Bad to Worse" *Economic and Political Weekly*, January 1, 2002.

Rao, Mohan (2003) : "Two-child Norm and Panchayats : Many steps Back," *Economic and Political Weekly*, August, 2003, pp. 3452-3454.

Shah, K.T. (1947) : *Population : Report of the Population Sub-Committee of the National Planning Committee*, Vora, Bombay.

Shrivastava, A (1992) : "Overpopulation : The Great Red Herring?" *Economic and Political Weekly*, 19 (September), pp. 2032-2037.

United Nations (1992) : *Report of the United Nations Conference on Environment and Development*, Rio-de Janeiro, June 3-14, Vol. I & II, United Nations, New York.

World Commission on Environment and Development (1987) : *Our Common Future*, Oxford University Press, New York.

POPULATION OF INDIA : AN ANALYSIS OF CENSUS 2001

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Abstract

In this paper, the population scenario of India is described based on the latest 2001 round of the Population Census of the country. The first census of the century has enumerated more than one billion Indians. While the population size of China is more than that enumerated in India, in India the yearly additions to the population are larger. The census has recorded a population density of 324 persons per sq. km. A key and disturbing figure revealed by the census is the data on child sex ratio : it has declined substantially from 942 in 1991 to 927 in 2001. The data, however, show that in case of women there is improvement in their literacy level. Though an increase in the population of urban areas is recorded in 2001, the urban growth rate has declined to 31.2 per cent. Changes in the work participation rates reflect the on-going structural shifts in the Indian economy.

The sixth Population Census of India since Independence was conducted during February 9 to February 28th, 2001 with a revisional round from March 1 to March 5th. This first census of the millenium was the most publicised census. The media was extensively used and the questions of the household schedule were published in the newspapers so that persons are aware of the 23 questions asked in the household schedule. The household schedule of the census contained three new sections on disability, travel to place of work and cultivation/plantation. In the census of 2001 information on age at marriage of males was also obtained. Respondents were requested to sign the schedule. After successfully completing enumeration, the Provisional Population

Totals for Census of 2001 was published in March, 2001 (Office of the Registrar General and Census Commissioner, 2001). Since the release of the provisional population totals, the rural-urban population totals were also brought out. More recently, population of the slums and work participation rates were compiled and released. In this paper the published data have been used to analyse the size, density and growth of population, sex ratio, literacy rate, and work participation of India's population.

The recent Population Census of India provisionally enumerated 1,027 million persons on March 1, 2001. India is second country in the world to have recorded more than one billion persons. The population of

Peoples Republic of China in the year 2000 was 1,265 million (World Bank, 2001). According to the recent United Nations estimates of population, there are 6.1 billion persons in the world of which 4.9 billion are living in the developing countries of the world (United Nations, 2001); the remaining 1.2 billion persons reside in the developed parts of the world. Both India and China separately have as many persons as there are in the developed nations. The population of these two countries is indeed a concern not only to these countries but also for the world.

The population census of 2001 registers a population density for India of 324 persons per sq. km. This high population density is substantially lower than that of some of the countries of the world. If we rank the population density of different countries in the world in 1997 for which we have the latest data, India ranks 29th (United Nations, 1999). This is because there are many countries with smaller areas relative to population size. For example, Mauritius has a population density of 563 persons per sq. km. The highest population density in the world is for Macau, of 23,278 persons per sq. km. Among the south Asian countries, Maldives has 916 persons per sq. followed by Bangladesh of 847. Sri Lanka, however, has lower density than India which is 283 persons per sq.km.

When we compare the last population census of India with that of the recent population census we find that the average annual exponential growth rate is 1.93 percent for 1991-2001. The growth rate has shown a marginal decline relative to the growth of 2.14 percent during 1981-91. However, this decline does not reflect the high additions to the population of the country. Though the population of China is larger than that of India, India contributes a higher addition to the population of world than China. During 1991-2001 the average yearly additions to India's population is nearly 18 million persons. China, on the other hand, contributes about

13 million persons to the world population. In other words, India adds 5 million persons more than China every year.

Another source of data on growth of population of the country is Sample Registration System (SRS) which routinely collects information on births and deaths. The average Crude Birth Rate (CBR) and Crude Death Rate (CDR) for the intercensal period of 1991 to 1999 (data for 2000 are not available) is 28.0 and 9.2 per 1,000 population and the estimated yearly growth rate for the country is 1.9 percent (Office of the Registrar General, 2001). This in fact is similar to the growth rate that is computed from the census population totals. SRS data on CBR and CDR suggest that the growth rate has declined from 2.1 in 1981-1991. According to the latest SRS data for 1999 CBR is 26.1 births and CDR is 8.7 deaths per thousand population resulting in a growth rate of 1.7 percent (Office of the Registrar General of India, 2001). There are signs of population growth rate declining both from the censuses and SRS though it is an inconsequential decline.

For the country as a whole, the sex ratio was 933 indicating a disproportionate number of females in the country. The overall sex ratio in 1991 was 927. While the sex ratio appears to have improved for all ages, for the younger ages the latest population census of India reveals a fall in sex ratio. For children in the age group 0-6 years, the sex ratio for India in 2001 was 927 that shows a substantial decline from 945 in 1991. This marked decline in sex ratio is attributed to both social and technological reasons. In the Indian society, there is considerable son preference and consequently infant and child girls are neglected. The technological developments in determining the sex of foetus, especially by means of ultrasound, are readily and cheaply available even in the rural parts of the country and girl foetuses are discriminately aborted.

The provisional census publication also provides information on literacy of the population. Due to special programme aimed at improving literacy in the country, 65.4 per cent of the population is returned as literate. The literacy rate in urban and rural areas is 80.1 and 59.2 per cent respectively. This is a significant increase since 1991 when 52.2 per cent were reported as literate. A substantial improvement in literacy has occurred in case of females, i.e., from 39.3 per cent in 1991 to 54.3 per cent in 2001. Males recorded an increase from 64.1 to 76.0 per cent during this period.

The population tables for urban and rural areas reveal that 285.4 million persons comprising 27.8 per cent of the country's population reside in urban areas. There has been an addition of 68 million persons in the urban areas which represented a growth rate of 31.2 per cent over the previous decade. The number of towns and cities also recorded a jump from 3,697 in 1991 to 5,151 in 2001. Despite the large increase in the number of persons residing in urban areas, the growth rate of urban population is slower than that recorded during previous decades (36.2 per cent during 1981-91 and 46.1 per cent during 1971-81). As in the rest of the world, urban growth in India is concentrated and gravitating towards the larger cities. Of the 285 million urban dwellers in India, nearly two-fifth reside in only 35 cities having a population of one-million and above. 12 cities grew during the last decade to join the ranks of million cities. India, now has 35 million cities compared with 23 cities in 1991 and 5 cities at the time of independence. Three of them i.e., Mumbai, Kolkata and Delhi, come in the category of mega cities.

An attempt has been made for the first time during the Census of India, 2001 to collect data about slum dwellers in cities/towns having a population of over 50,000 (Class II and higher order towns). The data on slums show that 40.6 million persons comprising 22.8 per cent of the population of

Class II and higher order towns live in slums. In the million cities this figure was more than 23.9 per cent. Greater Bombay has the dubious distinction of recording every second person (48.9 per cent) to be a slum dweller, every third resident of Kolkata lives in slums, while every fourth Chennai resident is a slum dweller.

The 2001 census recorded 403 million persons comprising 39.3 per cent of the country's population as participating in the workforce. The corresponding figure 1991 was 37.5 per cent. Over half of the men, 51.9 per cent, were classified as workers and the corresponding figure for women was only half that of men, 25.7 per cent. While the male work participation rates remained almost same as in 1991 census (51.6 per cent), the female work participation recorded an increase from 22.3 per cent in 1991 to 25.7 in 2001. The increase in work participation rate among women could be partly attributed to the increased awareness about women's work and better training and sensitization of towards work of women. Urban enumerators areas recorded a significantly lower work participation rate of females, (11.5 per cent), compared with rural areas (31.0 per cent). The 2001 Census has classified workers into four broad categories of cultivators, agricultural labourers, household industry workers and other workers. There has been a drastic decline in the percentage of workers engaged in agriculture. The percentage of workers engaged in this sector has fallen below 60 per cent to 58.4 per cent. These figures may reflect structural shifts in the Indian economy.

Population of the States and Union Territories of India

Among all the states of India, the largest population in 2001 is enumerated in Uttar Pradesh (Chart 1). The population of this state is 166.05 million comprising 16.2 per cent in the country's population. Maharashtra contains the second highest number of persons in the country i.e., 96.75 million accounting

for 9.4 percent of population of the nation. At the other end of the population spectrum is Sikkim with a population size of 0.54 million only constituting 0.05 percent of population of the country. Among the union territories, Delhi, the capital of the nation, has the highest population of 13.78 million. The population of Delhi is in fact higher than that of some of the states and it accounts for 1.3 percent of the country's population. Pondicherry has population of 0.97 million which is slightly higher than population of Chandigarh (0.90 million in 2001). These union territories by themselves comprise less than one percent of the population of the country. The states and union territories of India display a wide diversity in the number of inhabitants in different geographical areas of the country (Table 2).

The census of 2001 has also brought out of the changes in the importance of the states in terms of population size. As in the census of 1991, both Uttar Pradesh and Maharashtra retained their first and second position with respect to size of population. In 2001, Bihar has emerged as the state that has the third highest population, 82.9 million, in India. In 1991 Bihar occupied the fifth position and West Bengal and Andhra Pradesh had higher population than Bihar. This change in Bihar rank is due to an increase in the rate of growth of population of the state from 2.10 in 1981-91 to 2.50 in 1991-2001. On the other hand, population growth rate in West Bengal and Andhra Pradesh has declined. In West Bengal, the growth rate of population came down from 2.21 in the former censal decade to 1.64 percent in the latter censal decade. These figures for Andhra Pradesh are 2.17 and 1.30 percent respectively. The position of other states as far as relative population size in concerned has remained more or less the same in 2001 as in 1991.

A state wise comparison of density shows that according to the census of 2001, the importance of some of the states in terms of density has altered (Table 2). Delhi

continues to have a high density of 9,294 persons per sq. km. in 2001. Chandigarh also retains its second position with a density of 7,902 in 2001 (5632 in 1991). Among the major states (states with a population of 10 million or more in 1981) West Bengal occupies the first position and has 904 persons per sq. km. compared with 767 persons per sq.km. in 1991. Kerala, which is traditionally regared as a high density state, had 819 persons in 2001 as against 749 in 1991. Perhaps because of the declining growth rate in Kerala (from 1.34 in 1981-91 to 0.90 per cent in 1991-2001), Bihar has the distinction of having the second highest density(880 persons per sq.km.) in the country in 2001.

Table 1 shows the average annual additions to the population during the intercensal decade of 1991-2001. The major contributor to the population of India was Uttar Pradesh followed by Bihar and Maharashtra. In these states the yearly additions to the population was 3.41, 1.83 and 1.78 million persons respectively. There are other states which have added more than a million person per year from 1991 to 2001; these include Rajasthan (of 1.25 million), West Bengal (1.21) and Madhya Pradesh (1.18).

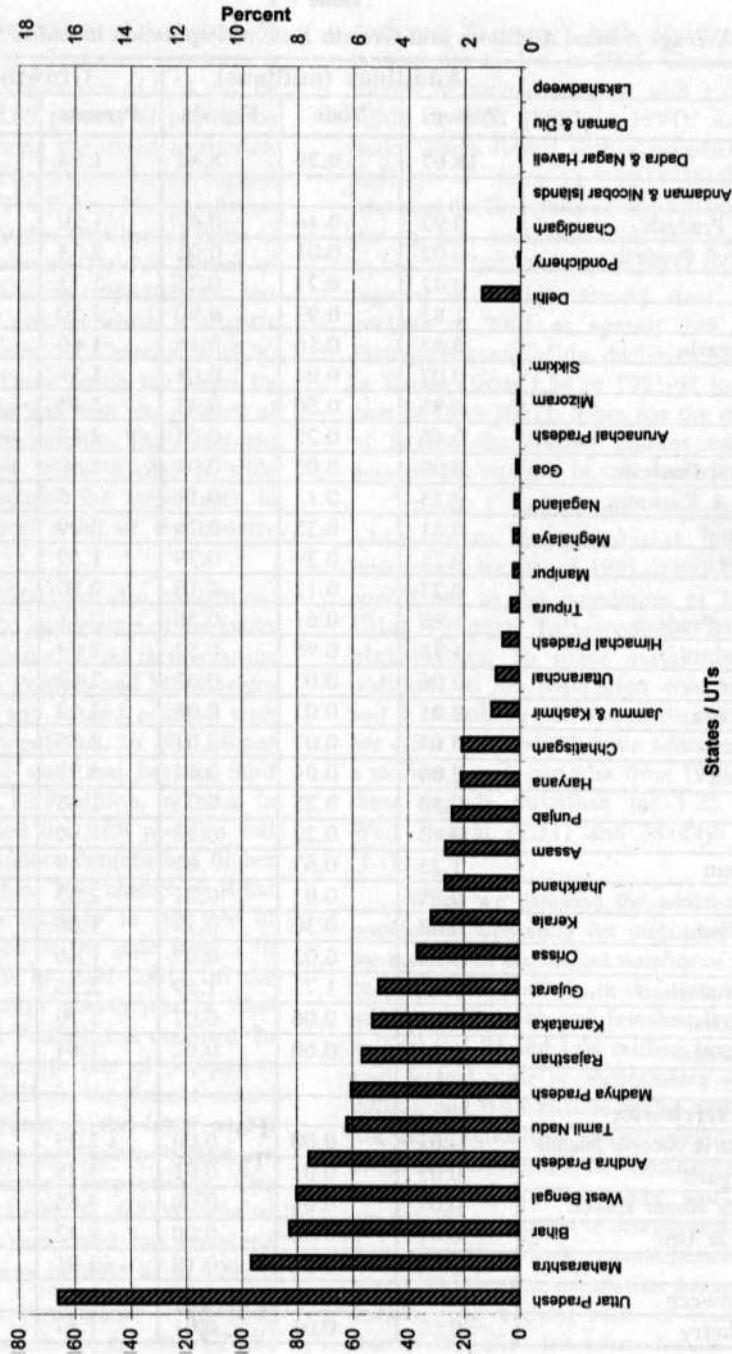
When we examine the additions to the population separately for males and females we notice that the largest number of additions occur in Uttar Pradesh. In this state the yearly additions of males and females during 1991 to 2001 is 1.71 and 1.69 million persons. The next largest state is Maharashtra with 0.95 million and 0.63 million males and females. The other states that show high additions to males and females are the remaining BIMARU states of Bihar, Rajasthan and Madhya Pradesh. The situation in this regards becomes more clear if we look at male-female ratio of yearly additions to population during the last decade. The highest ratio is recorded for Daman and Diu: for every female that was added during the censal decade there were 2.6 male additions. The other areas for which

Table - 1
Average Annual Additions and Growth Rate of Population in India, 1991-2001

	Additions (millions)			Growth Rate (%)		
	Persons	Male	Female	Persons	Male	Female
INDIA	18.07	9.20	8.87	1.94	1.90	1.97
States						
Andhra Pradesh	0.92	0.46	0.47	1.30	1.27	1.33
Arunachal Pradesh	0.02	0.01	0.01	2.33	2.10	2.58
Assam	0.42	0.21	0.21	1.73	1.68	1.78
Bihar	1.83	0.93	0.90	2.50	2.43	2.58
Chhatisgarh	0.32	0.16	0.16	1.66	1.64	1.68
Goa	0.02	0.01	0.01	1.39	1.42	1.35
Gujarat	0.93	0.50	0.43	2.03	2.10	1.95
Haryana	0.46	0.25	0.21	2.47	2.49	2.45
Himachal Pradesh	0.09	0.05	0.04	1.62	1.64	1.59
Jammu & Kashmir	0.23	0.13	0.11	2.5	2.78	2.53
Jharkhand	0.51	0.25	0.26	2.09	1.99	2.19
Karnataka	0.78	0.39	0.39	1.59	1.57	1.61
Kerala	0.27	0.12	0.16	0.90	0.79	1.00
Madhya Pradesh	1.18	0.61	0.58	2.18	2.14	2.22
Maharashtra	1.78	0.95	0.83	2.04	2.09	1.97
Manipur	0.06	0.03	0.03	2.63	2.52	2.73
Meghalaya	0.05	0.03	0.03	2.62	2.52	2.72
Mizoram	0.02	0.01	0.01	2.56	2.47	2.65
Nagaland	0.08	0.04	0.04	4.97	4.85	5.11
Orissa	0.50	0.25	0.25	1.48	1.47	1.49
Punjab	0.40	0.22	0.18	1.80	1.85	1.75
Rajasthan	1.25	0.63	.61	2.49	2.43	2.56
Sikkim	0.01	0.01	0.01	2.85	2.86	2.83
Tamil Nadu	0.63	0.30	0.33	1.06	1.00	1.13
Tripura	0.04	0.02	0.02	1.46	1.43	1.49
Uttar Pradesh	3.41	1.71	1.69	2.30	2.18	2.43
Uttaranchal	0.14	0.06	0.07	1.76	1.61	1.91
West Bengal	1.21	0.60	0.62	1.64	1.56	1.73
Union Territories						
Andaman & Nicobar Islands	0.01	0.00	0.00	2.39	2.23	2.57
Chandigarh	0.03	0.01	0.01	3.39	3.49	3.26
Dadra & Nagar Haveli	0.01	0.01	0.00	4.65	5.40	3.80
Daman & Diu	0.01	0.00	0.00	4.42	5.84	2.71
Delhi	0.44	0.24	0.19	3.81	3.84	3.76
Lakshadweep	0.00	0.00	0.00	1.59	1.56	1.61
Pondicherry	0.02	0.01	0.01	1.87	1.76	1.98

Source : Office of the Registrar General and Census Commissioner, 2001.

Chart 1
Population of the States and Union Territories of India, 2001



there was a high ratio are Dadra & Nagar Haveli (1.6), Chandigarh (1.4) and Delhi (1.2). Both Chandigarh and Delhi are areas that have traditionally attracted workers from other parts of the country. But the inclusion of Daman & Diu and Dadra & Nagar Haveli to this list of areas is rather a new phenomenon of the last decade. Perhaps males are finding migration destination in these areas which have been till recently not attracting outside labour. A corollary of this is that employment opportunities for the growing labour force may be shrinking in areas that have traditionally attracted migrants. There are other states that show a lower ratio than 1 suggesting that more men out-migrating from such areas. Two states that have a low ratio are Uttaranchal and Kerala. The respective male-female ratio of yearly additions is 0.9 and 0.8.

The state-wise exponential population growth rate during 1991-2001 is also given in table 1. States that have low growth rate of 1.50 percent and below are Kerala (of 0.9 per cent), Tamil Nadu (of 1.06 per cent), Andhra Pradesh (1.30 per cent) Goa (1.39 per cent), Tripura (1.46 per cent) and Orissa (1.48 per cent). Because of decreases in fertility, a low population growth was expected in Kerala, Tamil Nadu and Goa. In Andhra Pradesh perhaps the recent decline in fertility may have contributed to the low growth rate. Lower growth in Orissa deserves separate in-depth investigation. The border state of Tripura generally has a high growth rate due to illegal immigration of people from Bangladesh. In 1981-1991 Tripura had an annual growth rate of 2.95 per cent. A very high growth rate of more than 3.5 percentage is observed in Chandigarh (3.39 per cent), Delhi (3.81 per cent), Daman and Diu (4.42 per cent), Dadra and Nagar Haveli (4.65 per cent) and Nagaland (4.97 per cent). Delhi has generally attracted migrants from all over the country especially from the neighboring states of Uttar Pradesh and Haryana.

The computed average annual exponential growth rate for males and females

individually shows that the rates are fairly similar to that observed for total of males and females. However, significant differences in the male and female growth rate are observed for few areas. The noteworthy areas in Kerala where the male growth rate is lower than that of female rate: during 1991-2001 the former rate was 0.79 percent and the latter rate was 1.00 percent. The higher growth rate of females is mainly an outcome of higher life expectancy among females in this southern state. The life expectancy at birth for males during 1991-95 for Kerala was 69.9 years which increased to 70.2 years during 1992-96. The corresponding figure for females is 73.3 and 75.8 years (Office of the Registrar General, 2001). As referred to above, Nagaland has a high growth rate for both males (4.85 percent) and females (5.11 percent). But in the case of Daman and Diu, and Dadra and Nagar Haveli the high growth rates are because of a large number of male migrants. The growth rate of males is 5.83 per cent compared with 2.71 per cent for female in Daman and Diu. In Dadra and Nagar Haveli, the growth rate for males is 5.40 per cent compared with 3.80 per cent for females.

The provisional population totals for 2001 additionally contain data on the percent of child population in the age group of 0 to 6 years. For the country as a whole, there has been decline in the percent of population aged 0-6 years from 17.9 in 1991 to 15.4 in 2001. This reduction in the percentage of persons in the younger ages chiefly reflects decrease in fertility and, at the same time, indicates an increase in the ageing of population. A comparison for males and females shows that the decrease in the per cent of child population is more for females than for males. For all India, the male and female child percentage in 1991 was 17.8 and 18.1 as against 15.5 and 15.4 in 2001.

Chart 2 illustrates the relationship between per cent of male and female child population in the states of India. The percent of female population is represented on the x axis and percent of males is denoted on the y

Table - 2
Population, Density, Sex Ratio, Proportion Urban, Literacy Rate and Work Participation Rate for India, 2001

India/State/ Union Territory	Total population (millions)		Density (per sq. km.)	Sex ratio (females per 1,000 males)	Proportion Urban	Literacy Rate (%)			Work Participation Rate (%)		
	Persons	Males				Females	Persons	Males	Females	Persons	Males
India	1027.02	531.28	495.74	933	27.78	65.38	78.75	54.16	39.26	51.93	25.68
States											
Andhra Pradesh	75.73	38.29	37.44	978	27.08	61.11	70.85	51.17	45.81	56.44	34.93
Arunachal Pradesh	1.09	0.57	0.52	901	20.41	54.74	64.07	44.24	43.97	50.69	36.45
Assam	26.64	13.79	12.85	932	12.72	64.28	71.93	56.03	33.88	49.93	20.80
Bihar	82.88	43.15	39.72	880	10.47	47.53	60.32	33.57	33.88	47.73	18.84
Chhatisgarh	20.80	10.45	10.34	990	20.08	65.18	77.86	52.40	46.54	52.97	40.04
Goa	1.34	0.69	0.66	363	19.73	82.32	88.88	75.51	38.88	54.86	22.24
Gujarat	50.60	26.34	24.25	921	37.35	69.97	80.50	58.60	42.10	55.02	28.03
Haryana	21.08	11.33	9.76	861	29	68.59	79.25	56.31	39.76	50.49	27.31
Himachal Pradesh	6.08	3.09	2.99	109	9.79	77.13	86.02	68.08	49.28	54.70	43.69
Jammu & Kashmir	10.07	5.30	4.77	99	24.88	54.46	65.75	41.82	36.63	49.83	21.96
Jharkhand	26.91	13.86	13.05	941	22.25	54.13	67.94	39.38	37.64	48.21	26.40
Karnataka	52.73	26.86	25.88	964	33.98	67.04	76.29	57.45	44.60	56.87	31.88
Kerala	31.84	15.47	16.37	819	1.058	25.97	90.92	94.20	87.86	32.32	50.36
Madhya Pradesh	60.39	31.46	28.93	916	26.67	64.11	76.80	50.28	42.75	51.62	33.10
Maharashtra	96.75	50.33	46.42	922	424	77.27	86.27	67.51	43.46	53.49	32.59
Manipur	2.39	1.21	1.18	107	978	23.88	68.87	77.87	44.79	48.91	40.51
Meghalaya	2.31	1.17	1.14	103	975	19.63	63.31	66.14	60.41	41.47	47.76
Mizoram	0.89	0.46	0.43	42	938	495	88.49	90.69	86.13	52.70	57.45
Nagaland	1.99	1.04	0.95	120	909	17.74	67.11	71.77	61.92	42.74	46.82
Orissa	36.71	18.61	18.09	972	14.97	63.61	75.95	50.97	38.88	52.75	24.62
Punjab	24.29	12.96	11.33	482	33.95	69.95	75.63	63.55	37.58	54.10	18.68
Rajasthan	56.47	29.38	27.09	165	23.38	61.03	76.46	44.34	42.11	50.07	33.48
Sikkim	0.54	0.29	0.25	76	11.1	69.68	76.73	61.46	44.72	57.58	38.59
Tamil Nadu	62.11	31.27	30.84	478	43.86	73.47	82.33	64.55	44.78	58.06	31.32
Tripura	3.19	1.64	1.56	304	17.02	73.66	81.47	65.41	36.29	50.81	21.02
Uttar Pradesh	166.05	87.47	78.59	689	17.02	57.36	70.23	42.98	32.60	47.26	16.28
Uttaranchal	8.48	4.32	4.16	159	25.39	72.28	84.01	60.26	36.93	46.42	27.09
West Bengal	80.22	41.49	38.73	904	28.03	69.22	77.58	60.22	36.78	54.23	18.08
Union Territories											
Chandigarh	0.90	0.51	0.39	7902	89.78	81.76	85.65	76.65	37.63	56.10	13.72
Delhi	13.78	7.57	6.21	9294	93.01	81.82	87.37	75.00	32.80	52.21	9.15
Daman & Diu	0.16	0.09	0.07	1,411	36.26	81.09	88.40	70.37	45.97	65.56	18.34
Dadra & Nagar Haveli	0.22	0.12	0.10	449	22.89	60.03	73.32	42.99	51.77	62.38	38.68
Lakshadweep	0.06	0.03	0.03	1,894	11.47	87.52	93.15	81.56	25.33	42.51	7.19
Pondicherry	0.97	0.49	0.49	2,029	66.57	81.49	88.89	74.13	35.13	53.28	17.00
Andaman & Nicobar	0.36	0.19	0.16	43	32.67	81.18	86.07	75.29	38.27	56.73	16.45

Source : Office of the Registrar General and Census Commissioner, 2001.

axis, and the diagonal line in the chart equates the two percentages. As the chart shows, in a majority of the states the percentage of child male population exceeds the female population. Among all the states, Punjab is located farthest from the diagonal indicating that the percent of boys compared with girls in ages 0-6 years is the highest: for boys the percentage is 13.5 and for girls it is 11.9. Another state that has a higher percentage of boys is Kerala. In this southern state the percent of boys and girls is 12.1 and 11.0. In Himachal Pradesh also the difference in the percent of boys (13.3) exceed that of girls (12.3).

The difference in the states in respect of percent of child male and female population separately is due to decreases in fertility. In the states that are plotted in the lower left hand corner, fertility is lower than those placed in the upper right hand corner of the chart: Goa, Tamil Nadu, Kerala and Pondicherry have lower fertility rates as compared with Bihar, Rajasthan and Uttar Pradesh. While decline in fertility can accentuate son preference, the sex differences in the percent of child population may be due to changes in the sex ratio at birth, differential mortality among the sexes and relative differences in enumeration. We do not have sufficient data on all the variables that contribute to sex differences in child population so that we could determine the importance of each of the above mentioned variables. But from other indicators (see below) it appears that changes in the sex ratio at birth may be responsible for the decline in sex differentials in the percentage.

The changes in sex ratio are marked by inter-state variations (Map1). The overall sex ratio of the population has decreased by more than 10 points in two major states. These states are Gujarat and Maharashtra where the sex ratio has decreased from 934 in 1991 to 921 in 2001. Three Union Territories have also recorded a lower sex ratio in the recent census, these are Chandigarh (from 790 in 1991 to 773 in 2001, Daman and Diu) from

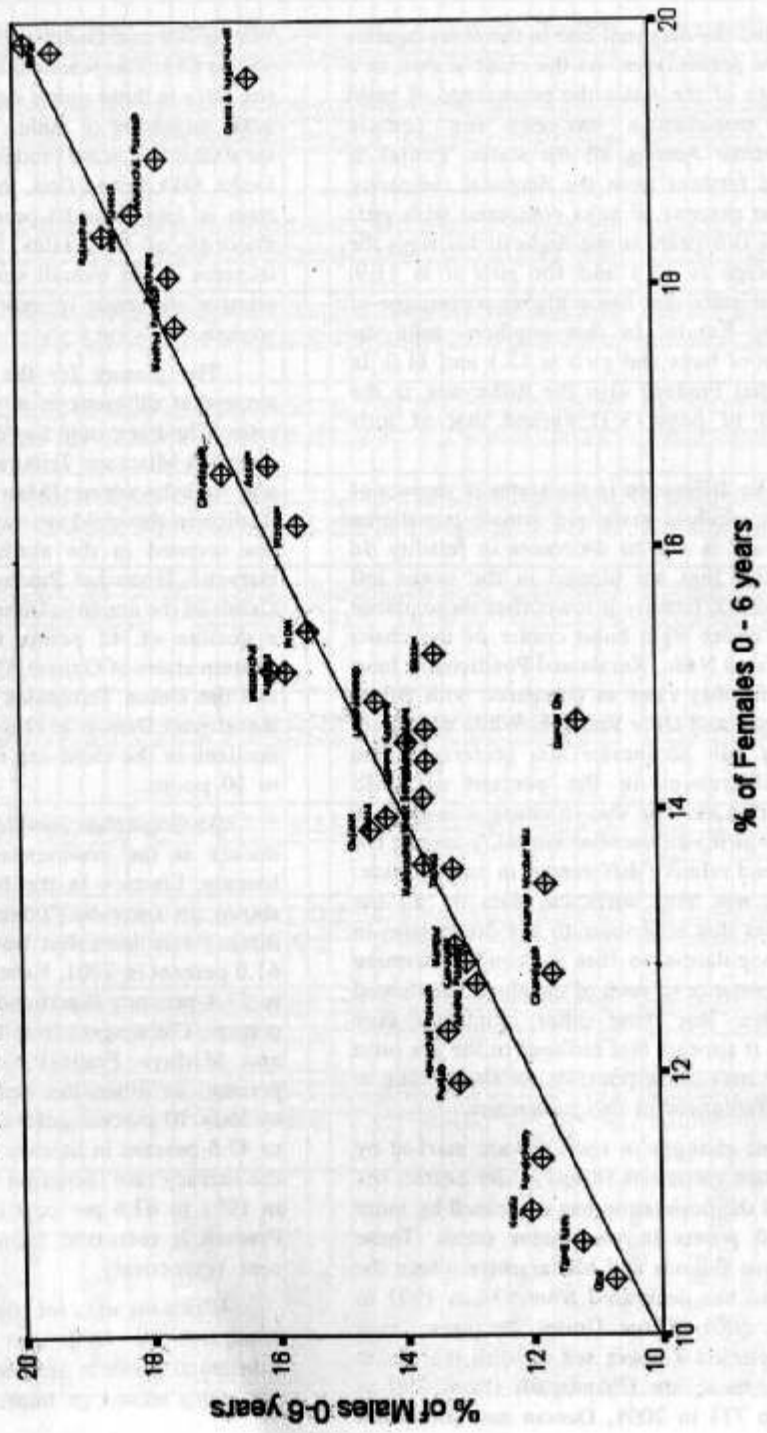
969 to 709 and Dadra and Nagar Haveli from 952 to 811. The reason for such decline in the sex ratio in these union territories is the large-scale migration of males into these areas. In six states, Himachal Pradesh, Punjab, Haryana, Delhi, Sikkim and Goa, the decline in the sex ratio is less than 10 points (Map 1). For a majority of the states there has been an increase in the overall sex ratio suggesting a relative decrease in mortality rates among women.

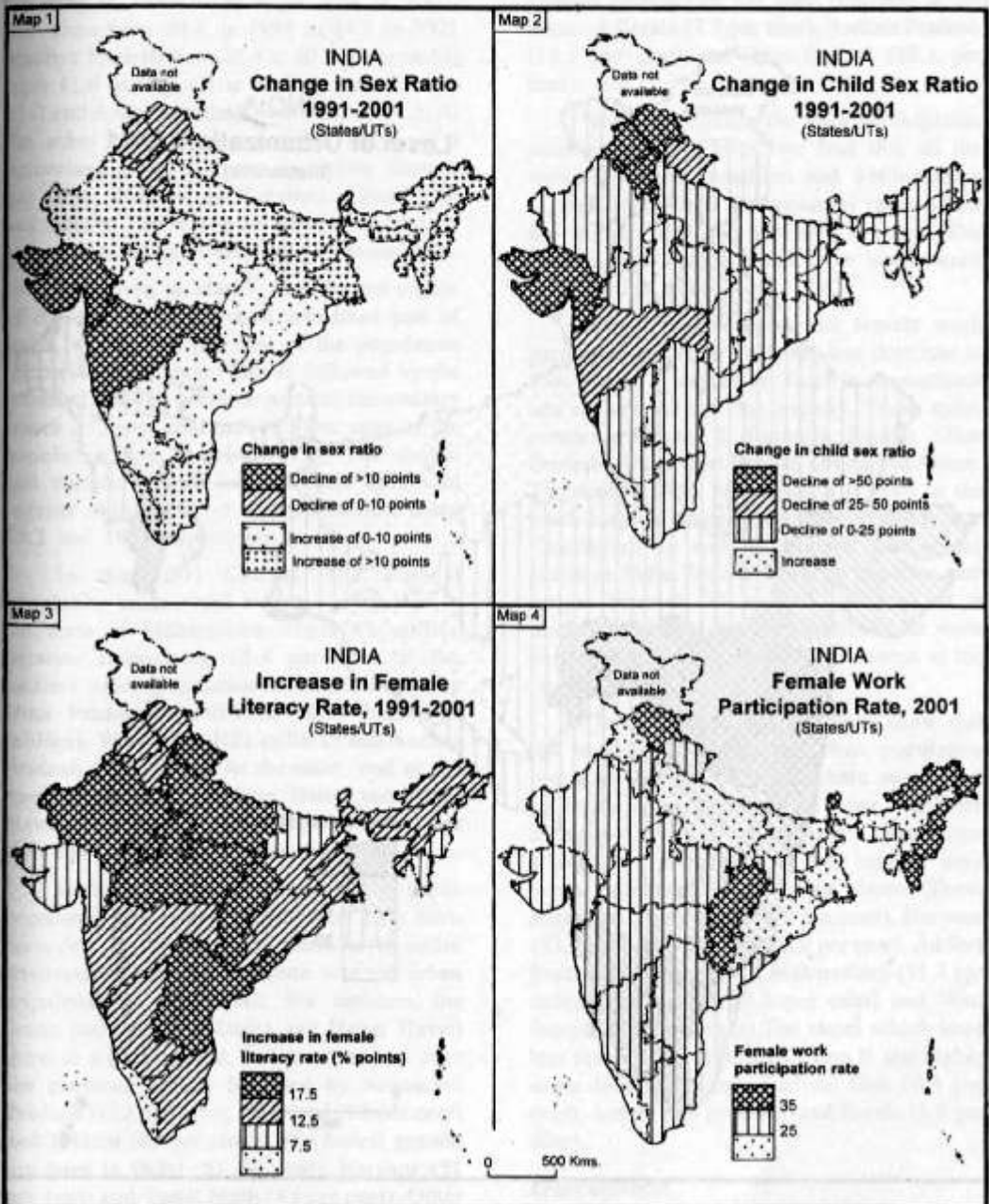
The picture for the child sex ratio is somewhat different from that for overall sex ratio. Child sex ratio has declined in all areas except in Mizoram, Tripura, Sikkim and Kerala and Lakshwadeep (Map 2). The sharpest decline in the child sex ratio (over 50 points) has occurred in the northern part - Punjab, Haryana, Himachal Pradesh, Chandigarh and Delhi- of the country. Uttaranchal has reported a decline of 42 points for this ratio. The western states of Gujarat, Goa and Maharashtra and the Union Territories of Dadra & Nagar Haveli and Daman & Diu have also recorded declines in the child sex ratio of between 25 to 50 points.

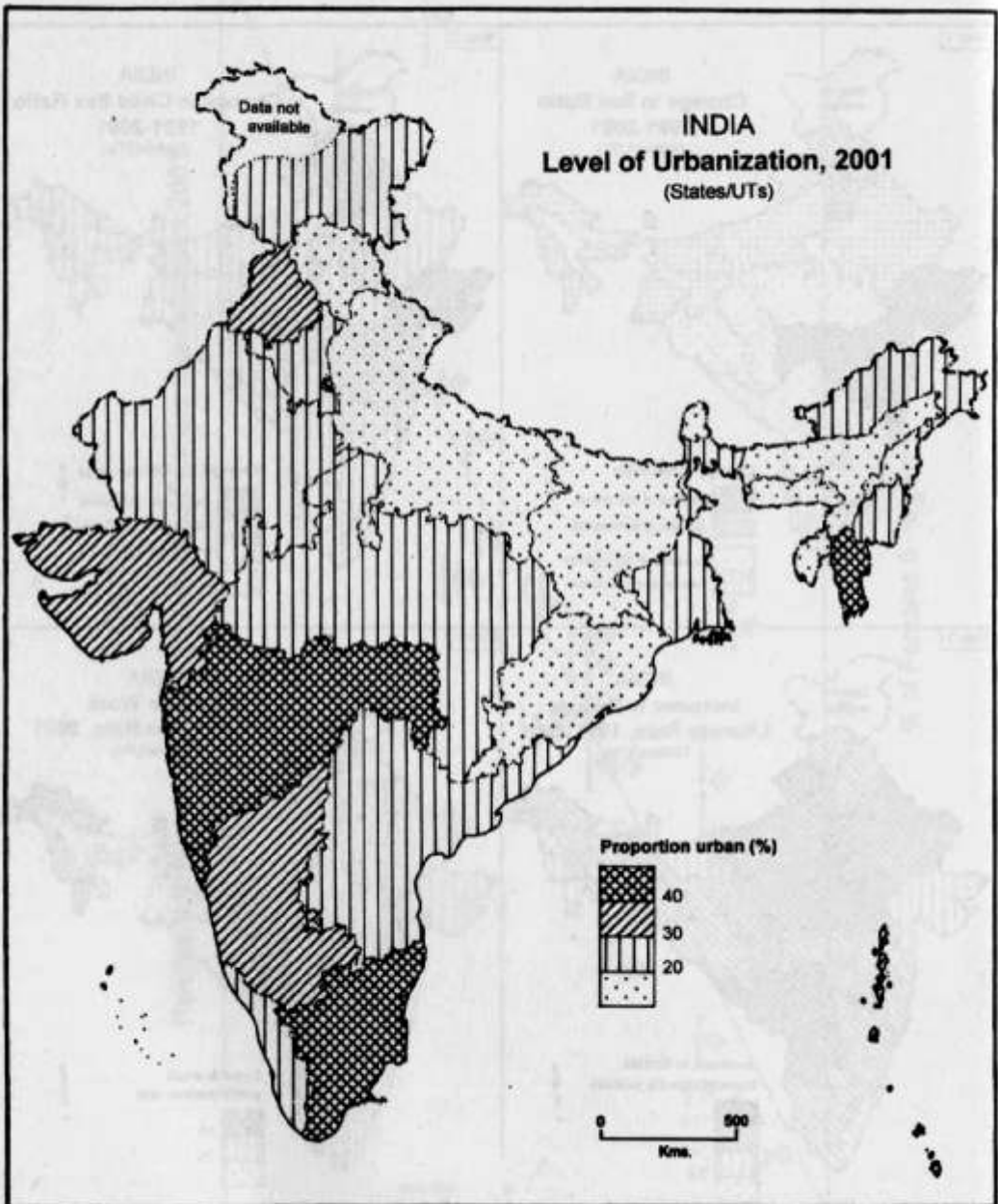
An important development of the last decade is the pronounced improvement in literacy. Literacy in the BIMARU states has shown an increase (Table 2). In Rajasthan, literacy rate increased from 38.5 in 1991 to 61.0 percent in 2001, Uttar Pradesh from 40.7 to 57.4 percent, Jharkhand from 41.4 to 54.1 percent, Chhatisgarh from 42.9 to 65.2 percent and Madhya Pradesh from 44.7 to 64.1 percent. In Bihar, the literacy rate improved by only 10 percent points from 37.5 in 1991 to 47.5 percent in literacy. Whereas in Orissa the literacy rate increased from 49.1 per cent in 1991 to 63.6 per cent in 2001, in Andhra Pradesh it increased from 44.1 to 61.1 per cent respectively.

When the data for literacy rate by sex is analysed we find that there has been substantial gains in female literacy (Map 3). Six states record an impressive achievement

Chart 2
Relationship Between Percent of Males and Females Age 0-6 Years, 2001





**Map - 5**

of more than 17.5 per cent points in female literacy. These states are Chattisgarh from 27.5 per cent in 1991 to 52.4 per cent in 2001, Rajasthan from 20.4, in 1991 to 44.3 in 2001 Madhya Pradesh from 29.4 to 50.3, Uttaranchal from 41.6 to 60.3, Uttar Pradesh from 24.4 to 43.0 and Andhra Pradesh from 32.7 to 51.2. At the other end of the spectrum, only a 7.5 percentage point increase in female literacy has been observed in Nagaland, Chandigarh and Kerala. The reason for this is that literacy among females is already high in these areas.

As shown in Map 5, the western region of the country is the most urbanized part of India, where 40.7 per cent of the population reside in urban areas. This is followed by the southern and the northern parts of the country where 33.4 per cent and 32.9 per cent of the population live in urban areas. The central and eastern regions are the least urbanized regions with the level of urbanization being 22.2 and 18.4 respectively.

In the 2001 Census, the highest population enumerated in urban areas was in the state of Maharashtra where 41 million persons comprising 14.4 per cent of the nation's urban population reside, followed by Uttar Pradesh (34 million), Tamil Nadu (27 million), West Bengal (22 million) and Andhra Pradesh (20 million). At the other end of the spectrum are Lakshwadeep, Dadra and Nagar Haveli, Daman and Diu and Sikkim where less than one lakh people are in the urban areas.

In terms of decadal growth rate of urban population, the fastest growth rates have been recorded in the smaller states and union territories where the absolute size of urban population is very small. For instance, the urban population in Dadra and Nagar Haveli grew at a phenomenal, 330 per cent rate over the previous decade followed by Arunachal Pradesh (112 per cent), Nagaland (68 per cent) and Sikkim (62 per cent). The fastest growth has been in Delhi (52 per cent), Haryana (51 per cent) and Tamil Nadu (43 per cent). Other states and union territories which have grown

faster than the national average include Chandigarh, Goa, Punjab and Assam. The slowest growth rate has been recorded in the states of Kerala (7.7 per cent), Andhra Pradesh (15.1 per cent) and West Bengal (20.1 per cent).

When we examine the work participation rates at the state level, we find that all the western, central, southern and north-eastern regions have work participation rates which are higher than the national average. The northern and eastern states have lower work participation rates.

Map 4 which shows the female work participation rate reveals that less than one in four women is in the work force in the northern and eastern parts of the country. These states comprise Jammu & Kashmir, Punjab, Uttar Pradesh, Bihar, West Bengal, Orissa and Assam. The female work participation is high in the north-eastern states, Himachal Pradesh and Chattisgarh. In most of western, central and southern India, female work participation rate ranges between 25 and 35 per cent. It is surprising to note that in Kerala female work participation rate is amongst the lowest in the country.

The state-wise data on slums show that the highest percentage of urban population living in slums is in Bihar where nearly two of every three persons (62.1 per cent) are living in a slum. There are seven other states which have more than 25 per cent of their urban population residing in slums. These states are Meghalaya (41.3 per cent), Haryana (33.1 per cent), Tripura (32.9 per cent), Andhra Pradesh (32.7 per cent), Maharashtra (31.7 per cent), Chattisgarh (29.3 per cent) and West Bengal (26.8 per cent). The states which have less than 10 per cent of its Class II and higher order living in slums include Goa (8.3 per cent), Assam (6.3 per cent) and Kerala (1.8 per cent).

Discussion

The northern states generally have high

growth rates while in the southern states the growth rate is declining as a result of reduction in fertility rates. The union territories have registered high growth rates of population. The highest growth rate, of 4.65 percent, is recorded for Dadra and Nagar Haveli that is due to migration of males into this area. But this union territory has relatively a small population size. Also the growth rates of Delhi, Chandigarh and Daman and Diu is high because of migration from other areas in the country. A noteworthy characteristic of the population is literacy; the population, especially the female population, is more literate than ever before. This by itself can generate enough momentum to usher in social and economic changes in the population. Such changes perhaps can attenuate the imbalance in sex ratio of the population under 6 years of age.

India is among the least urbanized countries in the world. Of the 132 countries for which data are available (World Development Report, 2000/2001), 109 countries have a higher proportion of people residing in urban areas than India. The per cent of people residing in urban areas in India is lower than the Asian average which stands at 38 per cent and the world average is 47 per cent. However, the level of urbanization in India is similar to other countries in its neighborhood like Bangladesh (24 per cent), Sri Lanka (23 per cent), Myanmar (27 per cent) and Thailand (21 per cent). The figure, however, is lower than that in Pakistan (36 per cent) and China (32 per cent). In spite of the low level of urbanization, India has the second highest number of people residing in urban areas next only to China. More people reside in the urban areas of India than the total population of USA, the third most populous country in the world. As a consequence of a large urban population which has limited facilities, nearly a fourth of the urban population lives in slums. If this trend continues without significant improvements in urban amenities,

in future a higher percentage of urban population may live in slums.

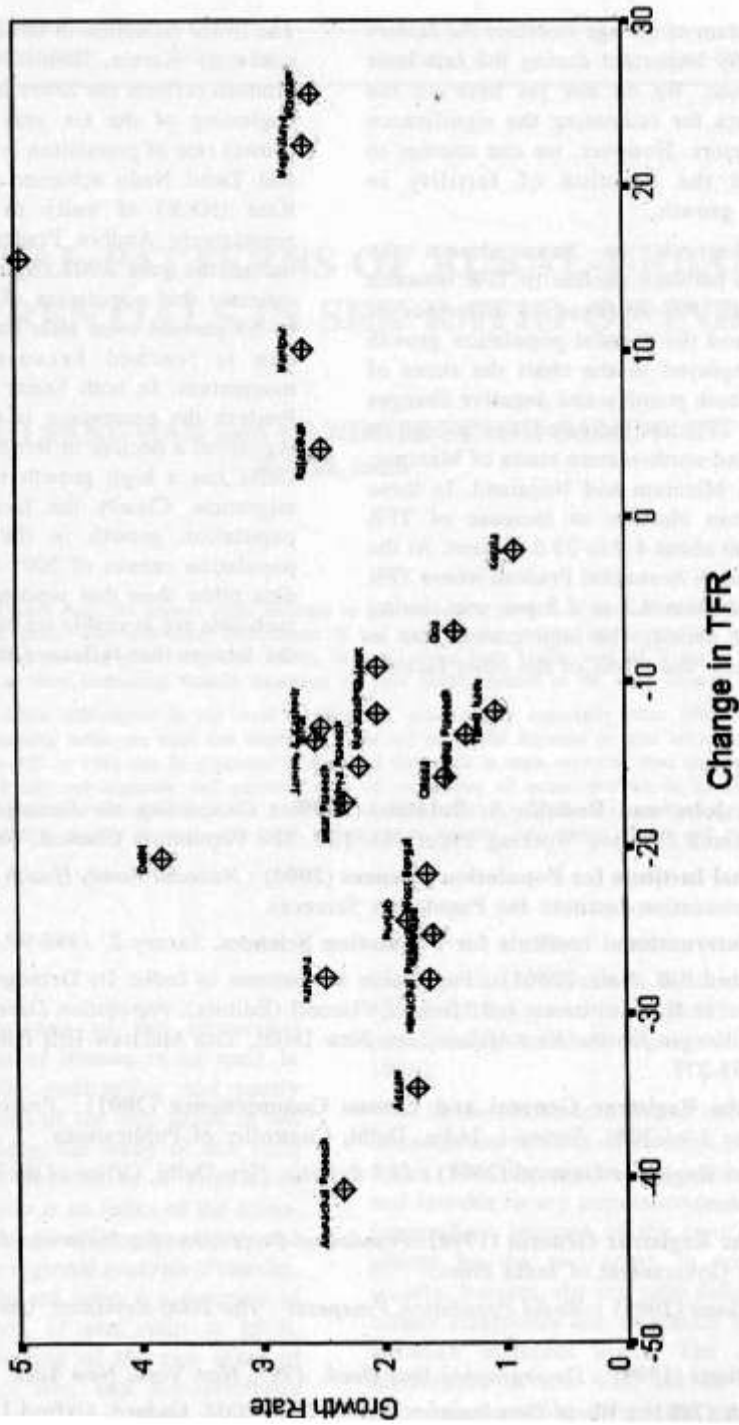
Although there has been an increase in the female work force participation rate at the 2001 Census, the participation rate of 25.7 per cent for women is substantially lower than that of neighboring countries. According to ILO (1997), the labor force participation rate was notably higher in Bangladesh (44.3 per cent), Nepal (37.8), and Sri Lanka (30.5). Some of the difference in the labour force participation rate may be due to the different concepts and definitions of labor force. In India, the female labor force participation rate may be higher than reported in 2001 Census. When the female work force participation rate is compared with neighboring countries, it appears that the census may still have recorded fewer women in the work force.

The provisional population census of 2001 has shown that the population of the country is 15 million more than the projected population (Office of the Registrar General, 1996). This difference between the projection and enumerated population is somewhat less than the addition to the country's population in a year. Though the growth rate of the population is less than 2 percent per annum, it is necessary to urgently reduce the additions to the population which would reduce the burden of population in the future. There is an urgent need to reduce population increases in the northern states by reducing their high fertility rates. The recent NFHS-2 data indicates that the fertility rate in the northern states has shown a decline. In Uttar Pradesh and Bihar, for example, total fertility rate (TFR) from 1992-93 to 1998-99 has shown a decline from 4.8 to 4.0 to and 4.0 3.5 children respectively (IIPS, 2000).

The above analysis underscores the inherent dynamics of population in the country during 1991-2001. As explained by Bongarts and Bulatao (1999), there are four factors that affect the growth of population of an area. These factors are fertility, mortality, migration

Chart 3

Relationship Between Growth Rate and Change in TFR



and momentum of the age structure the factors are relatively important during the last inter censal decade. We do not yet have all the required data for estimating the significance of these factors. However, we can attempt to understand the function of fertility in population growth.

In chart 3, we have shown the relationship between decline in TFR between 1992-93 and 1998-99 (nearly a difference of six years) and the decadal population growth rate. As displayed in the chart the states of India have both positive and negative changes in fertility. TFR has increased and is high in Rajasthan and north-eastern states of Manipur, Meghalaya, Mizoram and Nagaland. In these states we can observe an increase of TFR ranging from about 4.0 to 25.0 percent. At the other extreme is Arunachal Pradesh where TFR has declined from 4.2 to 2.5 per cent during the six year period. The high growth rate in this state may be the effect of the other factors.

The lower reduction in fertility in the southern states of Kerala, Tamil Nadu and Andhra Pradesh reflects the lower level of TFR at the beginning of the six year period and their growth rate of population is also lower. Kerala and Tamil Nadu achieved Net Reproduction Rate (NRR) of unity in 1987 and 1990 respectively Andhra Pradesh is to attain it before the year 2002. Nair and Nair (2001) estimate that population of Kerala will grow by 59 percent even after the level of NRR of one is reached because of population momentum. In both Tamil Nadu and Andhra Pradesh the percentage is 42. Though it has registered a decline in fertility of 20.5 percent Delhi has a high growth rate because of in migration. Clearly the factors that underlie population growth in the state vary. The population census of 2001 has also collected data other than that reported here and when such data are available we can better determine the factors that influence the growth rate.

References

- Bongaarts, John and Rodolfo A. Bulatao. (1999)** : *Completing the Demographic Transition*, Policy Research Division Working Paper No. 125, The Population Council, New York.
- International Institute for Population Sciences (2000)** : *National Family Health Survey 2, 1998-99*, Mumbai, International Institute for Population Sciences.
- Mumbai, International Institute for Population Sciences, Survey 2, 1998-99.**
- Nair, P.S. and S.B. Nair, (2001)** : Population Momentum in India: Its Demographic and Health Implications. In K. Srinivassan and Michael Vlassoff (Editors), *Population Development Nexus in India : Challenges for the New Millennium*, New Delhi, Tata McGraw-Hill Publishing Company Limited, 263-271.
- Office of the Registrar General and Census Commissioner (2001)** : *Provisional Population Totals*, Paper 1 of 2001, Series 1, India, Delhi, Controller of Publications.
- Office of the Registrar General (2001)** : *SRS Bulletin*, New Delhi, Office of the Registrar General, (Several Issues)
- Office of the Registrar General (1996)**: *Population Projections for India and States, 1996-2016*, New Delhi, Government of India Press.
- United Nations (2001)** : *World Population Prospects : The 2000 Revisions*, United Nations, New York.
- United Nations (1999)** : *Demographic Year Book, 1997*, New York, New York.
- World Bank (2001)** : *World Development Report 2000/2001*, Oxford, Oxford University Press.

SPATIAL PATTERNS OF RURAL-URBAN DIFFERENTIALS IN SEX RATIO OF INDIA

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Abstract

Based on Census data, the present study attempts to explain spatial patterns of rural-urban differentials in sex ratio in India. The rural-urban differentials in sex ratio in the country are largely the product of male-selectivity in rural-urban migration which, in turn, stems from higher cost of living in urban areas as well as from continuing notable incidence of joint family system in the rural areas.

The rural-urban differential in sex ratio is declining continuously especially after 1961 mainly because of increasing urban sex ratio and decreasing rural sex ratio. The decrease in rural sex ratio from 963 in 1961 to 939 in 1991 can be explained in terms of faster fall in male mortality than that females, trend toward family out-migration and growing pace of commuting of urban workers to surrounding rural areas. The increase in urban sex ratio from 845 in 1961 to 894 in 1991 is a result of rapid fall in female mortality, decline in male-selectivity in migration streams, and better health and medical facilities.

Introduction

Sex ratio is one of the important indicators of status of women in an area. In view of the partly contrasting and partly complementary roles of the two sexes in the economy and society, the study of sex ratio becomes of great interest to a population geographer. Sex ratio is an index of the socio-economic conditions prevailing in an area and is a useful tool for regional analysis (Franklin, 1956). In itself, the sex ratio is a function of three basic factors of sex ratio at birth, differential in mortality of the two sexes at different stages of life, and sex-selectivity among the migrants (Clarke, 1960). Sex ratio

has a profound effect on other demographic elements like growth of population, marriage rates, occupational structure, etc. (Shyrock, 1976).

In the Indian census, the term Sex Ratio connotes the number of females per thousand males. The disparity in the number of males and females in any population is of interest to geographers because of the contrasting roles played by the two sexes in economy and society. Besides, the sex ratio differences also reflect effectively the migration differentials between different areas. The rural-urban differences in sex ratio are of tremendous importance as they reflect the general tempo

of life and the nature of sex selectivity in rural-urban flows of population. The developing countries have been characterized with male-selective out-migration from rural areas resulting in relatively high sex ratios there (Mehta and Kaur, 1983).

Literature cited

A number of studies on sex ratio of various population have been conducted not only in context of individual states (Siddiqui and Ahmad, 1971; Chandna, 1972; Krishan and Chandna, 1973; Kashyap, 1975; Siddiqui, 1982; Mehta and Kaur, 1983; Borooah, 1985; Gill and Singh, 1985; Maurya and Devi, 1985; Prasad, 1990; Bose, 1991; Jayasree and Audinarayana, 1991) as well as individual cities of India (Alam, 1965; Lall, 1987; Goel, 1994), but also for India as a whole (Gosal, 1961; Desai, 1967; Mitra, 1979; Chandna and Sidhu, 1979; Chandna, 1986; Senapati, 1993; Bhutani, 1995; Reddy, 1996). However, there is dearth of studies, which are related to the rural-urban differentials in sex ratio in India.

Objective of the study

The sex ratio in India has experienced a continuous decline during the twentieth century with only a few exceptions. The urban places have been more affected as compared to the rural areas of India by paucity of females. The basic objective of the present study is to make a detailed analysis of regional variations in rural-urban differentials in sex ratio in India.

Hypotheses

1. The rural-urban differential in sex ratio will be low in areas with high female mortality rates in rural areas.
2. The rural-urban differential in sex ratio will be low in areas with developed transport and communication network, due to which male-selective migration to urban areas would decrease and commuting would increase.
3. Faster fall in female mortality rates in

urban areas and male mortality rates in the rural areas would decrease the differential. The former is due to availability of medical facilities and higher status granted to females.

Data base and methodology

For calculating rural-urban differentials in sex ratio, the secondary sources of data have been tapped. Census of India (1991) provides most of the data required for the study. Some relevant data meant for the purpose have also been obtained from previous years publications of the Census of India. Various occasional papers published by Census of India, Office of the Registrar General, New Delhi, were also consulted.

Decadal variations in rural-urban differential were calculated from 1901 to 1991. These variations were calculated by subtracting sex ratio at the previous census year from that at the later : for instance, to find the variation between 1901-1911, the value of 1901 is deducted from the value of 1911 and so on.

The differential index of sex ratio for the districts of India was computed on the basis of "disparity index" given by Kundu and Rao (1982), i.e. $D_s = \log(X_2/X_1) + \log(200 - X_1) / (200 - X_2)$.

Where $X_2 > X_1$ and X_1 & X_2 various demographic aspects (such as sex ratio, literacy rates vital rates and size of household) of *alphas* and *non-alphas* respectively.

Since spatial concept occupies a central position in every geographic enquiry, map is an important tool. On calculating differential index for sex ratio, the districts of India were classified into various categories (keeping in view the national average) and represented cartographically so as to present a regional perspective, showing spatial patterns of rural-urban differentials in sex ratio.

The co-efficients of correlation have been computed to determine the relationship

between the dependent as well as the independent demographic and socio-economic variables.

Rural-urban differentials in sex ratio, 1901-91

The rural-urban differentials in sex ratio in India were the result of sex-selectivity among the rural-urban migrants in the past. More males than the females moved from rural areas to urban areas. However, the male-selective influx into urban areas is the result of (i) significance incidence of prejudice against female employment and mobility, (ii) scarcity of jobs suitable for females in urban areas, and (iii) high cost of living and problem of housing in urban centers which discourage and compel many male migrants to leave their families behind. Moreover, the joint family system prevailing in rural areas facilitates male-selectivity in migration as the male migrants to leave their

families behind. Moreover, the joint family system prevailing in rural areas facilitates male-selectivity in migration as the male migrant is assured of the safety and security of his family left behind (Krishan and Chandna, 1973). Thus, the rural-urban differential in sex ratio was largely the product of male-selectivity in rural-urban migration. This was in contrast to the excess of females among the rural-urban migrants in case of Western countries.

Right from the beginning of census operations in the 1871, the sex ratio in India has been adverse to women not only in rural areas but in urban areas. However, urban areas were characterized by greater paucity of females which was in contrast to the Western countries where the urban sex ratios were more in favour of females. Interestingly, the sex ratio in India has suffered a consistent decline all through the present century except during the decades of 1941-51 and 1971-81 (Table 1).

Table-1
India : Sex Ratio by Rural-Urban Residence, 1901-91

Census Year	Females per 1000 males			Rural-urban Differential
	Total	Rural	Urban	
1901	972	979	910	69
1911	964	975	872	103
1921	955	970	846	124
1931	650	966	838	128
1941	945	965	860	134
1951	946	965	860	105
1961	941	963	845	118
1971	930	949	858	91
1981	935	952	880	72
1991	927	939	894	45

Source : Calculated from, Census of India (1991), *Final Population Totals : Brief Analysis of Primary Census Abstract*, Paper 2 of 1992. Series-I, India, Table 2.2 p. 102.

Table-2
India : Rural-Urban Differential Indices of Sex Ratio, 1991

Country/State/ Union Territory	Differential Index	Country/State/ Union Territory	Differential Index
INDIA	- 0.006	STATES	
STATES		West Bengal	- 0.011
Manipur	+ 0.003	Maharashtra	- 0.013
Mizoram	+ 0.003	Assam	- 0.014
Punjab	+ 0.003	Orissa	- 0.016
Tripura	+ 0.002	Himachal Pradesh	- 0.022
Haryana	+ 0.001	Sikkim	- 0.024
Kerala	+ 0.000	Arunachal Pradesh	- 0.028
Andhra Pradesh	- 0.002	Nagaland	- 0.028
Tamil Nadu	- 0.002	UNION TERRITORIES	
Uttar Pradesh	- 0.003		
Gujarat	- 0.005	Chandigarh	+ 0.042
Karnataka	- 0.005	Daman & Diu	+ 0.012
Rajasthan	- 0.005	Delhi	+ 0.004
Madhya Pradesh	- 0.007	Pondicherry	+ 0.002
Meghalaya	- 0.007	Lakshadweep	- 0.004
Goa	- 0.008	Andaman & N. Islands	- 0.012
Bihar	- 0.011	Dadra & Nagar Haveli	- 0.021

Source : Computed from, Census of India (1991), *Primary Census Abstract : General Population, Series-1, India, Part-II-B(i)*, Vols. I & II, Office of the Registrar General and Census Commissioner, New Delhi.

Spatial patterns of rural-urban differentials in sex ratio, 1991

Rural-urban differential in sex ratio in India is a matter of serious concern. The overall sex ratio has declined notably from 935 in 1981 to 927 in 1991 (Table 1). Similarly, the rural sex ratio has also declined, but the urban sex ratio has improved to some extent, and the resultant rural-urban differential in sex ratio declined during 1981-91. As can be seen from Fig. 1, there are wide regional variations in rural-urban differentials in sex ratio. The maximum differential is found in Nagaland (.028), whereas the minimum is in Haryana (0.001) (Table 2).

When rural-urban differential index was correlated with some indicators for major states

of India (Table 3), it was observed that it weak negative correlation with rural female mortality rate and road density. On the other hand, rural-urban differential is correlated positively with urban female mortality rate, rural male mortality rate and rural female literacy rate. As the urban female and rural male mortality rate and rural female literacy rate. As the urban female and rural male mortality decreases, the rural-urban differential will also decrease. Similarly, as the transportation network strengthens, male-migration to urban areas will change to commuting and rural-urban differential would decline.

The lower sex ratio of the urban areas, in general, is mainly attributable to the fact that opportunities for female employment in Indian towns and cities are very low and the cost of

Table-3**India : Coefficients of Correlation of Rural-Urban Differential in Sex Ratio, 1991**

Indicator	Coefficient of Correlation
Rural female mortality rate	- 0.3513
Road density	- 0.2517
Urban female mortality rate	+ 0.2158
Rural female literacy rate	+ 0.2416
Rural male mortality rate	+ 0.4398

Source : Computed from, Publications made by Census of India (1991) and Economic Intelligence Service (1991, 1993, 1994 and 1997).

living in urban areas is much higher than in rural areas. Faced with these handicaps, the working male members usually decide to leave their families in their villages, when they migrate to urban areas for employment. However, the sex ratio of urban centres varies a great deal in accordance with their functions, types of industries, possibilities of female employment, sex ratio of the general population of the regions in which they are located and the social traditions of the people concerned. There is less sex-selectivity in the migration to urban areas in south India, probably because here the women enjoy a better status in society than in most other parts of the country. Also, the cottage industries, which are important in south Indian towns, offer some employment to the females. The rural-urban differential in sex ratio is the lowest in south India (Gosal, 1961).

These regional disparities index of sex ratio become more revealing and meaningful when examined at district level. Fig. 2 reveals that about one-third of India is covered by districts where the differential index comes out to be low (-0.004 & below), while about one-fourth of the total districts have very high index (-0.011 & above) of rural-urban differentials. One-fifth districts with moderate differential index (-0.005-0.010) surround the

areas of high differential index. About 23 per cent districts are having higher urban sex ratio than the rural. These areas can be seen on eastern coast, upper Ganga plain, Punjab, Haryana and in a few regions scattered here and there all over India. For an understanding of differentials in sex ratio by residence, all the districts are divided into 2 major categories :

1. Areas with rural sex ratio higher than urban

- a) Areas of high rural-urban differential index (0.011 and above)
- b) Areas of moderate rural-urban differential index (0.0050-.010).
- c) Areas of low rural-urban differential index (0.004 and below).

2. Areas with urban sex ratio higher than rural.

1. Areas with rural sex ratio higher than urban

Keeping in view the national average (-0.006) of rural-urban differential index, the districts with rural sex ratio higher than urban are divided into 3 sub categories :

- a) **Higher rural-urban differential index (-0.011 and above)**

The total number of districts belonging to this category are 104. The maximum differential is found in the northwestern Himalayan districts. The Tehri Garhwal district has the highest rural-urban differential index value (-0.103) followed by Chamoli (-0.076), Almora (-0.052), Uttar Kashi (-0.046), and Pithoragarh (-0.032) in Uttar Pradesh. In the district of Tehri Garhwal, urban sex ratio (563) is nearly half of the rural sex ratio (1098). In rest of the districts of Uttar Pradesh and districts of high and urban sex ratios are very low, because north India is characterized by patriarchal society. These areas experience male-selective out-migration for various employment armies. The differential is high in north-eastern hilly districts also. In Assam, Arunachal Pradesh, Nagaland, Sikkim and Meghalaya, male-selectivity among migrants is the root cause of high differential index. Moreover, these states are relatively less densely populated. Another reason of male-selectivity in migration is the high cost of living and lack of housing facilities in urban areas. Lack of medical facilities and high female mortality rate in all age groups is typical of hilly areas.

In middle and lower Ganga plain and in Orissa Highland region and Chhota Nagpur region also, the rural-urban differential index is high. The districts of Howrah (-0.017), Hugli (-0.012) and Bardhaman (-0.014) in West Bengal; Sonbhadra (-0.022), Azamgarh (-0.012), Jaunpur (-0.012), Gorakhpur (-0.012), Deoria (-0.012), Sultanpur (-0.013), Faizabad (-0.011), Pratapgarh (-0.014) and Allahabad (-0.011) in Uttar Pradesh; and Saran (-0.015), Siwan (-0.016), Muzaffarpur (-0.011), Saharsa (-0.012), Madhepura (-0.014), Katihar (-0.011), Godda (-0.012), Dumka (-0.014), Deoghar (-0.013), Dhanbad (-0.018), Giridih (-0.018), Hazaribag (-0.023), Palamau (-0.013), Gumla (-0.012), Ranchi (-0.013), Purbi Singhbhum

(-0.013), Paschimi Singhbhum (-0.016) and Kishanganj (-0.011) in Bihar also have high differential index values. Most of these districts are quite rich industrially and agriculturally. Bihar is known for low development of medical and health facilities. Female mortality rate is high, status of women is very low and they are a neglected part of the society. Male-selectivity in rural-urban migration is quite.

b) Moderate rural-urban differential index (-0.005 - 0.010)

Areas of moderate differential surround almost all the areas of high differential. There are 106 districts which fall in this category. More than half of the districts in this category are found in the eastern half of India. This region includes the districts parts of middle and lower Ganga Plain, southern part of Orissa Highland region, Chhatisgarh districts of Kokrajhar (-0.007) and Nagaon (-0.007) in Assam; Chandel (-0.007) in Manipur; East Khasi Hills (0.008) and West Garo Hills (-0.008) in Meghalaya; Lunglei (-0.006) in Mizoram; Jehanabad (-0.009), Gaya (-0.09, Gopalganj (-0.009), Sahibganj (-0.010) and Araria (-0.009) in Bihar; Kachchh (-0.009) in Gujarat; Una (-0.010) in Himachal Pradesh, Tumkur (-0.010) in Karnataka; Chandrapur (-0.009) and Gadchiroli (-0.009) in Maharashtra; Dhar (-0.009) and Betul (-0.010) in Madhya Pradesh; Baleshwar (-0.010), Balangir (-0.009) and Kalahandi (-0.009) in Orissa; Alwar (-0.009), Jaisalmer (-0.010), Jodhpur (-0.009), Pali (-0.009), Jalaur (-0.009) and Sirohi (-0.010) in Rajasthan; Basti (-0.009) and Ghazipur (-0.009) in Uttar Pradesh; Darjiling (-0.009) in West Bengal have the maximum differential index values of this category. In the districts of north-eastern region of India, the gap between rural and urban sex ratio squeezed because of male-selective migration and high female mortality

in rural areas during reproductive years. In these areas, birth rates as well as death rates are above national average. Status of women is also very low.

A few patches of this category are also found in the Thar Desert, Punjab and Haryana plain and Himachal region. The main cause of differential is sex-selectivity in migration and trend of male-recruitment in military and paramilitary forces.

A few districts of Konkan coast and Malabar coast also recorded moderate differential index. These areas, since long, have been suffering from male-selective out-migration particularly in the Bombay-Pune industrial belt, but now these seem to have entered the stage of family out-migration. Here, high female mortality in reproductive period is another cause (Bhutani, 1995).

In Punjab-Haryana plain and in many districts of Rajasthan, moderate differential is the result of small gap between sex ratio of rural and urban areas because most of the towns in north-western India are simply overgrown villages sharing many of the rural attributes and partly because migration to large towns of these areas was generally in families.

The preponderance of family migration to large towns and rural character of small towns in India are the main factors for moderate differential index.

c) **Low Rural-Urban differential index (0.004 and below)**

A total of 123 districts, lying mostly in Western India, fall in this category. These constitute one broad belt running through the sub-continent from Punjab and Haryana, northern part of Rajasthan, most of the Gujarat region, western half of central India, Malwa region, Maharashtra, northern part of Karnataka plateau and Andhra plateau, Tamil Nadu upland, south Sahyadri, a few districts of

middle and lower Ganga plain and a few districts of Meghalaya-Mikir region.

Relatively high differential in this category i.e. 0.004 is found in the districts of Mahbubnagar, Rangareddi, Adilabad, Karimnagar and Munger in Bihar; Jamnagar, Amreli, Sabar Kantha, Mahesana and Ahmedabad in Gujarat; Sirmaur in Himachal Pradesh; Mandya, Raichur and Shimoga in Karnataka; Sangli, Jalna and Yavatmal in Maharashtra; Dewas and Raisen in Madhya Pradesh; Ganganagar, Jaipur and Sikar in Rajasthan; Chengalpattu-MGR in Tamil Nadu; and Maharajganj in Uttar Pradesh.

In 1991, the gap between rural and urban sex-ratio became negligible in these districts. This is related to rapid fall in rural female mortality rates due to better socio-economic conditions and increased nutrition for females, which caused improved fertility and lower mortality rates and family migration to urban areas. Perhaps the highly industrialized and urbanized cities of India are in the process of feminization (United Nations, 1980).

The districts in Kerala and Tamil Nadu are experiencing emigration and out-migration on a large scale. Largely, this migration is male-selective. Kerala is the only state in the country which has experienced net out-migration to the Gulf even from its towns. The out-migration, in general, was the result of acute population pressure upon the limited resources of the state. Besides, improvement in levels of female emancipation as found in literacy levels, the sex ratio in Kerala is in line with developed countries. Besides, notable incidence of materilised family organization in the state has also played its own important role in this regard.

In the northern half of Karnataka, eastern parts of Maharashtra alongwith adjacent districts of Andhra Pradesh also have low

differential index. In this area, there is male-selective out-migration from both rural and urban areas. The migration here is generated by the push of the area under the increasing stress of population upon the resources. A large part of this area falls in the rain-shadow zone of the western Ghats and recorded low to moderate growth of population.

Other districts, belonging to this category fall in the tribal areas of Gujarat and adjacent districts of Madhya Pradesh which too recorded low rural-urban differential index. This region has been experiencing some out-migration, particularly of males, due to unfavourable population-resource relationship and limited development activity in the region. It is worth mentioning, here, that 40 to 60 per cent of the population in some of the districts belongs to the scheduled tribes. Parts of Rajasthan, south and western Haryana and north, north-western and southern Punjab, which fall in this belt of low rural-urban differential index are recording increase in sex-ratio. In most of these districts, growth rate is relatively high in urban areas. Migration to urban areas is in the form of family-migration for the purpose of employment and education.

Thus, the shift in the form of migration, availability of health and medical facilities, improvement in drinking water and sanitation have reduced the rural-urban differential to a great extent.

2. Areas with Urban Sex-Ratio Higher than Rural

A total of 103 districts have the urban sex ratio higher than the rural. These districts are found east coastal plains, a few southern districts of Kerala, Gujarat, Tripura, Mizoram, Punjab and Haryana plain, upper Ganga plain and Bundelkhand region. The highest negative

differential index in this category is found in the union territory of Chandigarh (-.042), where rural sex ratio is 632 and urban sex ratio is 810. In the districts belonging to this category, the feminisation of rural-urban migration streams is most important. In the districts of east coastal region, birth rates are low, but rest of the districts in this category are having average to high birth rates. The fall in female mortality rates in urban areas owing to better economic, health and sanitary conditions is another cause. Similarly, the death rates are below national average in east coastal region, but in all the other areas of this category it is similarly to or above the national average. Infant mortality rates are above national average in all the regions except a few districts of Punjab and Tamil Nadu.

With expansion of transport and communication network, raised level of literacy, improved health and medical facilities, general migration streams have made the sex-ratio of urban areas higher, even to cross the rural a very strong expression in case of India sex-ratio. All these facilities have also reduced the gap between rural and urban sex ratios and this gap is continuously decreasing and the rural-urban differential is also becoming minimal.

Summing up

- Right from the beginning of the census operations, the sex ratio in India has been adverse to women not only in rural areas but also in urban counterparts. However, urban areas were characterised with excessive deficiency of women resulting into more rural-urban differentials. These rural-urban differentials in sex ratio in India were largely the product of male-selectivity in rural-urban migration which, in turn, was the result of high cost of living and

problem of housing for families in urban centres.

- The rural-urban differential in sex ratio is declining continuously especially after 1961 mainly because of increasing urban sex ratio and decreasing rural sex ratio. The decrease in rural sex ratio from 963 in 1961 to 939 in 1991 can be explained in terms of faster fall in male mortality rate, family out-migration and commuting from the surrounding rural areas because of the rapid development of transport and communication. The increase in urban sex ratio from 845 in 1961 to 894 in 1991 is a result of improvement in level of status of woman, feminization of migration streams, and better health and medical facilities bringing down the female mortality rates in urban areas.
- Spatially speaking, there are wide regional variations in rural-urban differentials and the maximum differential is found in Nagaland (-0.028), whereas it is minimum in Haryana (-0.001). However, these regional disparities in differential index of sex ratio become more revealing and meaningful when examined at district level. About 77 per cent districts are characterized by higher rural sex ratio than the urban, whereas the remaining 23 per cent districts have higher urban sex ratio than the rural. The rural sex ratio higher than urban is the characteristics of north-western Himalayan districts, north-eastern hilly districts and the districts falling in middle and lower Ganga plain, Orissa Highland region, Chhota Nagpur region, Chhattisgarh region and Punjab-Haryana plain. The higher rural sex ratio than the urban in these areas is mainly because of male-selectivity in rural-urban migration,

high female mortality rate, low level of status of women and dominance of males in a patriarchal society.

By contrast, a higher urban sex-ratio than rural is typical of eastern half of Andhra Pradesh, upper Ganga plain, major parts of Haryana and adjoining districts of Punjab and a few districts scattered in Gujarat, Kerala, Maharashtra, Tamil Nadu and in southern parts of eastern hill states. Feminisation of rural-urban migration streams, decreasing female mortality rates, greater longevity of urban females and better medical facilities in urban areas are some of the reasons.

- The resultant high rural-urban differential because of higher rural sex ratio than the urban is the characteristic of those areas which are dominated by patriarchal society, experience male-selective out-migration, high female mortality rate, high incidence of masculinity at birth and attributed with very low level of status of women.

On the contrary, a total of 123 districts are characterized with low rural-urban differential in sex ratio (0.004 and below). These constitute one broad belt running through the sub-continent from north of Rajasthan plain, most of Gujarat region, western half of central India, Malwa region, Maharashtra, northern part of plateau, north western Andhra plateau, Tamil Nadu upland, south Sahyadri, a few scattered districts of middle and lower Ganga plain and Meghalaya-Mikir region. The notable districts within maximum rural-urban differential (-0.004) are Mahbubnagar, Rangareddi, Adilabad, Karimnagar and Nalgonda in Andhra Pradesh; Karimganj in Assam; Aurangabad and Munger in Bihar;

Jamnagar, Amreli, Sabar Kanta, Mahesana and Ahmedabad in Gujarat; Sirmaur in Himachal Pradesh; Mandya, Raichur and Shimoga in Karnataka; Sangli, Jalna and Yavatmal in Maharashtra; Dewas and Raisen in Madhya Pradesh; Ganganagar, Jaipur and Sikar in Rajasthan; and Chengalpattu-MGR in Tamil Nadu; and Maharajganj in Uttar Pradesh.

The low rural-urban differential in sex ratio is mainly because of rapid fall in rural female mortality rates due to better socio-economic conditions and improved health and medical facilities, family migration to urban areas, male-selective

emigration and out-migration on a large scale and prevalence of matrilineal society.

- The rural-urban differentials in sex-ratio correlated negatively with rural female mortality rates, road density and positively with urban female mortality, rural male mortality and rural female literacy rate. All the hypotheses thus stand validated. Thus, improvement in health care delivery system and thrust on female education including improvement in their status shall go a long way in reducing rural-urban differential in sex ratio.

References

- Alam, S.M. (1965)**, *Hyderabad and Secunderabad : Twin Cities : A study in Urban Geography*, Allied Publishers Pvt. Ltd., New Delhi, pp. 77-93.
- Bhutani, S. (1995)**, *Demographic Dynamism in India*, Discovery Publishing House, New Delhi.
- Borooh, G.L. (1985)**, *Population Geography of Assam; A study of Dibrugarh District (1872-1971)*, Mittal Publications, Delhi.
- Bose, A. et. al. (eds.) (1977)**, *Population Statistics in India*, Vikas Publishing House Pvt. Ltd., New Delhi.
- Bose, A. (1991)**, *Demographic Diversity of India : 1991 Census State and District Level Data*, B.R. Publishing Corporation, Delhi.
- Census of India (1991)**, *Final Population Totals : Brief Analysis of Primary Census Abstract*, Paper 2 of 1992, Series-1, India, Office of the Registrar General and Census Commissioner, India, New Delhi.
- Chandna, R.C. (1972)**, "Schedule Caste Population in Rural Haryana : A Geographic Analysis", *The National Geographical Journal of India*, 23, 3 & 4, pp. 177-186.
- Chandna, R.C. (1986)**, *A Geography of Population : Concepts, Determinants and Patterns*, Kalyani Publishers, New Delhi.
- Chandna, R.C. and Sidhu, M.S. (1979)**, "Sex Ratio and its Determinants", *Transactions, Institute of Indian Geographers*, 1, 1, pp. 17-23.

- Clarke, J.I. (1960), "Rural and Urban Sex Ratios" *Tijdschrift voor Economische en Sociale Geografie*, 51, p. 29.
- Desai, P.B. (1967), "Variation in Population Sex-Ratios in India, 1901-61", in Bose, A. (ed.), *Patterns of Population Change in India 1951-61*, Allied Publishers, New Delhi, pp. 372-388.
- Economic Intelligence Service (1991), *Basic Statistics Relating to the Indian Economic, States*, 2 Tables 2.1-2.4, Centre of Monitoring Indian Economy Pvt. Ltd., New Delhi.
- Economic Intelligence Service (1993), *Basic Statistics Relating to the Indian Economic, States*, 2 Tables 2.1-2.5, Centre of Monitoring Indian Economy Pvt. Ltd., New Delhi.
- Economic Intelligence Service (1994), *Basic Statistics Relating to the Indian Economic, States*, 2 Tables 1.14, 1.15, Centre of Monitoring Indian Economy Pvt. Ltd., New Delhi.
- Economic Intelligence Service (1997), *Profile of States*, Centre for Monitoring Indian Economy Pvt. Ltd., New Delhi.
- Franklin, S.H. (1956), "The Pattern of Sex Ratios in New Zealand, *Economic Geography*, 32, pp. 162-176.
- Gill, M.S. and Singh, S.B. (1985), "Sex Ratio in Punjab, *Geographical Review of India*, 47, 3, pp. 34-44.
- Goel, N.P. (1994), *Readings in Population Geography*, Mohit Publications, New Delhi.
- Gosal G.S. (1961), "The Regionalism of Sex Composition of India's Population", *Rural Sociology*, 26, 2, pp. 122-137.
- Jayasree, R. and Audinarayana, N. (1991), "Differential Growth and Characteristics of Population Across the Ecological Regions of Tamil Nadu, 1991", *Demography India*, 20, 1, pp. 35-40.
- Kashyap, S.S. (1975), "The Changing Pattern of Sex-Ratio in Punjab", *Demography India*, 4,2.
- Krishan, G. and Chandna, R.C. (1973), "Sex Composition of Haryana's Population", *Geographical Review of India*, 35, 2, pp. 113-125.
- Lal, H. (1987), *City and Urban Fringe : A Case Study of Bareilly*, Concept Publishing Co., New Delhi.
- Maurya, S.D. and Devi, G. (1985), "Changing Pattern of Urban Sex Ratio in Uttar Pradesh", *National Geographer*, 20, 2, pp. 171-182.
- Mehta, S. and Kaur, G. (1983), "Rural-Urban Differences in Sex Ratio of Rajasthan", *The Indian Geographical Journal*, 58, 2, pp. 152-161.
- Mitra, A. (1979), *Implications of Declining Sex-Ratio in India's Population*, Allied Publishers Pvt. Ltd., New Delhi, pp. 1-85.
- Prasad, R. (1990), *Population Geography of India : A Case Study of Rajasthan*, Radha Publications, New Delhi.

- Reddy, M.M.K. (1996)**, *An Introduction to Demographic Behaviour in India*, Kanishka Publishers, New Delhi, pp. 53-70.
- Senapati, R.N. (1993)**, "Sex-Ratio : Trends and Implications in India", *Vision*, 13, 1 & 2, pp. 92-100.
- Shyrock, H.S. (ed.) (1976)**, *The Method and Materials of Demography*, Academic Press, New York, p. 105.
- Siddiqui, F.A. (1982)**, "Regional Analysis of the Sex-Structure of Population of Uttar Pradesh", *The National Geographical Journal of India*, 28, 1 & 2, pp. 74-85.
- Siddiqui, N.A. and Ahmad, Q.M. (1971)**, "Regional Variation of the Sex-Ratio in the Population of Haryana", *The Geographer*, 18, pp. 99-114.
- United Nations (1980)**, "Principles and Recommendations for Population and Housing Censuses", *Statistical Paper M67*, Department of International Economic and Social Affairs, New York.

SPATIAL DIMENSIONS OF LITERACY IN INDIA

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Abstract

Despite fifty years of planning for socio-economic amelioration of the Indian society during the post-independence period, only 65.38 per cent of the population (aged 7 years and above) has the ability to read and write with understanding in any language, as in 2001. Interestingly, the spatial patterns of literacy in 2001 are not very different from those in 1961 in relative terms, reflecting lack of inter-regional diffusion of the processes of literacy development. In the past, education and literacy were looked up as an occupational necessity, rather than as a process of human development. Very largely progress in literacy was male-oriented. However, under the impact of the recent processes of modernisation it is being realized that literacy and education are necessary for both males and females, in rural as well as urban areas. Consequently, in recent years females and rural areas have registered speedier progress in literacy than males and urban areas. But accelerated growth of population during the post-independence period has been a stumbling block in the progress of literacy.

There is a strong inverse correlation between overall literacy rates and the male-female differential therein. Although there is strong correlation between the degree of urbanization and literacy rates, it is not necessarily true everywhere. Kerala, Himachal Pradesh, Tripura and Uttaranchal are significant deviations from this rule. Apart from large male-female and rural-urban differentials in literacy, there are wide inter-regional disparities in literacy rates in the country. With a few exceptions, areas of high rates of literacy are marked by their coastal and near-coastal locations where their exposure to the outside world, especially the Europeans, has been for centuries, where in parts Christian missionaries played a significant role in extending education and literacy among males and females, and in rural as well as urban areas. High rates of literacy are also associated with areas of advanced agricultural economy, popular recruitment to armed forces, emigration to foreign lands. Enlightened political leadership committed to socio-economic advancement of the country has always been an important factor in the spread of education and literacy. Areas of low rates of literacy, on the other hand, are those which are backward, have subsistence farm economy, low degree of urbanization, non-Christian tribal population and incompetent political leadership. However, in recent years efforts have been made to extend education and literacy among all areas, among all sections of the society, and among both the sexes. Consequently, male-female and rural-urban differentials in literacy have narrowed and inter-regional contrasts reduced to an extent. But the smallest male-female, and rural-urban differentials in literacy are found in areas where the Christian missionaries have played their role. These positive trends in recent times notwithstanding, the country has a long way to go to reach the goal of universal literacy.

"The ability to read and write with understanding in any language" (literacy as defined by the Census of India) is an initial step in the process of human resource development. Although this accomplishment

by itself does not go very far in its impacts, but it does provide an important, yet minimum, input in the overall development of individuals enabling them to understand their social, economic, cultural and political environment

in a better way and participate in it gainfully. Accordingly, a certain level of literacy is a basic requirement to get out of ignorance and backwardness. Improved levels of literacy are necessary for acquiring various types of skills. In order to cover the whole population in its beneficial implications, literacy has to be made universal. On this base must be erected extensive structures of different levels of education, both liberal and technical, to enable the individuals and the society as a whole to grow in their potentialities for an all round progress.

In the present day world much of the economy and prosperity is knowledge-based. New ideas, new innovations, new skills and new technologies are what is needed to promote a progressive and dignified mode of living, and to survive the increasing competitiveness in all spheres of human activity. Accordingly, universal literacy and higher levels of education are indispensable in the present context of things.

The purpose of this study is to focus on a brief examination of the progress of literacy

in India during the post-independence decades (1951-2001), and then to see it in a spatial perspective as in 2001. According to the 2001 census data (provisional), 65.38 per cent of the total population aged seven years and above is literate. The corresponding figures for males and females are 75.85 per cent and 54.16 per cent respectively. In 1951, however, only 18.33 per cent of the population aged five years and above could meet the test of literacy, with the proportions for the males and females being 27.16 per cent and 8.86 per cent respectively. The lack of strict comparability of these figures for 1951 and 2001 notwithstanding, it is evident that there has been regular progress in literacy during 1951-2001, particularly during 1991-2001. This progress was the highest during 1991-2001 (Table 1).

During 1991-2001 the percentage of literates to total population (aged 7 years and above) went up from 52.21 to 65.38. The absolute number of literates rose from 358,402,626 in 1991 to 562,010,743 in 2001 - a net increase of 203,608,117. Among the 203,608,117 net literate persons added during

Table - 1
Literacy in India : 1951-2001

Census year	Persons	Males	Females	Male-Female gap in literacy
1951	18.33	27.16	8.86	18.30
1961	28.30	40.40	15.35	25.05
1971	34.45	45.96	21.97	23.99
1981	43.57	56.38	29.76	26.62
1991	52.21	64.13	39.29	24.84
2001	65.38	75.85	54.16	21.69

- Note :**
1. Literacy rates for 1951, 1961 and 1971 relate to population aged five years and above. The rates for the 1981, 1991 and 2001 census relate to population aged seven years and above.
 2. The 1981 literacy rates exclude Assam where the 1981 census could not be conducted. The 1991 census literacy rates exclude Jammu and Kashmir where the 1991 census could not be conducted due to disturbed conditions.

Source : **Banthia, J.K., 2001:** *Census of India 2001, Series-1, India, Provisional Population Totals, Paper 1 of 2001, page 115.*

1991-2001, 107,986,561 were males and 95,621,556 females, showing a near equality emerging among the two sexes in the matter of literacy development. The number of illiterates, on the other hand, moved down from 328,167,288 in 1991 to 296,208,952 in 2001. It is for the first time ever that there is a decline in the absolute number of illiterates during a decade in the country as a whole (Banthia, J.K., 2001, p.106). But, ironically, the number of illiterates increased in the States of Bihar (from 31,986,516 in 1991 to 34,968,650 in 2001), Arunachal Pradesh (from 398,323 to 403,266), Nagaland (from 384,323 to 561,941) and Manipur (from 613,840 to 646,287). Apart from these states, the number of illiterates also increased in the overwhelmingly urban union territories of Chandigarh (from 121,185 in 1991 to 144,413 in 2001), Delhi (from 1,930,951 to 2,155,932), Daman and Diu (from 24,712 to 26,108) and Dadra and Nagar Haveli (from 65,306 to 72,448), indicating continued in-flow of illiterate migrants to these UTs in search of jobs. With the exception of Daman and Diu, in all other UTs mentioned above the increase in the number of illiterates was both among males and females. In Daman and Diu the number of illiterate females declined from 17,164 to 16,583 during the decade. While in Bihar the increase in the number of illiterates is the result of low levels of literacy/educational development, and poor governance, in the northeastern states mentioned above it is the in-flow of illiterate migrants from other parts of the country for unskilled labour jobs which accounts for the increase in the number of illiterates.

It may, however, be noted that despite a massive net increase in the number of literates in India as a whole during 1991-2001, and a decline in the number of illiterates during the decade for the first time, a huge part of the population still remains to become literate. India's existing illiterate population (aged 7 years and above) is one of the largest in the world. The progress in literacy that has been

made in India is much slower than what has been accomplished in many of the East and Southeast Asian countries (such as Japan, South Korea, China, Thailand, Malaysia, Singapore, etc.). Despite fifty years of independence, India is still quite far from achieving universality of literacy.

Unprecedented acceleration in population growth during the post-independence period leading to staggering increases in absolute number of people in the country has been a major stumbling block in all spheres of socio-economic development, including progress in literacy. Also, much has been left to be desired in the quality of governance in the country, particularly in the management of education. The varying attitudes toward the need of literacy and education among different segments of the society have been other factors responsible for the present scenario. The states as well as the center must act with greater will and determination to achieve the goal of universal literacy expeditiously.

Male-Female Differential in Literacy

Over the times, the need of the male members of the society to receive education has been taken for granted, but not so in the case of the females. As a result, till not very long ago, it was unusual to send the girls to school or attempt to make them literate. Accordingly, literacy in India was very largely male literacy, more especially in the rural areas and among the disadvantaged sections of the population for a long period of time. In 1901, while 9.83 per cent of the total male population of undivided India was literate, only 0.60 per cent of the total female population could read and write. In other words, there was just one female literate after every 16 male literates. In 1931, when 9.50 per cent of the total population was literate, the corresponding figures for males and females were 15.59 per cent and 2.93 per cent respectively (roughly in the ratio of 5:1). The unusually large disparity in literacy among

men and women, was the result of a long continued prejudice against the education of women, and also against their employment outside the home (Kingsley Davis, 1951, p.152). However, these prejudices have been disappearing rather rapidly in recent years, though much remains to be desired (Gosal, 1964, p.266). In 1951, 18.33 per cent of the population (aged 7 years and above) in present India was literate, with 27.16 per cent of the males and 8.86 per cent of females being able to read and write (roughly in the male-female literacy ratio of 3:1). In 2001, while 65.38 per cent of the total population (aged 7 years and above) in the country has been registered as literate, the corresponding figures for the males and females were 75.85 per cent and 54.16 per cent respectively (The male-female ratio being roughly 3:2). It follows from the above, that while there has been gradual progress in overall literacy over the decades female literacy has moved faster. The male-female disparity in literacy has convincingly narrowed down. Nonetheless much remains to be done for both the sexes: 106,654,066 males and 189,554,886 females (aged 7 years and above) are still illiterate in 2001 - a huge task awaiting execution. There are large male-female disparities in literacy among the various states and union territories. In general, there is inverse correlation between overall literacy rates and male-female differential therein. In Kerala state, which has the highest overall literacy rate (90.92%) among all the states and union territories, 94.20% of the males and 87.86% of the females are literate, leaving only a small gap of 6.34 per cent points between the two sexes. With 88.49 per cent of the total population literate (90.69% of the males and 86.13% of the females), Mizoram has a still smaller male-female differential of 4.56 per cent points. However, in Meghalaya where the general literacy rate is only 63.31 per cent (lower than the national average rate of 65.38%) and where 66.14 per cent of the males and 60.41 per cent of the females are literate, the literacy gap between the two sexes

is only 5.73 per cent points, next only to that in Mizoram. This is attributable to the matriarchal system prevailing in its society, giving high social status and more rights in the decision-making process to the women. On the other extreme in Bihar, which has the lowest over-all literacy rate (47.53%) in the country, 60.32 per cent of the males and 33.57 per cent of the females meet the literacy test, giving as high a male-female differential as 26.75 per cent points.

Some of the other states having a large (or even larger than that in Bihar) male-female differential in literacy, despite having higher overall literacy rates, are Rajasthan (32.12 percentage points), Jharkhand (28.57 percentage points), Uttar Pradesh (27.25 percentage points), Madhya Pradesh (26.52 percentage points), Chhatisgarh (25.46 percentage points), Uttaranchal (23.73 percentage points), Haryana (22.94 percentage points), Orissa (24.98 percentage points) and Gujarat (21.90 percentage points). Among all the states, Rajasthan has the highest male-female differential in literacy (32.12 percentage points). Most of these states are part of the so-called Hindi Belt. The overall literacy rate in them ranges between 47.53% and 69.97%. The low social status of women and their lack of employment outside the home are important factors in their low female literacy.

It is noteworthy, however, that this male-female differential has narrowed down, though in varying degrees, in all the states, small and big, during the decade 1991-2001, revealing relatively greater progress in female literacy than that among the males.

Highest increase in female literacy during the decade took place in Chhatisgarh by 24.88 percentage points (from 27.52% in 1991 to 52.40% in 2001), followed by Rajasthan where it moved up by 23.90 percentage points (from 20.44% in 1991 to 44.34% in 2001). Other states which registered considerable improvement in female literacy rates during 1991-2001 include Madhya Pradesh (20.93%),

Uttaranchal (18.63%), Uttar Pradesh (18.61%), Andhra Pradesh (18.45%), and Orissa (16.29%). By contrast, Kerala experienced the lowest increase of 1.69 per cent points (from 86.17% in 1991 to 87.86% in 2001) as it had already approached the saturation point. Notably, the female literacy rates have increased more speedily in all the states and union territories, except Dadra and Nagar Haveli, during 1991-2001. In 2001, in India as a whole, 277 districts reported female literacy rates above the national average of 54.16 per cent [Banthia, J.K., 2001, Supplement of Paper I of 2001, p.58].

The highest improvement in male literacy rate during 1991-2001 took place in Rajasthan where it moved up by 21.47 percentage points (from 54.99% in 1991 to 76.46% in 2001) followed by Chhattisgarh (by 19.79 percentage points), Madhya Pradesh (by 18.26 percentage points), Andhra Pradesh (by 15.72 percentage points) and Uttar Pradesh (by 15.41 percentage points). In Bihar it increased by only 8.95 percentage points. The minimum increase of 0.58 percentage points took place in Kerala since this state had already practically reached the peak point (increased from 93.62% in 1991 to 94.20% in 2001). In India as a whole, 318 districts have reported male literacy rates above the national average of 75.85% in 2001 (Banthia, J.K., 2001 (Supplement), p.57).

Considerable progress in both male and female literacy during 1991-2001 notwithstanding, the male-female differential in literacy was still quite wide - 21.69 per cent in 2001 in the country as a whole. There are still huge numbers of illiterate persons in the country: over 106 million males and over 189 million females).

Progress in literacy and education, particularly among the females, needs to be accelerated to reach the targeted point of universality. Rapid extension of literacy and education among women is a crucial factor for the desired social, economic and demographic change - in fact, for a wholesale improvement

in quality of life. The old saying: "If you educate a woman, you educate a family", has universal validity. In the current situation in India, female literacy has a pivotal importance and, as such, must be given priority attention.

Rural-Urban Differential in Literacy

Higher rates of literacy among urban people than among the ruralities is an almost universal phenomenon, varying degrees apart. This is so both among men and women. According to the 2001 census figures (provisional), 80.06 percent of the urban people in India are literate (86.42% males and 72.99% females), while the corresponding proportion for the ruralities is 59.21 per cent (71.18% males and 46.58% females). There is a widespread diffusion of male literacy in urban areas throughout the country. Out of a total of 591 districts, in 488 districts urban male literacy exceeds 80 per cent. In Rajasthan, although urban male literacy is more than 80 per cent in 31 out of 32 districts, not a single district has achieved 80% urban female literacy. Like-wise in Madhya Pradesh, Chhattisgarh, Bihar and Uttar Pradesh, although urban male literacy exceeds 80 per cent in several districts, no district has earned the distinction of 80 per cent urban female literacy. The social status of females in these states, even in urban areas, leaves much to be desired. Although Andhra Pradesh has gone ahead in several socio-economic activities in recent years, it has not caught up with other southern states in literacy. Despite these facts, the male-female differential in literacy is far smaller in urban areas than in the countryside.

In 1961 only 46.9 per cent of the total urbanities (57.5% of the males and 34.5% of the females) and 18.9 per cent of the total ruralities (29.0% males and 8.5% females) were literate. Obviously, there has been tremendous increase in literate population both in urban and rural areas during the past four decades, and the rural-urban differential in literacy has narrowed down substantially. Also, the male-

female differential in literacy between urban and rural areas has significantly declined, vast inter-regional variations notwithstanding.

Table 2 which shows literacy rates, as in 2001, in the general population, and among the urbanities and the ruralities separately by states and union territories, brings out the following important points: (1) urban areas stand head and shoulders above the rural areas in total male and female literacy rates; (2) inter-state and inter-union territory differences in urban literacy are generally very small (ranging between 70 and 96 per cent); (3) not only is rural literacy considerably lower than urban literacy, but also there are wide variations in rural literacy among the various states and union territories (ranging between 44% and 90%); (4) the male-female disparity in literacy

among the rural people is much larger than that in urban areas; and (5) there are large inter-state and inter-union territory variations in male-female differential in rural literacy. The male-female differential in rural literacy is very large in Rajasthan, Jharkhand, Uttar Pradesh, Madhya Pradesh, Bihar, Uttaranchal, Chhatisgarh, Haryana and Orissa in that order. In Bihar the rural female literacy rate (30.03%) is the lowest in the country. Interestingly, in Meghalaya although the rural literacy rate (57.0%) is below the national average (59.21%), the male-female differential in rural literacy is the lowest in the country (59.90% of the males and 54.02% of the females being literate).

As in several other demographic characteristics, so in rural literacy, southern

Table - 2
Literacy in India (7 years and above) : 2001

S.No.	India / State		P	M	F
	India	Total	65.20	75.64	54.03
		Rural	59.21	71.18	46.58
		Urban	80.06	86.42	72.99
1.	Jammu & Kashmir	Total	54.46	65.75	41.82
		Rural	48.22	60.34	35.09
		Urban	72.17	80.30	62.22
2.	Himachal Pradesh	Total	75.91	84.57	67.08
		Rural	74.38	83.58	65.23
		Urban	89.59	92.49	85.91
3.	Punjab	Total	69.95	75.63	63.55
		Rural	65.16	71.70	57.91
		Urban	79.13	82.97	74.63
4.	Chandigarh	Total	81.76	85.65	76.65
		Rural	76.29	81.54	67.17
		Urban	82.36	86.16	77.53
5.	Uttaranchal	Total	72.28	84.01	60.26
		Rural	68.95	82.74	55.52
		Urban	81.50	87.21	74.77
6.	Haryana	Total	68.59	79.25	56.31
		Rural	63.82	76.13	49.77
		Urban	79.89	86.58	72.05
7.	Delhi*	Total	81.82	87.37	75.00
		Rural	78.75	87.15	68.23
		Urban	82.04	87.38	75.49

S.No.	India / State		P	M	F
8.	Rajasthan	Total	61.03	76.46	44.34
		Rural	55.92	72.96	37.74
		Urban	76.89	87.10	65.42
9.	Uttar Pradesh	Total	57.36	70.23	42.97
		Rural	53.68	68.01	37.74
		Urban	70.61	78.13	62.05
10.	Bihar	Total	47.53	60.32	33.57
		Rural	44.42	57.70	30.03
		Urban	72.71	80.80	63.30
11.	Sikkim	Total	69.68	76.73	61.46
		Rural	67.67	75.11	59.05
		Urban	84.82	88.61	80.19
12.	Arunachal Pradesh	Total	54.74	64.07	44.24
		Rural	48.34	58.09	37.56
		Urban	78.82	85.61	70.60
13.	Nagaland	Total	67.11	71.77	61.92
		Rural	62.99	67.73	57.87
		Urban	85.95	89.01	82.09
14.	Manipur	Total	68.87	77.87	59.70
		Rural	65.33	74.50	55.88
		Urban	80.04	88.72	71.47
15.	Mizoram	Total	88.49	90.69	86.13
		Rural	80.46	84.38	76.17
		Urban	96.35	96.97	95.69
16.	Tripura	Total	73.66	81.47	65.41
		Rural	70.23	78.89	61.05
		Urban	89.51	93.51	85.36
17.	Meghalya	Total	63.31	66.14	60.41
		Rural	57.00	59.90	54.02
		Urban	87.12	89.90	84.30
18.	Assam	Total	64.28	71.93	56.03
		Rural	60.92	69.02	52.25
		Urban	85.76	89.88	81.03
19.	West Bengal	Total	69.22	77.58	60.22
		Rural	64.06	73.75	53.82
		Urban	81.63	86.49	76.14
20.	Jharkhand	Total	54.13	67.94	39.38
		Rural	46.26	61.57	30.33
		Urban	79.86	87.73	70.71
21.	Orissa	Total	63.61	75.95	50.97
		Rural	60.44	73.57	47.22
		Urban	80.95	88.32	72.68
22.	Chhatisgarh	Total	65.12	77.86	52.28
		Rural	69.93	74.58	47.41
		Urban	81.08	89.87	71.63

S.No.	India / State		P	M	F
23.	Madhya Pradesh	Total	64.08	76.15	50.55
		Rural	58.10	72.10	42.96
		Urban	79.67	87.78	70.62
24.	Gujarat	Total	66.43	76.46	55.61
		Rural	58.53	70.71	45.75
		Urban	79.24	85.46	72.23
25.	Daman & Diu	Total	81.09	88.40	70.37
		Rural	78.31	86.48	63.31
		Urban	85.96	92.72	79.14
26.	Dadra & Nagar Haveli*	Total	60.03	73.32	42.99
		Rural	52.24	67.13	34.08
		Urban	85.25	91.57	75.67
27.	Maharashtra	Total	77.27	86.27	67.51
		Rural	70.84	82.17	59.12
		Urban	85.76	91.42	79.25
28.	Andhra Pradesh	Total	61.11	70.85	51.17
		Rural	55.33	66.13	44.36
		Urban	76.39	83.21	69.34
29.	Karnataka	Total	67.04	76.29	57.45
		Rural	59.68	70.63	48.50
		Urban	81.05	86.85	74.87
30.	Goa	Total	82.32	88.88	75.51
		Rural	79.65	87.69	71.55
		Urban	85.03	90.06	79.65
31.	Lakshdweep	Total	87.52	93.15	81.56
		Rural	86.39	92.56	79.86
		Urban	88.89	93.85	83.60
32.	Kerala	Total	90.92	94.20	87.86
		Rural	90.05	93.54	86.79
		Urban	93.38	96.07	90.87
33.	Tamil Nadu	Total	73.47	82.33	64.55
		Rural	66.66	77.47	55.84
		Urban	82.07	88.40	75.64
34.	Pondichery	Total	81.48	88.89	74.13
		Rural	74.28	83.87	64.63
		Urban	85.05	91.40	78.78
35.	Andaman & Nikobar Islands*	Total	81.18	86.07	75.29
		Rural	78.55	83.90	72.23
		Urban	86.48	90.35	81.65

Source: Census of India 2001, Series-1, India, Provisional Population Totals, 2001.

and western India have a much higher standing than most of the areas in the northern, central and northwestern sections of the country. However, during the post-independence decades the rural-urban disparity in literacy rates, as also the male-females differential both in rural and urban areas, has declined significantly. In 1961, while the general urban literacy rate was about two and a half times that of the rural areas, in 2001 the corresponding disparity was in 8:6 ratio.

The wide-spread illiteracy in the rural areas during pre-independence periods was attributable to: (i) prevailing poor conditions in the villages making it difficult for the parents to spare even small amounts of money for the schooling of their children; (ii) the economy being predominantly of subsistence agricultural type, based on backward technology, making formal education seem of little value; (iii) lack of incentive to the parents to send their children to school, when they could be of some assistance to their parents at home; (iv) severe shortage of facilities for educational development as against rapidly increasing population; (v) consistently increasing population (after 1921) adding to the number of children in the lower age groups, further aggravating the problem (Gosal, 1964, p.268).

During the post-independence years, however, conscious efforts have been made to extend educational facilities to all areas, and to make constitutional provisions to help the disadvantaged families to send their children to school, apart from ensuring reservation of jobs to them. Consequent upon the growth of rural population from decade to decade, the size of land holdings has decreased gradually, creating a realization in the minds of the farm families to send their children to school so that subsequently they could seek employment in the non-agricultural sector of the economy. The land holdings are now becoming progressively too small to absorb any additional working age persons in agriculture. Because of these developments, there is a growing realization on the part of the parents to provide

education to their children so that they could divert to other spheres of activity for earning a livelihood. The rural-urban differences in literacy are not confined to economic linkages. They are equally, if not more, inter-related to social and cultural factors. In coastal and near-coastal areas which had contact with other countries for trade or exploratory activities, or became colonies of European countries, there developed a relatively greater tradition for the learning process, as in Kerala, Goa, Tamil Nadu, Pondicherry, etc., even in rural areas, leading to narrowing of rural-urban differential in literacy. Also the spread of Christianity played a similar role, as in Mizoram. Moreover, with rapidly advancing science and technology, and fast improving communication systems, inter-regional cooperation and mobility are increasing, making a great impact on the aspirations of the people in the rural areas. A great deal of modernization is taking place in towns and cities. Thus, the rural-urban disparities are narrowing in various aspects of the quality of life gradually. No doubt, much remains to be done. The expansion of literacy and education both among men and women, and in urban and rural areas, is the key to social and economic amelioration of the society in India. With the accelerating process of modernization and increasing competitiveness in various spheres of activity all over the world, awareness of the need for literacy and education is increasing even in rural areas. Television and telecommunication are making their own contribution in this regard. In fact, what to speak of the towns and villages, the world is becoming small, and more and more closely knit and inter-twined, thus narrowing the gulf between urban and rural areas in many facets of human life. In relative terms the rural areas have come a long way in the progress of literacy, as compared to urban areas, though much still remains to be done.

Spatial patterns of literacy

In a large country like India, with great diversity in social, economic and cultural conditions, and varied historical backgrounds,

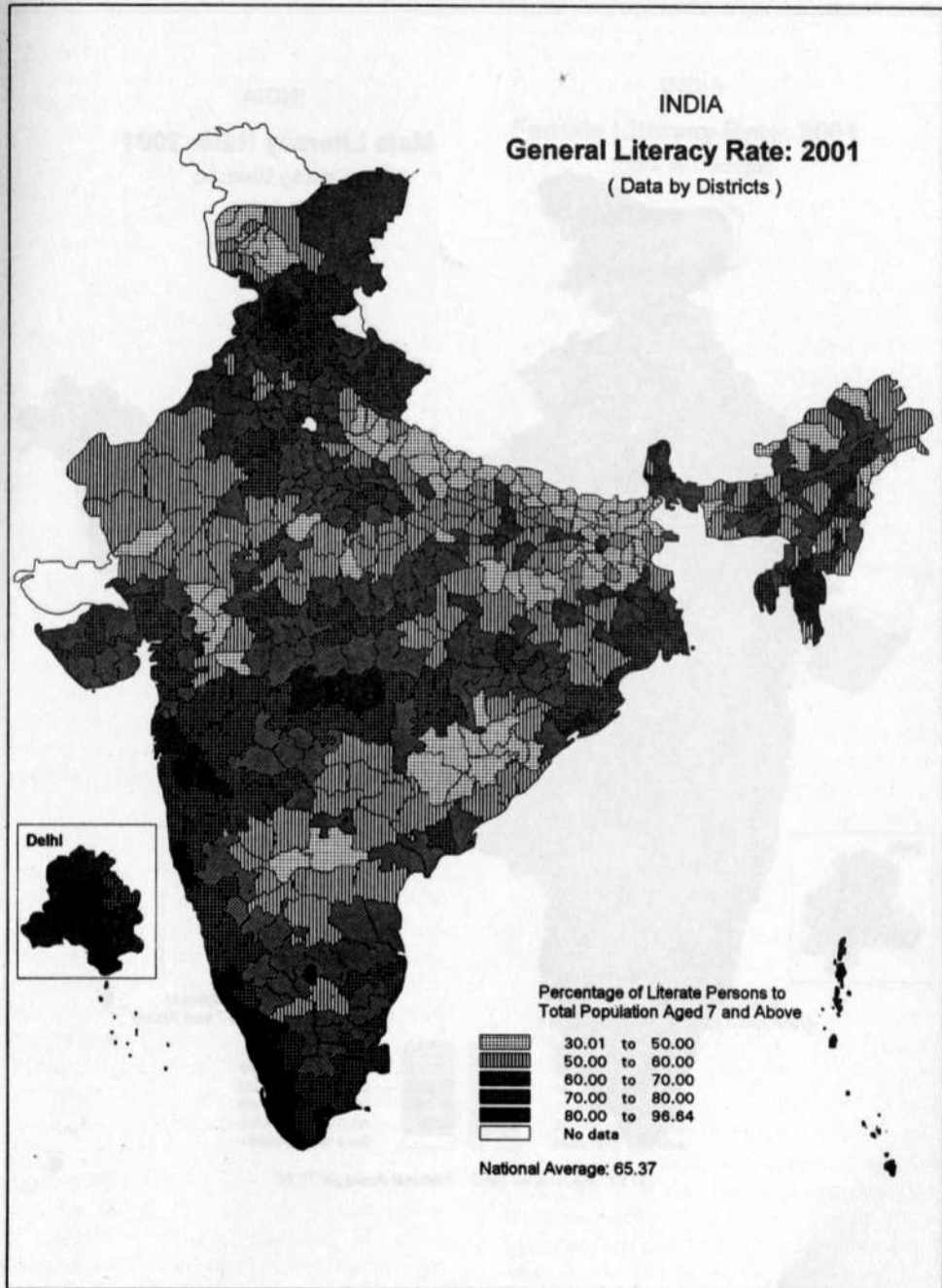
regional variations in literacy and educational achievements are only expected. Despite substantial progress in the process of learning all over the country and the narrowing of the regional inequalities in literacy from decade to decade during the post-independence period, there are still vast differences from area to area as recorded in the 2001 census. In this census, as in 1991, literacy has been calculated for the population aged seven years and above. It would have been still more meaningful if literacy were recorded for the population exclusive of the 0-9 age group. The ability to read and write with understanding in any language in the 0-9 age group in the Indian context is unexpected. In fact, extremely rare. Anyway, the discussion on spatial patterns in literacy in this study is based on choropleth maps drawn from district-wise data on percentage of literates to total population aged seven years and above.

Even though the percentage of literacy in 2001 is many times larger than that in 1951, the spatial patterns of literacy have not changed much. The areas which were leading in 1951 and later in 1961 have continued making greater progress in literacy and education even in subsequent decades. The old traditions and attitudes of the people toward education have continued working in favour of the spread of literacy. Wherever people have been predominantly Christian and/or had been going abroad, for example, progress in literacy and education has been of a high order. The role of the state has its own great importance. Most of the areas which were those of strikingly low literacy in 1951 are still lagging behind, large increases in literacy rates during 1951-2001 notwithstanding. As these areas approach points of universal literacy in the years to come the spatial disparities will effectively narrow down. The 2001 census has revealed that out of the total 591 districts, almost 50 per cent (294 districts) have recorded literacy rates above the national average of 65.38 per cent [Banthia, Paper 1 of 2001 Supplement, District Totals, p.5].

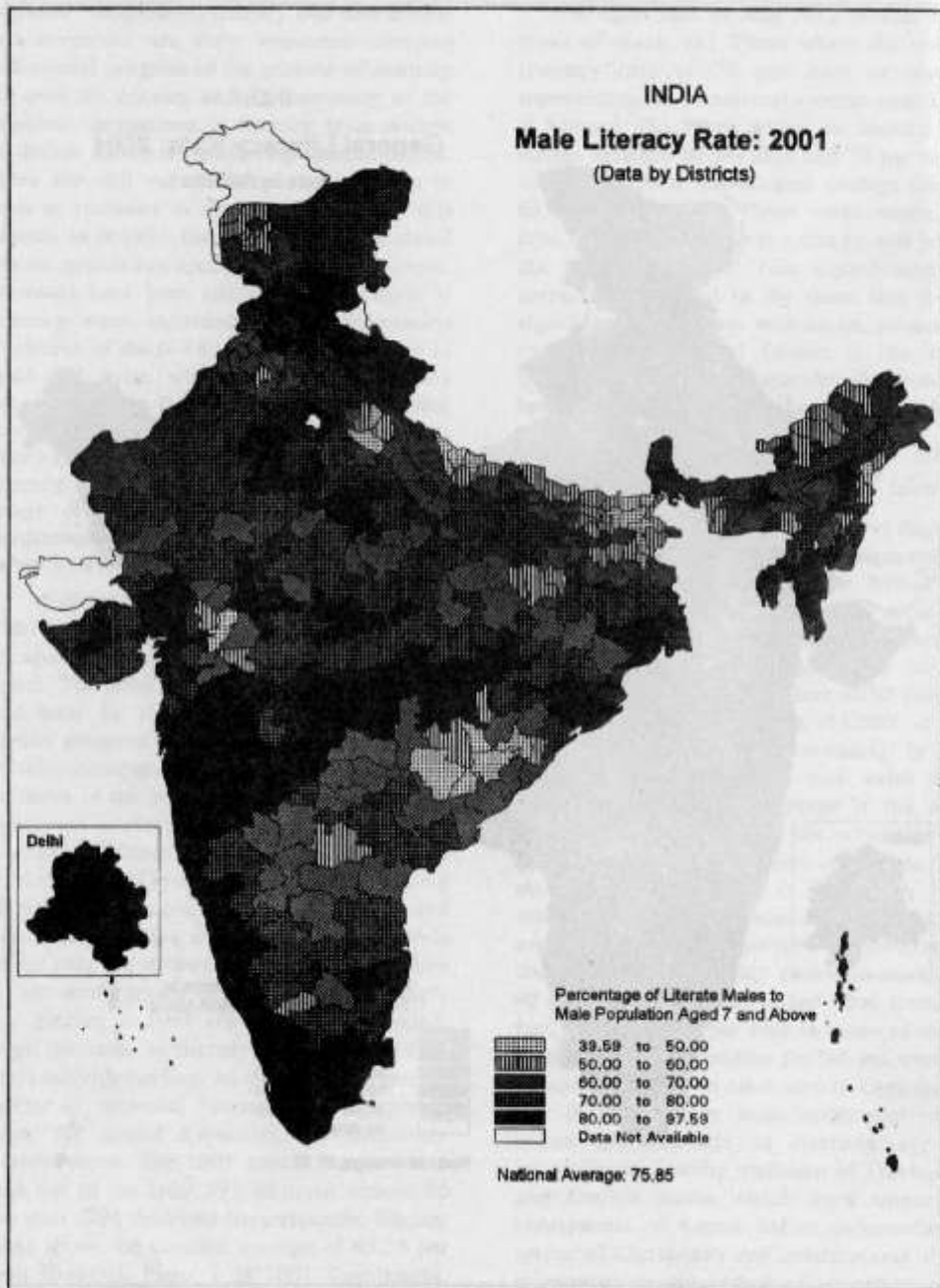
A close look at Map No.1 reveals three types of areas: (A) Those where the overall literacy rate is 70 per cent or above, representing above national average conditions in literacy; (B) Those where the literacy rate ranges between 60 per cent and 70 per cent - which is around the national average rate of 65.38 per cent; (C) Those areas where the rate, is below 60 per cent - that is well below the national average. This classification of areas is meaningful in the sense that it has significant associations with social, economic, cultural and political factors in the areas concerned, and it also provides distributional breaks clearly and distinctly (see Maps 1, 2 & 3).

(A) Areas with relatively high literacy rate (70% and above)

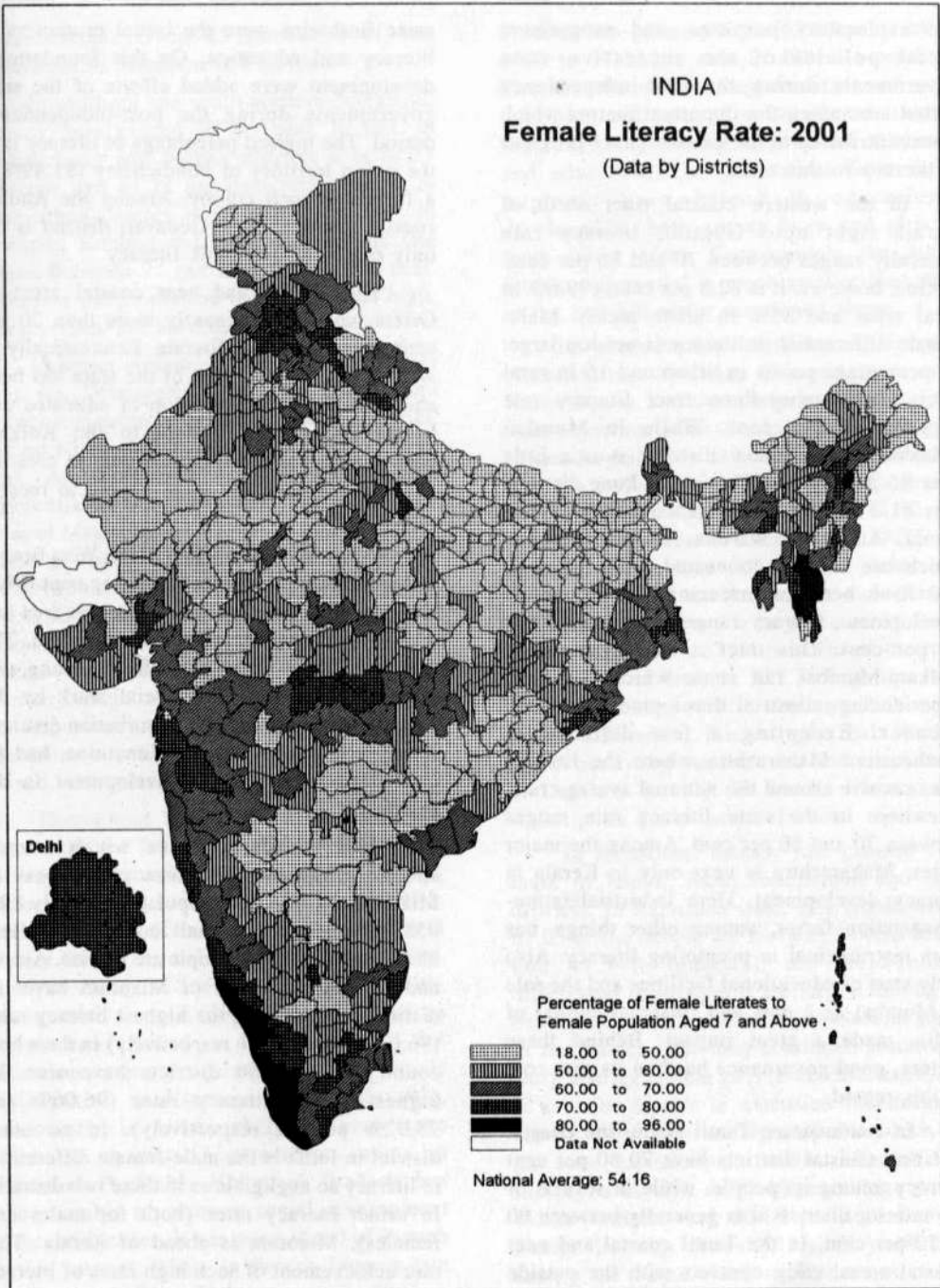
Among the areas with well above national average literacy conditions, the western coastal states' region is the most notable. Within this region the coastal and near-coastal areas are specially endowed with very high rates of literacy. Among them, Kerala is by far the most advanced in literacy. Here 90.92 percent of the population is literate (94.20% of the males and 87.86% of the females). In this state the ability to read and write with understanding in any language is the most diffused, 93.38 per cent of the urbanities and 90.05 per cent of the ruralites are literate. The male-female differential in literacy is very small indeed - 5 to 7 percentage points on the average. Of the 14 districts in the state, in 13 districts the male literacy rate is in excess of 90 per cent both in urban and rural areas. In fact, it exceeds 95 per cent in many of them. Female literacy is seldom far behind, even in villages. There is no other area of comparable size in India where male-female and rural-urban differentials in literacy are so insignificant. Healthy traditions of Travancore and Cochin states which were important constituents of Kerala before independence, spread of Christianity and contributions of the missionaries toward spread of education, very early exposure to the outside world for trade



Map 1



Map 2



Map 3

and exploratory purposes, and progressive social policies of the successive state governments during the post-independence period are among the important factors which have contributed to the extraordinary progress in literacy in this state.

In the western coastal tract north of Kerala right upto Gujarat, literacy rate generally ranges between 70 and 80 per cent. In Goa, however, it is 82.3 per cent, (79.6% in rural areas and 85% in urban areas). Male-female differential in literacy is not-too large: 10 percentage points in urban and 16 in rural tracts. In Bombay-Pune tract literacy rate exceeds 80 per cent. While in Mumbai Suburban and Mumbai districts it is a little over 86 per cent, in Thane and Pune districts it is 81.0 and 80.78 per cent respectively. In Akola, Amravati, Wardha, Nagpur districts which are closely connected with Mumbai, and have been experiencing socioeconomic development, literacy ranges between 80 and 84 per cent. This tract is strung along the Kolkata-Mumbai rail route which has been experiencing industrial development in recent decades. Excepting a few districts in southeastern Maharashtra where the literacy rates revolve around the national average rate, elsewhere in the state literacy rate ranges between 70 and 80 per cent. Among the major states, Maharashtra is next only to Kerala in literacy development. Here industrialization-urbanisation factor, among other things, has been instrumental in promoting literacy. Also early start of educational facilities and the role of Mumbai as a port and financial capital of India, made a great impact. Behind these factors, good governance has had its own role in this regard.

In southeastern Tamil Nadu, the coastal and near-coastal districts have 70-80 per cent literacy among its people, while in several of the interior districts it is generally between 60 to 70 per cent. In the Tamil coastal and near coastal areas, early contacts with the outside world, work of the Christian Missionaries and early tradition of education among the high

caste Brahmins were the initial promoters of literacy and education. On this foundational development were added efforts of the state governments during the post-independence period. The highest percentage of literacy is in the union territory of Pondicherry (81.49%) - a former French colony. Among the Andhra coastal districts, West Godavari district is the only one with over 70% literacy.

The coastal and near coastal areas in Orissa have predominantly more than 70 per cent of its people as literate. Economically as well as socially this part of the state has been ahead of the rest. Migration of educated and literate people from here to the Kolkata conurbation has been instrumental in creating awareness among the local people to receive education.

In the southern section of the West Bengal state, literacy rate exceeds 70 per cent. With Kolkata metropolis as the centre, this area had a early start in educational development. The industrialisation-urbanisation factors along with good administration and social work by the leftist party in the Kolkata conurbation districts, along with its commercial functions, had its own impact on literacy development in the region.

After Kerala, an area which attracts special attention in literacy progress is Mizoram. With a total population of only 891, 058 persons, it is a small inland state. Here 88.49 per cent of the people are literate. Aizawl and Serchhip districts of Mizoram have the distinction of having the highest literacy rates (96.64% and 96.16% respectively) in the whole country. These two districts have also the highest female literacy rates (96.06% and 95.02% percent respectively). In no other district in India is the male-female differential in literacy so negligible as in these two districts. In urban literacy rates (both for males and females), Mizoram is ahead of Kerala. This rare achievement of such high rates of literacy in an inland hill state, though so small, is mostly attributable to the work of Christian

missionaries. Over 85 per cent of the population in Mizoram is Christian.

In southern and south-western Nagaland, literacy rates exceed 70 per cent. In fact, in Mokokchung and Wokha districts it is 84.27 per cent and 81.28 per cent respectively. In their urban centres it is 92-93 per cent. In Dimapur, Kohima and Phek districts the rate ranges between 71 per cent and 78 per cent. Wherever the proportion of Christians is high, literacy rates are accordingly high.

In upper Assam, literacy is over 70 per cent (in Dibrugarh, Sibsagar, Jorhat and Golaghat districts). So also in Kamrup district. In East Khasi Hills in Meghalaya it is 76.98 per cent. As mentioned earlier, male-female differential in literacy in the Khasi dominated areas of Meghalaya is very small indeed, thanks to the matriarchal system prevailing in these areas. In Jaintia hills, although over-all literacy rate is 53 per cent only, a higher percentage of females (52.02%) than males (46.46%) is literate in its rural area. It is noteworthy that ethnicity, social structure and cultural patterns are important in explaining attitudes toward education and literacy. They are also intertwined with economic linkages.

Throughout Uttaranchal state (excepting Uttarkashi and Tehri-Garwal districts) over-all literacy is in excess of 70 per cent. In adjoining Himachal Pradesh it is still higher (75.9%). Here in Kangra, Hamirpur and Una districts it is over 80 per cent. In both these hill states, high percentage of literacy is associated with, among other factors, joining the armed forces which has created a new awareness for education among the youth. The male-female differential in literacy is considerable, particularly in Uttaranchal (24 percentage points as against 17 percentage points in Himachal Pradesh). Himachal Pradesh has made notable progress in social development in recent decades. It has gone ahead of Punjab in this respect. While in Punjab literacy rate has increased from 58.5 per cent in 1991 to 69.95 per cent in 2001, that in Himachal

Pradesh has gone up from 63.94 per cent in 1991 to 77.13 per cent in 2001. In northern Punjab, the continuing tradition of out-migration and emigration has played its own role in creating awareness for spread of literacy and education. The remittances from these migrants have helped in educational development, both among boys and girls in their native areas. Consequently the male-female differential is much smaller here than in the two hill states mentioned above.

In north-eastern districts of Haryana (Panchkula, Ambala, Yamunanagar and Kurukshetra), and the southern districts of the state adjoining Delhi (Sonapat, Rohtak, Jhajjar, Mahendergarh, Rewari and Faridabad) literacy rate is above 70 per cent. In Delhi union territory the corresponding rate is 81.82 per cent. In rural tracts of Delhi where 78.75 per cent of the persons (87.15% of males and 68.23% females) are literate, the male-female differential in literacy is large. In urban Delhi on the other hand, 82.04 per cent of the total population is literate (87.38% males and 75.49% females) with a much smaller male-female differential. Interestingly, male literacy is practically the same in rural and urban areas of Delhi. It is only the female literacy rate which pulls down the rural tracts.

In Rajasthan, literacy rate crosses 70% mark in Jaipur, Sikar, Jhunjhunun and Kota districts. In Rajasthan state, as a whole where 61.03 of the people are literate (76.46% males and 44.34% females), the male-female differential in literacy is the largest among all the states in India, indicating low-social status of the women. The long-continued practice of early marriage of the girls (even child marriage) is a major barrier in extension of education among them. Even in Jaipur district which has the state capital, male-female differential in literacy is as high as 27.40 percentage points (83.58% males and 56.18 per cent females being literate). Nonetheless, Rajasthan is among the states which made the most rapid progress in literacy during the last decade (from 54.99% males and 20.44% females

literate in 1991 to 76.46 per cent males and 44.34 per cent females literate in 2001). But it still has a long way to go, particularly in female literacy.

There is a belt of relatively high literacy in central-western Madhya Pradesh, with over 70 per cent of the population literate, (in Bhopal, Raisen, Hoshangabad, Jabalpur, Narsimhapur in central, and Mandsaur, Ujjain, Shajapur, Indore in western M.P.). In addition, in Bhind and Datia districts in the northwest literacy rate exceeds 70 per cent. It may be concluded that high rates of literacy (above 70%) are associated with a variety of factors, including recent efforts by the State government to stimulate social and economic development (see Maps 4 & 5).

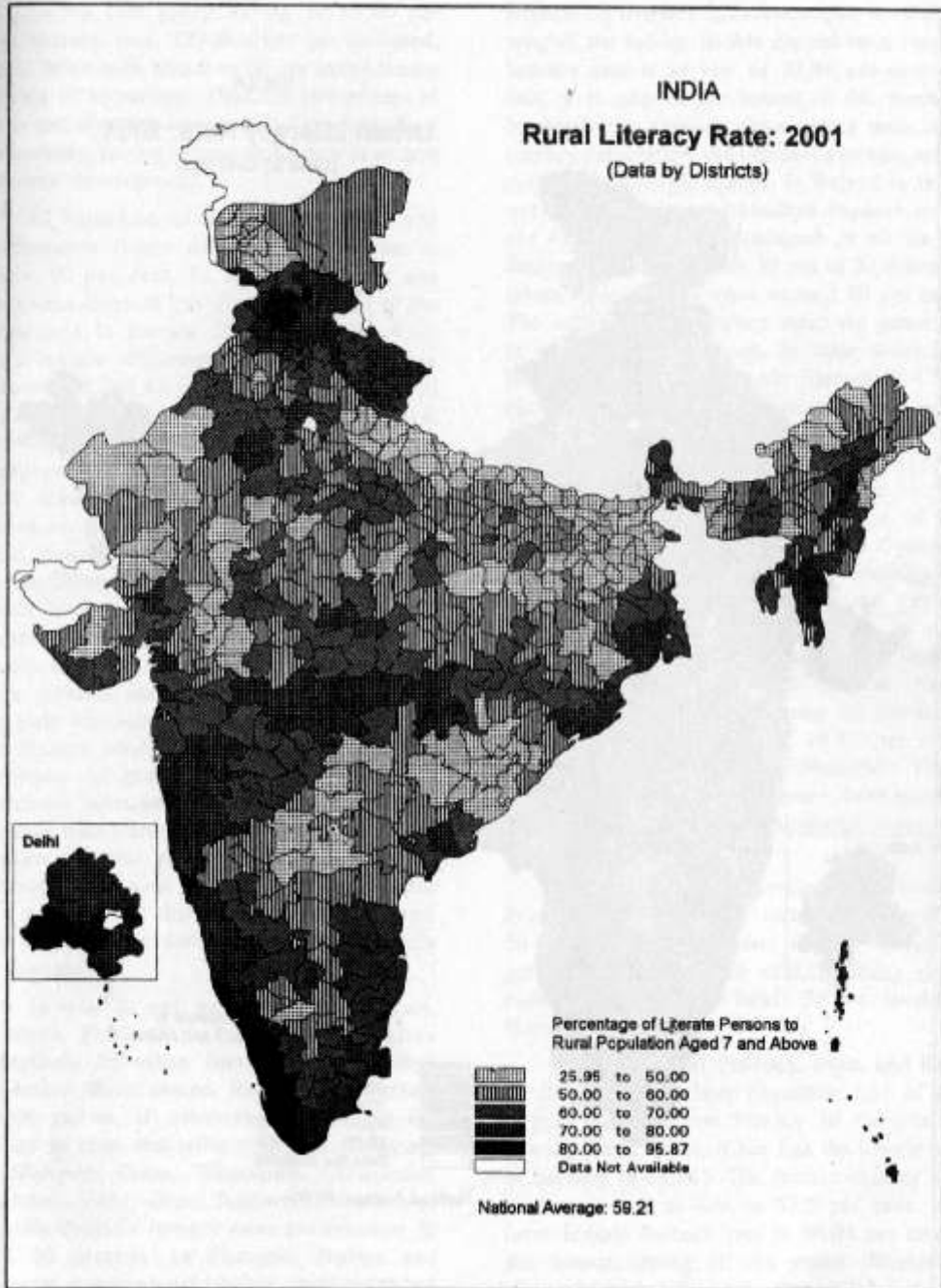
(B) Areas with moderate literacy rates (60% to 70%)

Areas having 60 to 70 per cent of their population as literate represent conditions which are around the national average (65.38%). Altogether 172 districts fall in this category. Included in this are southern and southern-western Punjab, Northern Haryana, Northeastern and northwestern Rajasthan (bordering with Haryana and Punjab), Yamuna-Ganga Doab, northern West Bengal, upper Assam valley, north-eastern Arunachal Pradesh, parts of Meghalaya, much of southern and central Madhya Pradesh, northern Chhatisgarh, west-central Orissa, coastal Andhra Pradesh, western Tamil Nadu and southern Karnataka. In socio-economic and cultural terms these areas represent diverse conditions. Among other things, most of them are predominantly agricultural and less urbanised. Most of them improved their literacy rates substantially, generally by 10 to 15 per cent, during the last decade. Rajasthan areas in this category, however, registered increase by 20 to over 30 percentage points during the decade. In the Yamuna-Ganga tract the increase was by 14 to 20 percentage points. In Chhatisgarh areas literacy rates increased by 18 to 27 percentage

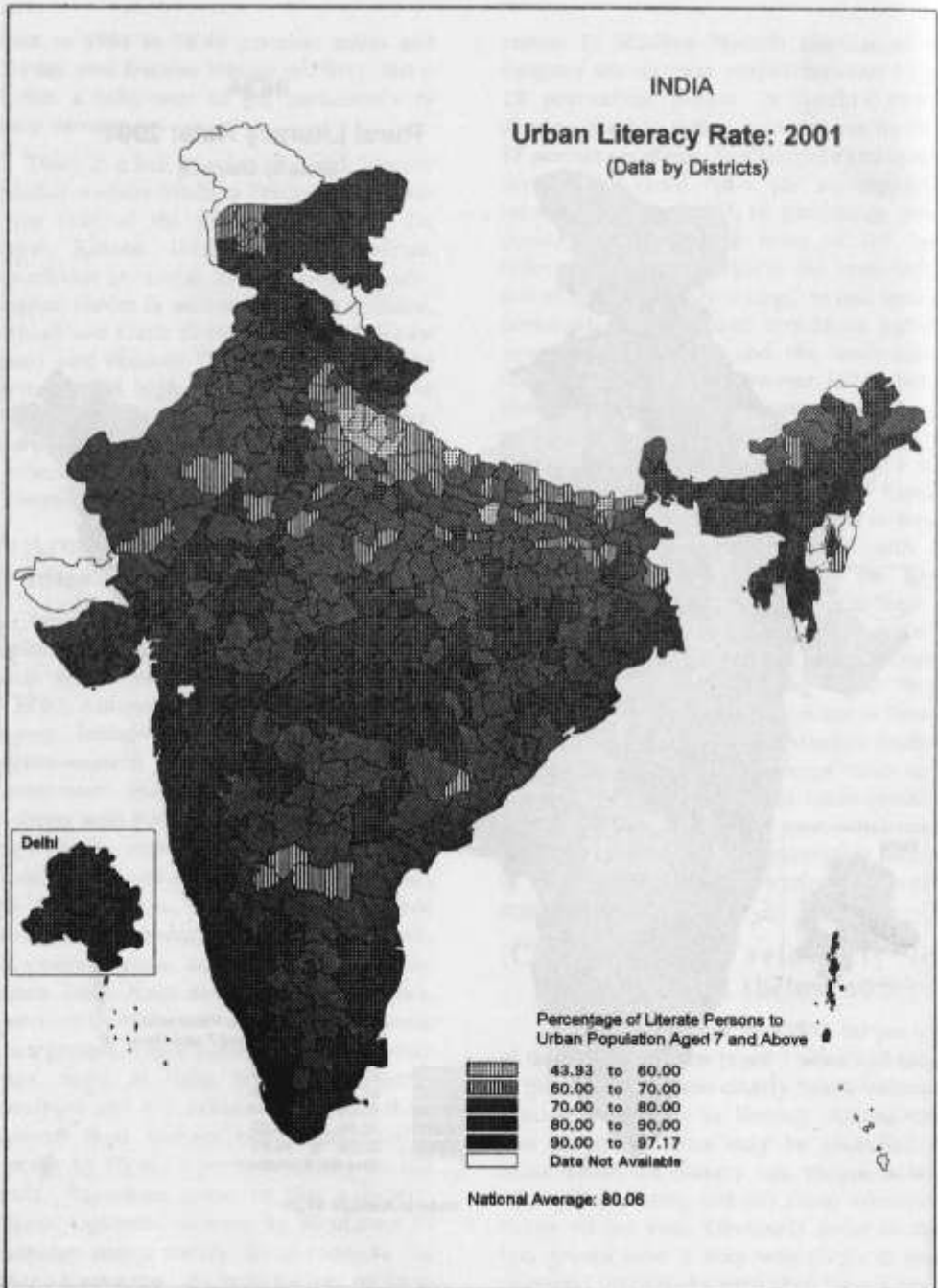
points. In Madhya Pradesh districts of this category the increase ranged between 15 and 28 percentage points. In Andhra coastal districts the percentage increase was by 16 to 18 percentage points. In Karnataka and interior districts of Tamil Nadu the corresponding increase was by 11 to 16 percentage points during the decade. In most of the areas belonging to this category, the male-female differential in literacy is large, in line with the commonly found inverse correlation between overall literacy rate and the male-female differential in literacy. However, in Meghalaya state, where the over-all literacy rate is only 63.31 per cent and, thus, below the national average, the Khasi Hills districts have a very small male-female differential in literacy (almost comparable to what is found in Kerala and Mizoram), apparently linked with the matriarchal system prevalent in the Khasi ethnic group. Here the male-female differential ranges between 3 to 7 percentage points - opposite to the general rule in this regard. Among all these areas having 60 to 70 per cent literacy rates, highest increase in literacy was recorded in Rajasthan, Madhya Pradesh, Chhatisgarh and Yamuna-Ganga doab areas during 1991-2001. More than socio-economic factors, it is the role of the state which seems to be instrumental in this impressive increase in literacy. It happened mostly in non-tribal segments of the society.

(C) Areas with relatively low literacy rates (below 60%) :

Areas where less than 60 per cent of the total population (aged 7 years and above) is literate represented clearly below national - average conditions in literacy. Among them two groups of areas may be identified: (i) those where the literacy rate ranges between 50 to 60 per cent, and (ii) those where it is below 50 per cent. Obviously areas in these two groups have a long way to go to attain universal literacy. As such they have a severe handicap in making desirable progress in socio-economic development.



Map 4



Map 5

In the first group having 50 to 60 per cent literacy rate, 127 districts are included, while those with less than 50 per cent literacy rate are 82 in number. Thus, the two groups of areas put together constitute a large chunk of the country, having serious deficiency in human resource development.

In Rajasthan, excepting the northern and northeastern fringe districts, literacy rate is below 60 per cent. In Jalor, Dungarpur and Banswara districts less than 50 per cent of the population is literate. Throughout the state, male-female differential is large, ranging between 20 and 41 percentage points. In rural areas it is still larger. In Bikaner, Swai Madhopur, Jaisalmer, Jalor, Tonk, Bhilwara, Dungapur, Banswara and Chittaurgarh districts rural female literacy is below 30 per cent, Banswara having the lowest (23.78%). Low rural female literacy rates and large male-female differentials in literacy reflect low social status of women. Old prejudices continuing against the women doing any job outside the home, early or even child marriage of the girls, poverty and lack of separate facilities for girls education in the villages are among the factors which keep them illiterate. The tradition of performing Sati, though an extremely infrequent phenomenon, also reflects extreme backwardness, and very low status of women. Despite recent progress of over-all literacy in the state, female literacy is still low and male-female differential still very large. The progress is predominantly and substantially male-oriented.

In total as well as rural female literacy, Madhya Pradesh has done better than Rajasthan. In urban literacy also, Madhya Pradesh is better placed. But there are pockets which are as, if not more, deficient in the ability to read and write with understanding. In Shivpuri, Guna, Tikamgarh, Chhatarpur, Shahdol, Sidhi, Dhar, Rajgarh, Dindori and Mandla districts literacy rates are between 50 and 60 percent. In Sheopur, Jhabua and Barwani districts total literacy rates are below 50 per cent. With only 36.87 per cent of the

population literate, Jhabua occupies the lowest rung of the ladder. In this district rural female literacy rate is as low as 20.86 per cent. In fact, it is one of the lowest in the country. Interestingly, even in these states with total literacy rates below the national average, urban male literacy is quite high. In Rajasthan in 31 out of 32 districts, in Madhya Pradesh in 42 out of 45 districts, in Chhatisgarh in all the 16 districts and in Orissa in 29 out of 30 districts, urban male literacy rates exceed 80 per cent. The urban female literacy rates are generally in excess of 60 per cent. In Jalor district in Rajasthan the urban female literacy is 47.97 per cent. In southern Chhatisgarh and south western Orissa, general literacy rates are well below 50 per cent. Dantewada (Chhatisgarh) has the lowest (30.01). The rural female literacy rate in this district (16.84%) is one of the lowest in the country. In Orissa Gajapati, Nuapada, Kalahandi, Rayagada, Nabarangapur, Koraput and Malkangiri districts the general literacy rates are below 50 per cent, in most cases even below 40 per cent. The female literacy rates are below 30 percent. Rural female literacy rates are among the lowest in these districts: Rayagada - 17.83 per cent, Koraput - 16.09 per cent, Malkangiri - 18.61 per cent. Lowest rates of literacy, both general and rural, are associated with highly backward tribal communities.

In most of the interior districts in Andhra Pradesh general literacy rates range between 50 and 60 per cent. Rural female literacy is generally below 45 per cent, in many cases even below 40 per cent. So in northern Karnataka.

Northern Uttar Pradesh, Bihar and most of Jharkhand together constitute one of the largest tracts of low literacy in the country. Among these states, Bihar has the lowest rate of literacy (47.53%). The female literacy rate in this state is as low as 33.5 per cent. The rural female literacy rate is 30.03 per cent - the lowest among all the states. Jharkhand state which was formerly part of Bihar is the next state to have the lowest rates of literacy,

both in general and among the rural females. Continuing feudal system in its society, particularly in rural areas, and indifferent role of the state in welfare activities, are specially responsible for the sad state of affairs in Bihar. The insensitivity of the political leadership and feudal landlords toward the social and economic well-being of the state has been mainly responsible for the continuing backwardness and poverty of its rural society. The urban population strikes a contrast with its rural counterpart in literacy. Among the urbanites, 80.80% of the males and 63.30% of the females are literate. At the district level, Kishanganj, with 31.02 per cent of its total population literate, is at the lowest rung of the ladder. In rural female literacy rate (15.20%), this district represents most woeful conditions, even after over 50 years of independence.

In northern parts of Uttar Pradesh, particularly in the Terai districts, over-all literacy rates are low, generally below 50 per cent. Sharwasti district, with only 34.25 per cent of its total population literate, is among the least literate districts in the country. Only 18.75 per cent of its females are literate. In the rural areas its female literacy rate comes down to 17.86 per cent. Throughout its length, the southern areas of Uttar Pradesh are better placed than their northern-counter parts in the matter of literacy. The poor quality of governance of the state has been a major factor in its lack of socio-economic development.

There are scattered areas in the northeast where literacy rates are low, particularly in highly mountainous terrain. In Tawang, Lower Subansiri, Upper Siang and Tirap districts of Arunachal Pradesh general literacy rate is below 50 per cent. Likewise, in some of the Garo Hills and Jaintia Hills district, of Meghalaya state literacy rate is below 60 per cent.

Lastly, Jammu and Kashmir state also stands low in literacy, more particularly the Kashmir areas. In Kupwara, Baramula,

Badgam, Pulwama & Anantnag districts the general literacy rate is well below 50 per cent. Invariably the rural areas of all these districts have very low literacy rates. Even in rural part of Sirinagar district literacy is very low, especially among the females. In Jammu areas general literacy rates are a little better, between 50 and 60 per cent.

It follows from the above discussion that areas having literacy rates below 60 per cent (well below the national average of 65.28%) may be considered in two sub-groups: (i) those where the rate falls between 50 and 60 per cent and (ii) those where the literacy is below 50 per cent. The second sub-group in particular, is far from the stage of universal literacy -the final target in this initial phase of human resource developments. Areas in both the sub-groups cover 209 districts out of a total of 591. They represent a great diversity of socio-economic conditions, ethnic composition, cultural patterns, historical background, and quality of governance. They are predominantly rural, characterised by subsistence type of agriculture, tribals still living primitively, interior locations, dominated by feudal conditions and poverty, poorly administered and insensitive political leadership. Apart from low degree of achievement in literacy rates, the male-female differential in literacy is very wide, reflecting low social status of women. Although the last decade (1991-2001) registered considerable progress in literacy in most of the areas, these areas have a long way to go in the task of reading and writing with understanding in any language.

Conclusion

Despite fifty-years of independence and efforts toward socio-economic development, over one-third of India's population (aged seven years and above) is still illiterate. In this initial step toward human resource development, India has been out done by most countries of East and South-east Asia. There are great regional disparities in literacy in the country, but, interestingly, the spatial patterns of literacy as

in 1961 and 2001 are not very different. It indicates that the processes of literacy development have not seen the kind of diffusion that was expected from the implementation of the successive five-year plans for socio-economic development. Different historical backgrounds of the various areas, old and early initiatives taken in the sphere of educational development seem to have been affecting persistently. Among other things, the quality of political leadership in the states during the post-independence decades has also been an influential factor. Although the old social, economic and cultural traditions have gradually been giving way to modern ideas of development, especially during the post-independence period, the old trends and traditions are still reflected in the current spatial patterns of literacy.

Throughout her past, the prevalence of a rigid caste system, closely related to Manu's division of labour, and the predominance of a subsistence farm economy, made it unnecessary for everyone to learn to read and write. Education was looked upon as an occupational necessity, rather than something desirable for all. The practice of keeping women confined to household activities became a discouraging factor for female education. Consequently for a long time, literacy in India remained male literacy to a great extent. However, with the coming of independence several social and legislative reforms have been introduced and pursued as a result of which the status of women in social and economic matters has gradually been changing, though in varying degrees. Literacy and education have registered considerable progress, especially in rural areas and among the women. Rural-urban and male-female differentials in literacy have been narrowing down, though at varying pace. However, continuing acceleration in population growth throughout the post-independence period resulting in staggering increases has acted as a stumbling block in achieving even modest goals in educational and literacy development. Flaws in the process of governance have left their own negative effects

in achieving the goals in socio-economic development.

There is a strong inverse correlation between general literacy rates and male-female differential therein. Although there is a strong correlation between the degree of urbanization and over-all literacy rates, it is not necessarily true everywhere. Kerala, Himachal Pradesh, Tripura, and Uttaranchal are significant deviations from this rule. (Singh, 2001, p.xiv). Apart from large male-female and rural-urban differentials in literacy, there are wide regional disparities in literacy rates in the country, as has been brought out by the maps based on 2001 data, incorporated in the paper. With a few exceptions, areas of high rates of literacy are marked by their coastal and near-coasted locations where their exposure to the outside world, especially the Europeans, has been for centuries, where in several cases Christian missionaries played a significant role in extending welfare activities, including education and health care, among males and females and in rural as well as urban areas. High rates of literacy are also associated with high degree of urbanization, advanced agricultural economy, recruitment to armed forces and emigration to foreign lands. Able political leadership committed to human welfare in areas of their influence has always been a positive factor in promoting education and literacy. Areas of low rates of literacy, on the other hand, are those which are backward and have subsistence farm economy, low degree of urbanization in general, non-Christian tribal population, insensitive political leadership providing poor governance. However, in recent years efforts have been made to promote literacy and education among all areas, and more especially among women. As a result, male-female and rural-urban differentials in literacy have narrowed down and regional disparities reduced in relative terms. But the smallest male-female and rural urban differentials in literacy are in areas where the Christian missionaries have played their role. Despite the gains already made, the country still has a lot to do to attain universal literacy.

References

1. **Banthia, J.K.** : *Census of India 2001, Series 1, India, paper 1 of 2001*, Registrar General & Census Commissioner, India, New Delhi.
2. **Banthia, J.K.** : *Census of India 2001, Series 1, India, Paper 1 of 2001 Supplement District Totals*, Registrar General & Census Commissioner, India, New Delhi.
3. **Davis, Kingsley, 1951** : *Population of India and Pakistan*, Princeton, Princeton University Press.
4. **Gosal, Gurdev Singh, 1964**: "Literacy in India: An interpretative study" in *Rural Sociology*, Vol. 29, No. 3, Sept. 1964, USA.
5. **Singh, Inder Jit** : Director of Census Operations, Punjab: *Census of India 2001, Series 4, Punjab, Paper 1 of 2001*, PECO Printing Press, Chandigarh.

DISTRIBUTION OF URBAN POPULATION AND ITS SOCIO-ECONOMIC ATTRIBUTES IN WESTERN HIMALAYA:2001

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Abstract

The paper describes the attributes of distribution of urban population and its socio-economic characteristics in Western Himalaya on the basis of district level data of Census of India, 2001. The attributes described are level of urbanization, sex ratio, literacy and workforce. A comparison of the three states in Western Himalaya, Jammu & Kashmir, Himachal Pradesh and Uttaranchal, with other hill states is followed by a description of patterns of distribution in Western Himalaya at the regional and sub-regional levels. Although Western Himalaya is the most urbanized part of the Himalaya, there are striking spatial variations within the region in terms of the distribution of urban population and its socio-economic characteristics.

The Western Himalaya region is constituted by the states of Jammu & Kashmir, Himachal Pradesh and Uttaranchal¹. The last of the three states emerged as a separate political administrative unit, carved out of the state of Uttar Pradesh on November 3, 2000. It also includes the foot-hill district of Hardwar which like other districts of the state, is not a hill district.

The urbanization process in Western Himalaya has been influenced by endogenous as well as exogenous factors, and the physiographic set up. Broadly, the religious and trade centres, important halting places on ancient caravan routes, capital towns of erstwhile native states reflect the imprint of indigenous forces; and

the hill stations, cantonment towns, administrative headquarters towns, and towns that have emerged due to modernization of means of transport, industrialization, tourism, developmental activities and developments due to the strategic importance of the region since the Sino-Indian conflict in 1962, that of the exogenous factors. The rugged physiography, altitudinal and climatic variations, relative inaccessibility, and predominantly low economic thresholds in the region have acted as restrictive influences to urban growth. The existing urban patterns in the region represent the combined impact of the endogenous, exogenous and physiographic factors.²

OBJECTIVE

The paper describes the patterns of distribution and socio-economic attributes of urban population in Western Himalaya. The attributes described are level of urbanization, sex ratio, literacy and workforce. An attempt is also made to present a comparative picture with other hill states as well as the sub-regions within the states comprising the Western Himalaya.

Source of Data and Methodology

The paper is based on district level data from the 2001 Census of India electronic data sheets for Paper II and Paper III. In addition, Paper II for the states of Jammu and Kashmir (henceforth J&K) and Himachal Pradesh (henceforth H.P.) in published form has also been consulted. Paper II for Uttaranchal state is yet to be published. The non-availability of comparable data for J&K for 1991 and Uttaranchal for census years prior to 2001 has prevented an analysis of the growth of urban population in the region. The results obtained from processing of data are presented in the form of tables and choropleth maps.

Generalities

The ten hill states in the Himalaya together account for only 2.69 percent of urban population of India³. Within the Himalayan region the highest proportion of urban population (68.53 percent) is concentrated in the three states of J & K, H.P., and Uttaranchal. An additional 30.68 percent lives in the six hill states in the north-east, viz., Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, and Meghalaya. The smallest proportion of total urban population of the ten hill states (0.78 percent) is found in Sikkim.

Among the three states comprising Western Himalaya, J&K has the highest proportion (47.35 percent) of the total urban population of the region, followed by Uttaranchal (41.17 percent) and H.P. (11.28 percent).

In terms of level of urbanization, 20.77 percent of the total population of the ten hill

states is urban as compared to the country's average figure of 27.78 percent. For the Western Himalaya the comparative value is 21.40 percent, and for the six north-eastern states it is 19.90 percent. The proportion of urban to total population in Sikkim is 11.10 percent. Thus in terms of level of urbanization the region of Western Himalaya has the highest proportion of urban population within the Himalaya. In terms of socio-economic attributes of urban population, the sex ratio in Western Himalaya is 831 females per thousand males, literacy rate is 77.94 percent, and the proportion of workers is 31.69 percent as compared to the national averages of 901, 80.06 per cent and 32.23 percent respectively.

A state wise comparison of the socio-economic attributes of urban population in the hill states is presented in Table 1. In terms of proportion of urban population, Uttaranchal and J&K have the second and third highest values after Mizoram. The lowest proportion of urban population not only in the region, but also in the country is recorded for H.P. Of a total of 344 towns in the ten hill states, 217 are located in the three states in Western Himalaya. Among these, Uttaranchal has the highest number of towns (86 including three Class I towns), followed by J&K (75 including two Class I towns) and H.P. (56 towns of which one is Class I).

The urban sex ratio in the three states of Western Himalaya is low as compared to the other hill states (Table 1). Uttaranchal with 850 females per thousand males has the highest sex ratio within Western Himalaya. Among the hill states it ranks sixth. It is followed by J&K (822 females per thousand males) which ranks 7th, and H.P. (797 females per thousand males) which has the lowest urban sex ratio in Western Himalaya as well as among the hill states. In terms of urban literacy however, H.P. has the highest value (89.59 percent) within Western Himalaya and the second highest among the hill states (Table 1). It is followed by Uttaranchal which has the second highest urban literacy value in the region (81.50 percent), its rank among the hill states is 7th. J&K has the lowest urban literacy in

Table-1
India : Urban Population Attributes of Hill States (2001)

State/Attribute	Urban Population (in percent)	No. of Towns*	Sex Ratio	Literacy (in percent)	Workers (in Percent)	Main workers (in percent)
J&K	24.88	75(2)	822	72.17	32.71	90.0
H.P.	9.79	56(1)	797	89.59	36.89	93.25
Uttaranchal	25.59	86(3)	850	81.50	36.97	97.21
Sikkim	11.10	9	822	84.82	40.48	91.89
Arunachal Pradesh	20.41	15	950	78.82	34.16	92.30
Mizoram	49.50	22(1)	951	96.35	48.09	76.18
Nagaland	17.74	9(1)	809	85.95	31.91	90.45
Tripura	17.02	23(1)	962	89.51	32.32	92.87
Meghalaya	19.63	16(1)	985	87.12	28.74	87.13
Manipur	23.88	32(1)	1009	80.04	38.71	73.61
INDIA	27.78	-	901	80.06	32.23	90.90

Source : Census of India 2001 electronic data sheets Paper II and Paper III.

*1. Figures in parenthesis refer to number of Class I towns.

2. Towns by independent units.

the region as well as among the hill states.

The work participation rate among the three states in Western Himalaya is highest in Uttaranchal (36.97 percent) which ranks 4th among the hill states. It is followed by H.P. (36.89 percent, fifth among the hill states). J&K has the lowest proportion of urban workers in the region and ranks 7th among the hill states in this respect (Table 1). The highest proportion of main workers in Western Himalaya as well as among the Hill States is in Uttaranchal (97.21 percent). J&K has the lowest proportion of main urban workers within Western Himalaya and ranks 7th among the hill states.

Broadly therefore, the region of Western Himalaya has a much higher concentration of urban population as compared to the rest of the Himalaya; within the region the highest concentration of urban population occurs in J&K, followed by Uttaranchal and H.P. However, the level of urbanization is highest in Uttaranchal, closely followed by J&K and the lowest in H.P., which is also the least urbanized state of India. The region has 63 percent of the

total towns in the hill states of India with Uttaranchal having the highest number, followed by J&K and H.P. The socio-economic character of the urban population in Western Himalaya is reflected by the low sex ratio values; low urban literacy rates except in H.P.; high proportion of workers except in J&K which also has the lowest proportion of total as well as main workers as compared to the other two states in the region.

Regional Pattern

Size Class Distribution of Towns and Population

Table 2 shows the distribution of towns according to population size classes, and Table 3 shows the percent distribution of urban population in different size class categories of towns in different states as well as the region of Western Himalaya.

The region has six Class I towns. Of these, three (Hardwar, Dehradun, and Haldwani-cum-Kathgodam) are in Uttaranchal; two (Jammu and Srinagar) are in J&K and one (Shimla) in

Table-2
Western Himalaya : Number of Towns according to Size Class (2001)

State / Size	I	II	III	IV	V	VI	Total
J&K	2	4	7	20	23	19	75
H.P.	1	-	6	7	16	26	56
Uttaranchal	3	4	17	16	27	19	86
Western Himalaya	6	8	30	43	66	64	217

Source : Computed from Census of India 2001 electronic data sheets Paper II.

H.P. Together these contain 47 percent of the urban population of the region (Table 2 and 3). This suggests a pattern of urban primacy, particularly in J&K where the two Class I towns account for 63.03 percent and the four Class II towns for only 14.70 percent of the urban population of the state. In H.P. the only Class I towns accounts for 24.31 percent of the state's urban population, there is no Class II town, and six Class III towns contain 25.87 percent of urban population of the state. The lowest level of urban primacy can be seen in Uttaranchal with its three Class I towns accounting for 35.28 percent and four Class II towns for 15.87 percent of the urban population of the state.

A different way of looking at the element of primacy is through the pro-rata basis of distribution of population in towns of different size classes. On this basis each higher class town in each of the three states of the region contains at least double the population of a lower class town. The exception to this are the Class III and Class IV towns in J&K and

Uttaranchal, each of which on an average contains an almost similar proportion of urban population of their respective states. The Class I towns have disproportionately larger populations: in J&K these contain about nine times more population than that of the average population of a Class II town and, in Uttaranchal this value is a little above three. H.P. as mentioned earlier does not have a Class II town. For the region as a whole this value is almost five times.

The smallest proportion of urban population (12.5 percent) of the region lives in small towns (Class V and VI). This is true for Uttaranchal (11.68 percent) and J&K (8.36 percent). In H.P. however, this figure is much higher (30.76 percent) and suggests the importance of small towns in the economy of the state. The medium towns (Class II, III, and IV) in Uttaranchal and H.P. contain the highest proportion of their respective state's urban populations indicating a tendency towards dispersal, though the absence of a Class II town

Table - 3
Western Himalaya : Percent Urban Population in Size Class Towns (2001)

State / Size	I	II	III	IV	V	VI	Total
J&K	63.03	14.70	3.89	10.02	5.85	2.51	100.00
H.P.	24.31	-	25.87	19.06	19.10	11.66	100.00
Uttaranchal	35.28	15.87	25.17	12.00	9.33	2.35	100.00
Western Himalaya	47.00	13.50	15.00	12.00	9.00	3.50	100.00

Source : Computed from Census of India 2001 electronic data sheets Paper II.

in H.P. is striking. In J&K only 28.61 percent of urban population of the state lives in medium towns as compared to 63 percent in Class I and 8.63 percent in small towns.

Spatial Pattern of Urban Population

The spatial distribution of urban population in Western Himalaya is shown in Fig.1. The region presents a pattern marked by sharp contrasts having districts with the highest proportion of urban population located amongst areas having low or very low values. Srinagar district, for example, has the highest proportion of urban population (78.59 per cent) in the region. It is adjoined by districts having moderate and low values. A similar pattern can be observed for other districts with very high values, viz, Jammu, Dehradun, Nainital and Udham Singh Nagar. Except for the last mentioned two districts, the very high values are associated with the location of traditional cultural and administrative status of regional capital towns. Only Nainital and Udham Singh Nagar districts form a contiguous block. All districts with very high values occur as isolated patches located amongst their shadow zones formed by districts with low values. Except for Leh, Srinagar and Shimla, the districts with a high proportion of urban population share their boundaries with the adjoining plains.

The low level of urbanization in the region is reflected in a large number of districts, almost contiguously located, and extending in the upper elevation zones of the region, having low and very low values (Fig.1). Two districts in H.P., i.e., Lahul & Spiti and Kinnaur, are entirely rural.

Spatial Pattern of Urban Sex Ratio

Generally urban sex ratio is expected to decline with an increase in the level of urbanization, and a greater share of secondary activities in urban economy. In this context the region presents an interesting pattern. Except for Jammu and Hardwar districts, which have

moderate values of sex ratio, and Shimla, which has low sex ratio, other districts with a high proportion of urban population also have high (Srinagar and Dehradun) or very high (Nainital and Udham Singh Nagar) value of urban sex ratio (Figs. 1 and 2). Only Leh district has comparatively high proportion of urban population and very low sex ratio. It is located amongst a number of districts having very low urban sex ratio. Similarly, Shimla district is a part of an area of low urban sex ratio values (Fig.2). Generally, districts located adjacent to the plains, irrespective of level of urbanization, have higher urban sex ratios.

Spatial Pattern of Urban Literacy

The average value of urban literacy for the region is 77.94 percent. Among the three states in the region H.P., Uttaranchal and J&K have successively lower urban literacy rates (Table 1). This attribute is also reflected in the spatial pattern of urban literacy in the region with none of the districts in H.P. having low and only one district, Una, having moderate values. Two districts in Uttaranchal (Rudraprayag and Nainital) have moderate, two (Hardwar and Champawat) low, and one (Udham Singh Nagar) very low values of literacy (Fig.2). In comparison, Srinagar district, which has the highest proportion of urban population in the region, forms a part of a block of districts with very low literacy values. Only three districts (Punch, Rajauri and Kathua) having comparatively low level of urbanization, have high literacy values. Interestingly, Jammu district, which has the second largest city in the state and ranks third in terms of proportion of urban population in the region, has a moderate literacy value. A striking feature of the spatial pattern of urban literacy is that most of the districts having lower levels of urbanization, particularly in H.P. and Uttaranchal, have comparatively higher rates of urban literacy (Figs. 1 and 3). This suggests lack of a definite positive relationship between size of urban population and urban literacy.

Spatial Pattern of Urban Workers

The average value of urban workers in Western Himalaya is 31.69 percent. In terms of the three states in the region, the highest proportion of workers is registered in Uttaranchal, closely followed by H.P. and, the lowest (32.71 percent) in J&K. (Table 1). The spatial distribution of workers is shown in Fig. 4. The distribution of this attribute of urban population has some striking features. Districts with very high proportion of workers occur as isolated patches in Uttaranchal (Garhwal district) and H.P. (Kullu and Solan districts). However, in J&K, Udhampur, Doda, Kargil, and Leh districts form a large area of very high proportion of urban workers. This region in J&K is also an area of very low urban sex ratio and except for Udhampur district, an area of moderate urban literacy (Figs. 2, 3 and 4). An almost similar association can also be observed for districts having high proportion of urban workers in H.P. (Bilaspur and Shimla districts) and Uttaranchal (Tehri Garhwal district).

In terms of relationship with level of urbanization, all the districts having high proportion of urban population, except Shimla, have low or very low values for urban workers (Figs. 1 and 4). Unlike all other attributes of urban population in the region, the districts sharing their boundaries with the adjoining plains have low proportion of urban workers, except Una, Bilaspur and Solan districts in H.P. Also, the districts extending over high elevation regions, and generally having a low proportion of urban population, have high to moderate values for urban workers except in Bageshwar and Pithoragarh districts in Uttaranchal, where the proportion of urban workers is very low.

Sub-Regional Patterns

Two of the three states in Western Himalaya have well recognised sub-regions; Kashmir, Jammu and Ladakh in J&K and, Garhwal and Kumaon in Uttaranchal. The state of H.P. does not have this type of sub-regions. A comparison of different attributes of urban

population according to the sub-regions is presented in Table 4.

At the sub-regional level Garhwal region has the highest proportion of its population registered as urban (27.39 percent). The level of urbanization in this region is higher than that of all the states in the region as well as the entire region as well. It also has the highest number of towns among the sub-regions, including two Class I cities, Dehradun, the state capital (0.447 million persons), and Hardwar, one of the prime religious centres (0.175 million persons). Also, half of the total number of towns in Garhwal region are located in Dehradun and Hardwar districts. The former district ranks second among all the districts in Western Himalaya in terms of proportion of urban population. The region has a moderately low urban sex ratio (840 females/thousand males) which is higher than the average for Western Himalaya but, lower than the state average (Table 4). The level of urban literacy (83.34 percent) is higher than the state as well as the regional average. In comparison, the proportion of workers in this region is lower than the average for the state as well for Western Himalaya. However, a fairly high proportion of these (91.63 percent) form the main workers.

The second highest level of urbanization among the sub-regions occurs in Kashmir (26.92 percent). The proportion of urban population in this region is higher than that of the average figure for Western Himalaya as well as all the states in it. The region has 34 towns including the only Class I city i.e. Srinagar (0.894 million persons), the state capital. Interestingly, Srinagar district has only three towns but it ranks first among the districts in Western Himalaya in terms of proportion of urban population. The region has moderately high urban sex ratio, higher than the average for the state as well as the region (Table 4). The region has the lowest rate of urban literacy (63.89 percent), and moderate proportion of urban workers. The proportion of main workers in this region is also the lowest among the sub-regions in Western Himalaya.

Kumaon sub-region has a moderate level of urbanization (23.10 percent), higher than the average for Western Himalaya but lower than that of the state (Table 4). It has 38 towns including the only Class I city, Haldwani-cum-Kathgodam (0.129 million persons). This sub-region has the highest urban sex ratio (867 females/thousand males) within Western Himalaya. The literacy rates in the region are low and the proportion of workers the lowest among the sub-regions. Only 88.21 percent of total workers are registered as main workers, the second lowest in Western Himalaya.

Jammu sub-region has a moderately low level of urbanization (22.81 percent), lower than the state average, marginally higher than the average for Western Himalaya. It has thirty nine towns, the highest among the sub-regions, including the only Class I city Jammu, the winter capital of the state which is also the only rail-head in the state. Jammu district ranks third among the districts in Western Himalaya in terms of proportion of urban population. This sub-region has the second lowest urban sex ratio. Interestingly it has the highest urban literacy rates, the second highest proportion of urban workers and, the highest proportion of main workers among the sub-regions in Western Himalaya.

With only two towns, Ladakh sub-region has the lowest level of urbanization in Western Himalaya and the lowest urban sex ratio (Table 4).

It has moderately high urban literacy (82.01 percent) and the highest proportion of urban workers among the sub-regions. A moderately high proportion of urban workers (91.18) are registered as main workers in this region.

It has already been mentioned that H.P. does not have sub-regions as in the case of other states. The two high altitude, tribal districts of Lahul & Spiti and Kinnaur do not have any urban population. The level of urbanization in H.P. is the lowest in Western Himalaya as well as in the country. It has the lowest number of towns among the three states in the region, including the only Class I town, Shimla (0.142 million persons), the state capital. Shimla district ranks eighth among the districts in Western Himalaya in terms of proportion of urban population. Within the state, it has the highest number of towns. The urban sex ratio in H.P. is the second lowest in the region, the same as in the case of Jammu. The state has the highest rate of urban literacy (89.59 percent) in Western Himalaya. The proportion of urban workers in it is only marginally lower than the highest value, that for Uttarnachal, in the region (Table 4). The proportion of main workers in H.P. (93.25 percent) is only marginally lower than that of Jammu, the highest ranking sub-region in terms of this attribute, and the second highest among the states.

Table-4
Western Himalaya : Urban Population Attributes by sub-Regions(2001)

State/Attribute	Urban Population (in percent)	No. of Towns*	Sex Ratio	Literacy (in percent)	Workers (in Percent)	Main workers (in percent)
Garhwal	27.39	48(2)	840	83.34	29.58	91.63
Kumaon	23.10	38(1)	867	78.40	28.29	88.21
Total Uttarakhand	25.59	86(3)	850	81.50	36.97	97.21
Kashmir	26.92	34(1)	845	63.89	31.46	87.44
Jammu	22.81	39(1)	797	84.07	34.01	93.44
Ladakh	16.08	2	642	82.01	46.43	91.18
Total J&K	24.88	75(2)	822	72.17	32.71	90.00
H.P.	9.79	56(1)	797	89.59	36.89	93.25

Source : Census of India 2001 electronic data sheets Paper II and Paper III.

*1. Figures in parenthesis refer to number of Class I towns.

2. Towns by independent units.

Summary

The Western Himalaya form the most urbanized region within the Himalaya. However, the three states comprising Western Himalaya present sharp contrasts in terms of levels of urbanization and the socio-economic attributes of urban population. While J&K is the most urbanized it has the lowest urban literacy and work participation rates, H.P. is the least urbanized state in the region as well as in the country, but with highest urban literacy in Western Himalaya.

Urban primacy, at almost all levels, is a striking feature of the distribution of urban population in Western Himalaya. Each higher size class town contains double the population of a lower size class town on an average. In the case of Class I towns, this ratio is five times. Spatially, the districts with highest proportions of urban population are adjoined by those having much lower values indicating a shadow zone effect. Generally, districts located along the contact zone

with the plains have higher values for various attributes of population, except for urban workers. Conversely, higher elevation districts have lower values except for literacy rates.

Two of the states in Western Himalaya, J&K and Uttaranchal, have sub-regions, each of which is centered on a regional capital. Among the sub-regions Garhwal is the most urbanized. It has high literacy rate but a low urban work participation rate. Kashmir is the second most urbanized sub-region. It has the lowest rates of urban literacy and a moderate proportion of urban workers. Ladakh is the least urbanized sub-region. It also has the lowest urban sex ratio, moderate literacy and the highest proportion of workers among the sub-regions. In H.P. the two high altitude districts, Lahul & Spiti and Kinnaur, are rural. The state itself is the least urbanized in the region as well as in the country, has the highest rates of urban literacy in the region, and the second highest rate for total as well as main urban workers.

Notes and References

1. This paper follows the commonly accepted geographical division of the Himalaya into (i) Western Himalaya from the Indus to the Kali river, (ii) Central Himalaya from the Kali to the Tista river, and (iii) Eastern Himalaya from the Tista to the Brahmaputra river. See Bose, S.C. (1976) *Geography of the Himalaya*, National Book Trust, New Delhi, pp. 114-152; Singh, R.L. (Ed.) (1971) *India : A Regional Geography*, National Geographical Society of India, Varanasi, pp. 40-41; and Wadia, D.N. (1957) *Geology of India*, Macmillan & Co. Ltd., London, p.9.
2. Some of the studies dealing with different aspects of urbanization in the study region are Dave, Bharti (1999), "Pilgrimage and Urban Development of Hill Districts of Uttaranchal", *Population Geography*, Vol. 21, Nos. 1&2, pp.51-58; Bhardwaj, P.D. (1999) "Literacy in Himachal Pradesh", *Population Geography*, Vol.21, Nos. 1&2, pp. 31-42; Kant, Surya (1995) "Urbanisation in Himachal Pradesh during the Present Century", *Population Geography*, Vol.17, Nos. 1&2, pp.49-64; Kreuzmann, Hermann (1993) "Development Trends in the High Mountain Regions of India Subcontinent: A Review", *Applied Georaphy and Development*, Vol.42, pp.39-59; Krishan, Gopal and N.R.Verma (1980) "Site Analysis of Hill Towns", *Transaction of the Institute of Indian Geographers* Vol.2, No.1, pp. 101-109; Sharma K.D. (1981) "Endogenous and Exogenous Urbanisation : A Case Study of Uttarakhand (U.P. Himalaya)", *Transactions of the Institute of Indian Geographers*, Vol.3, No.2, pp.159-174; Sharma, K.D. (1992) "Patterns and Processes of Urbanisation in a Himalayan State: A Case Study of Himachal Pradesh (India)", *Transactions of the Institute of Indian Geographers*, Vol.14, No.1, pp.1-12; Siddique, M. (1985) "Urbanization in Jammu & Kashmir: A Regional Analysis", in Husain, Majid, et al (Ed.) *Geography of Jammu & Kashmir*, Ariana Publishing Co., New Delhi; Singh S.K. and Savita Singh (1995) "Levels of Urbanization in U.P. Himalaya", in S.B. Singh (Ed.) *Emerging Frontiers of Urban Settlement Geography*, M.D. Publications Pvt. Ltd., New Delhi, pp.57-62.
3. These are; Jammu & Kashmir, Himachal Pradesh, Uttaranchal, Sikkim, Arunachal Pradesh, Mizoram, Nagaland, Tripura, Meghalaya and Manipur.

DISTRIBUTION OF URBAN POPULATION IN WESTERN HIMALAYA : 2001

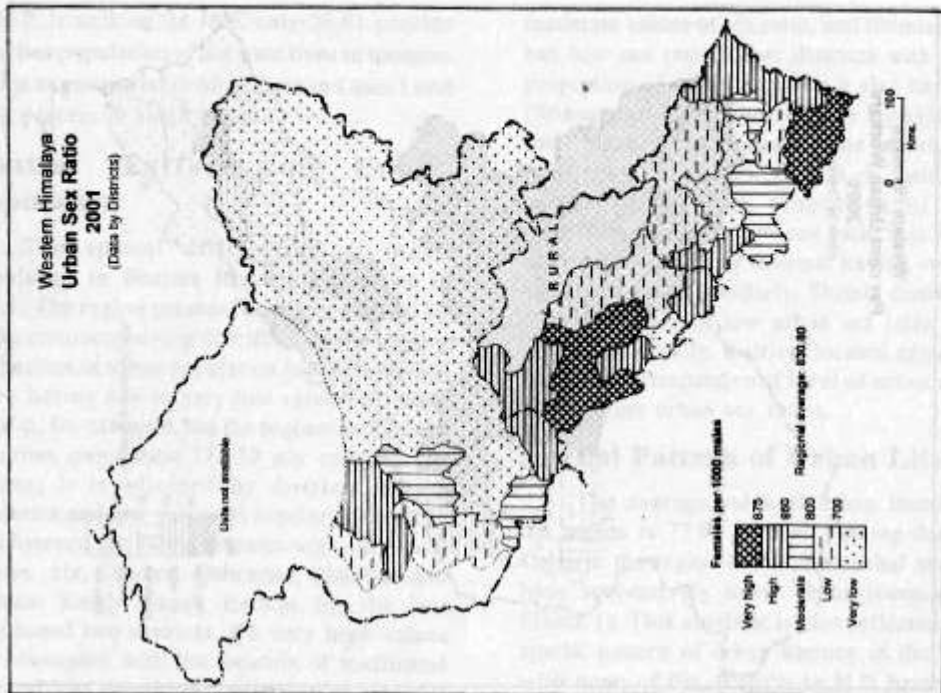


Fig. 2

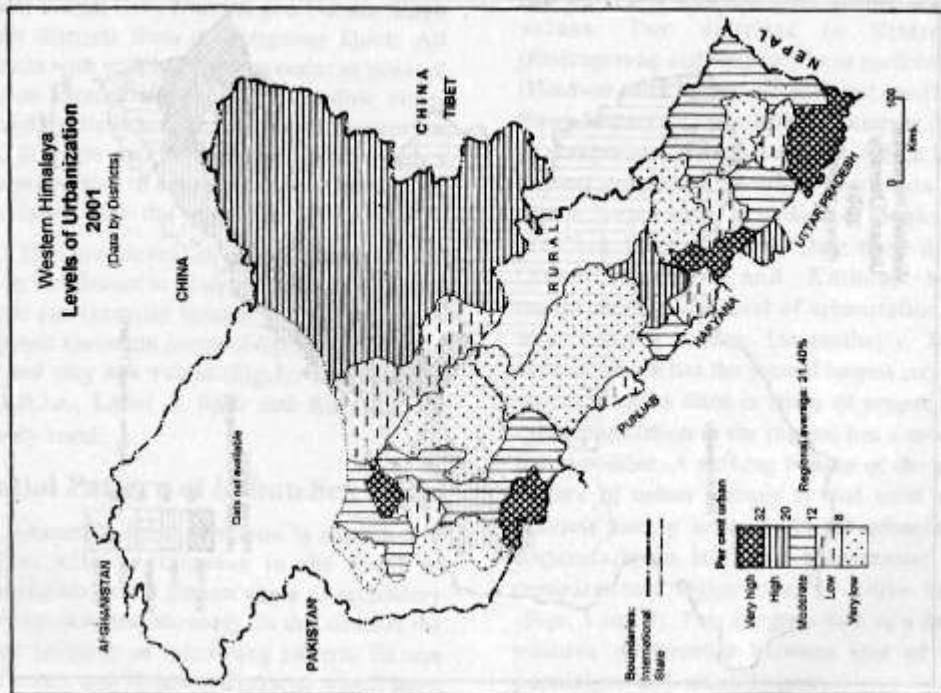


Fig. 1

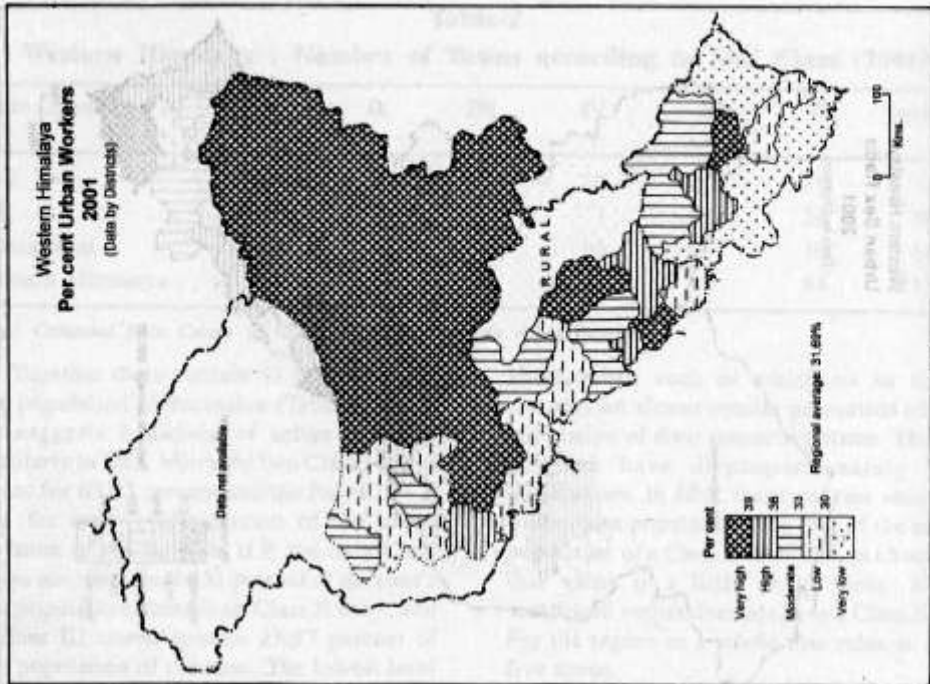


Fig. 4

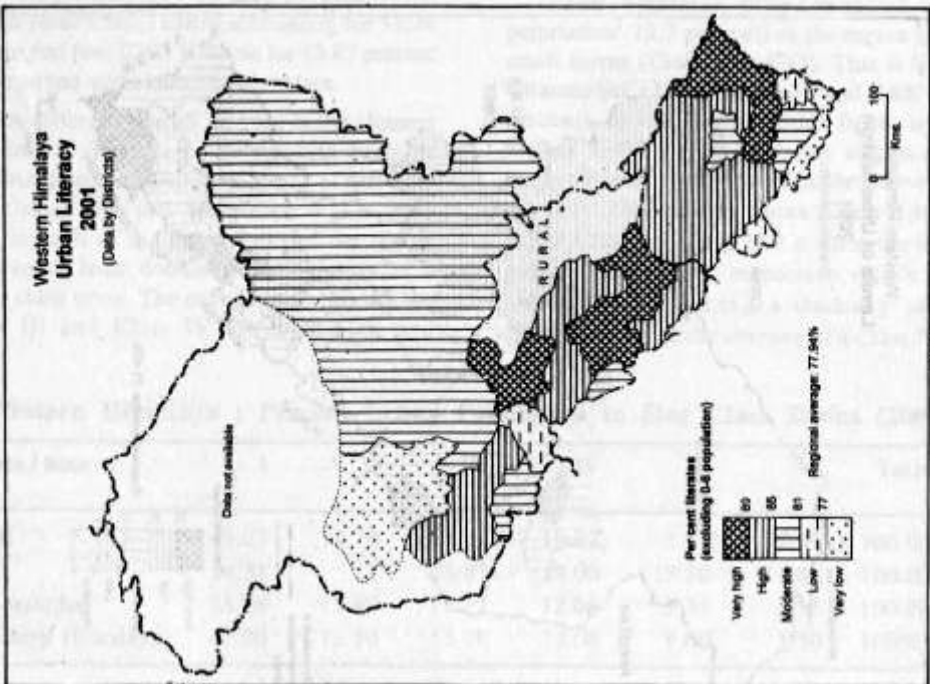


Fig. 3

URBANIZATION IN THE CHANDIGARH PERIPHERY ZONE

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Abstract

The paper analyses the process of urbanization in the Chandigarh periphery zone, an instituted region, which was to retain its predominant rural character. During the initial years of the enactment of the Periphery Control Act, neither the number of towns increased nor their territorial limits expanded. Since 1971, urbanization herein assumed a rapid pace. Whereas urban population of Chandigarh Union Territory grew at the rate of 8.9 per cent and that of the periphery zone by 1.4 per cent during 1961-71, the urban population of the former recorded a growth rate of only 3.4 per cent per annum as against 7 per cent in the latter during 1991-2001. By 2001, the zone got dotted with 12 towns/urban agglomerations. As a result, urban area here also marked a sharp increase from 10.2 to 138.88 sq. km. during 1951-2001. Under the prevailing scenario of the violations of the Periphery Control Act by various stakeholders, urbanization in the periphery zone is likely to continue unabated and calls for an urgent regulation through a perspective land use plan for 2020.

Chandigarh is one of the 120 odd urban centers raised on planned lines since independence (Krishan, G. 1999). The birth of the city was a sequel to a momentous event in the history of subcontinent. Our part of Punjab had lost the pre-partition capital of Lahore to Pakistan. The need for a new capital emerged. Chandigarh was conceived to serve as the capital of Indian Punjab. It was to be a manifest model of urban design and development. For this, it was necessary to not only to plan the city within but also to protect its rural periphery from any haphazard urban growth.

Initially the city was planned for a finite size of half-a-million people. The intention

was not to overload its infrastructure; the periphery was also to be protected from unwarranted urban growth for the same reason. As early as in 1952, the Punjab New Capital Periphery Control Act was enacted. It initially brought within its purview, a periphery zone up to a radius of 8 km. around the site of Chandigarh. This was extended to 16 km. in 1962. Section V of the Act provided that "no person shall erect or re-erect any building or make or extend any excavation, or lay out any means of access to a road, in the controlled areas save in accordance with the plans and restrictions". The Act also forbade the sale of reserved land up to a periphery of 16 km.

around the city, for any purpose other than agriculture. The purpose was to: (i) give a green envelope to the city; (ii) meet its requirements of daily perishable commodities from the surroundings; and (iii) leave no scope for future speculation in land. The encroachment on the rural land was to be minimal. Even the villages were not to expand beyond their *lal dora* limits.

The periphery zone, an instituted region is nearly circular in shape with minor irregularities caused partly by the boundaries of the villages on the margins and partly by the shape of the city (as the distances were taken from the outer limits of city site and not from the centre). It is spread over an area of 1,362 km², of which 1,021 sq. km. falls under the jurisdiction of Punjab alone.

A long time has passed. The pertinent question is to what extent these measures could protect the periphery zone of Chandigarh from getting urbanized with the onslaught on its rural land. The future perceived for the periphery zone at that point of time has become a past at present. This paper is geared to the task of analysing the process of urbanization in the Chandigarh periphery zone, discerning the factors responsible for emergence of new towns, increase rate of urban population, and additions to urban area. Implications of the scene as it emerged are also spelt out.

Towns and urban population : 1951-2001

The efforts to retain rural character of the periphery zone have not succeeded as the urban centers are continuously growing in their number and size. In 1951, that is, before the demarcation of periphery zone, there were 4 towns namely Kharar, Derra Bassi, Banur and Kalka within its limits. However, within a very short span of time considerable unplanned urban growth mushroomed within the restricted Chandigarh periphery zone. A military cantonment, the Hindustan Machine Tools

factory at Pinjore, an industrial factory near Kharar, and unauthorised urban growth near the airport are some of the illustrations (Kalia, 1988).

Of course, up to 1971 the number of towns at four remained unchanged. In 1981, there was an addition of three new towns namely S.A.S. Nagar in Punjab and Panchkula and H.M.T. Pinjore in Haryana. There was an addition of one town namely Pinjore (rural) at the 1991 census. The census of India 2001 recorded an upsurge in the number of towns in the periphery zone. Five new towns, namely Mullanpur-Garibdas, Karoran, Bhabat in Rupnagar district and Zirakpur and Bhankarpur in Patiala district in Punjab got added, raising the number to 12, 11 statutory and 4 census towns/urban agglomerations. The H.M.T. Pinjore, a town in 1991, was declassified and was treated as an outgrowth of Pinjore urban agglomeration in 2001.

All this was concomitant with an impressive increase in the size of the urban population in the periphery zone. It multiplied 17 times from 27,494 in 1951 to 4,64,451 in 2001. By comparison, urban population in the Chandigarh Union Territory increased from 99,262 in 1961 to 8,08,796 in 2001, a rise by 8 times. Down the decades, a lack of uniformity is observed in the urban population increase in the city and in its periphery. In the periphery zone, the urban population grew by 1.4 times during 1951-71 and by 12 times during 1971-2001. In comparison, population of Chandigarh multiplied by 2.3 times during 1961-71 and 3.5 times during 1971-2001. Urban growth in the periphery zone has been predominant since 1971 (Table 1). The decade 1971-81 marked the peak in terms of urban growth rate. Since 1981, though the rate decelerated yet the absolute additions to urban population have been increasing over the successive decades.

The growth behaviour of towns since their emergence sheds an additional light to the process. Four towns existing before the

Chandigarh Periphery Zone Chronological Distribution of Towns 1951-2001

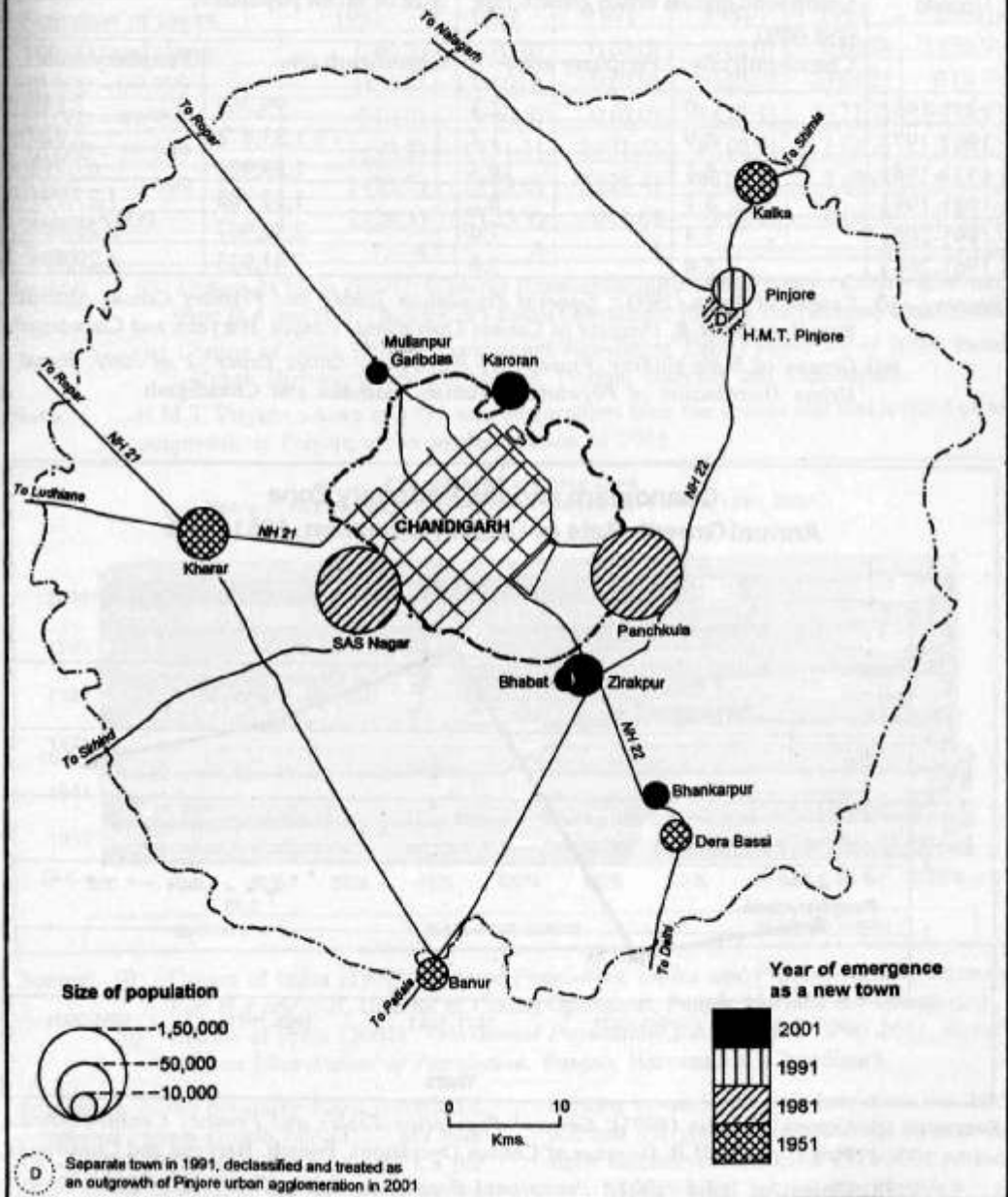
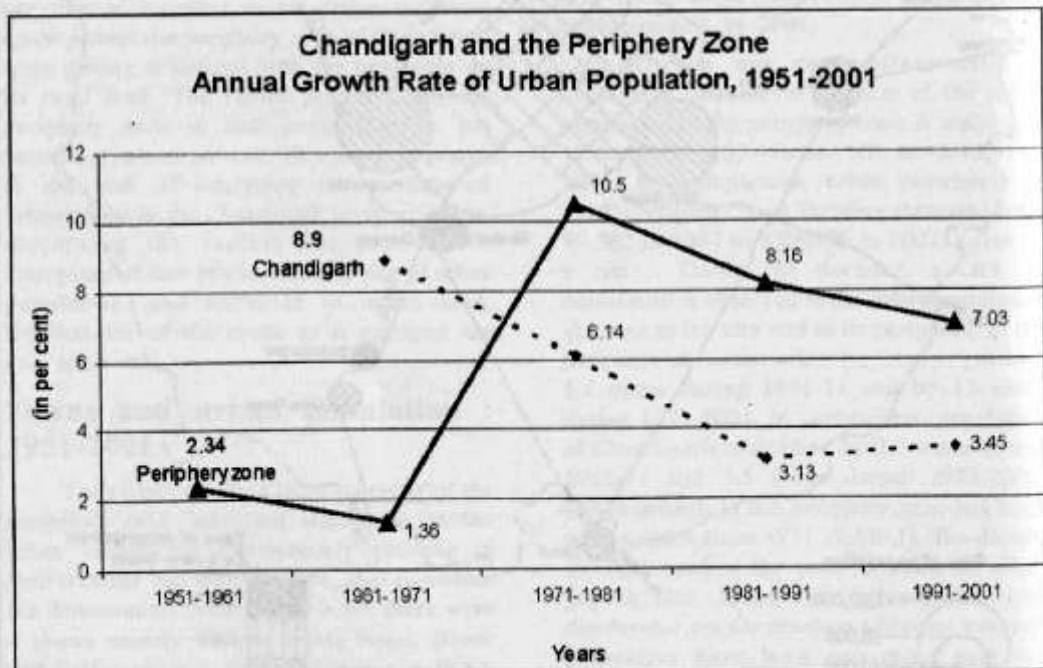


Table - 1

Growth of Urban Population in Chandigarh and its Periphery Zone, 1951-2001

Decade	Compound annual urban growth rate (per cent)		Size of urban population	
	Chandigarh city	Periphery zone	Chandigarh city	Periphery zone
1951-1961	0	2.3	99,262	7,149
1961-1971	8.9	1.4	1,33,678	5,020
1971-1981	6.1	10.5	1,89,901	67,713
1981-1991	3.1	8.2	1,52,988	1,27,991
1991-2001	3.4	7.0	2,32,967	2,29,084
1961-2001	5.4	5.8	7,81,033	4,29,808

- Source :** (i) Census of India (1991): *General Population Tables and Primary Census Abstract, Part II-A and II-B*, Director of Census Operations, Punjab, Haryana and Chandigarh.
(ii) Census of India (2001): *Provisional Population Tables Paper -2 of 2001, Rural - Urban Distribution of Population*, Punjab, Haryana and Chandigarh.



- Source :** (i) Census of India (1991): *General Population Tables and Primary Census Abstract, Part II-A and II-B*, Director of Census Operations, Punjab, Haryana and Chandigarh.
(ii) Census of India (2001): *Provisional Population Tables Paper -2 of 2001, Rural - Urban Distribution of Population*, Punjab, Haryana and Chandigarh.

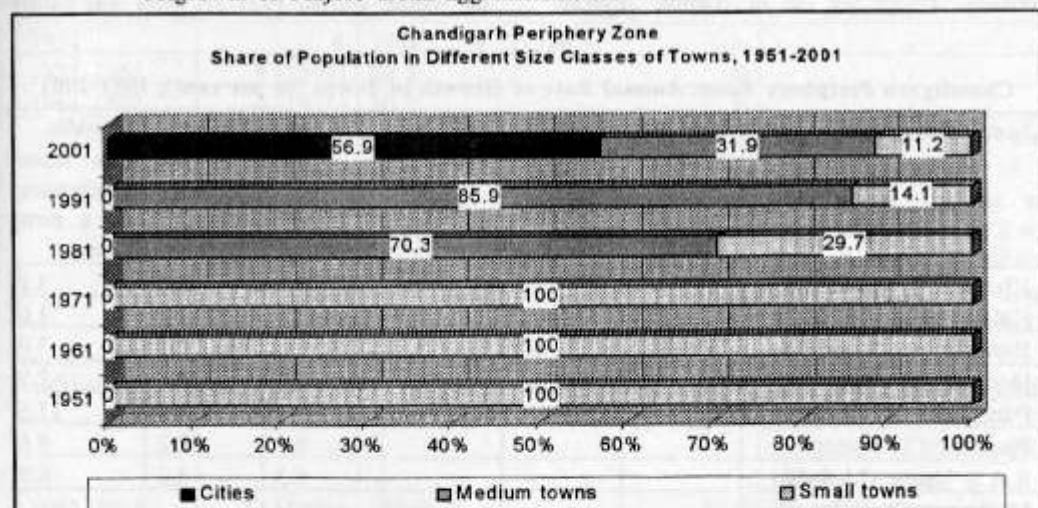
Table - 2
Number of Towns and Share of Population in each Size Class in Chandigarh Periphery Zone, 1951-2001

Size class of towns	1951	1961	1971	1981	1991	2001
100,000 and above	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (56.9)
50,000 – 99,999	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (63.2)	0 (0.0)
20,000 – 49,999	0 (0.0)	0 (0.0)	0 (0.0)	3 (70.3)	2 (22.7)	5 (31.9)
10,000 – 19,999	1 (52.2)	1 (51.1)	2 (71.6)	1 (10.5)	1 (4.2)	2 (6.6)
5,000 – 9,999	1 (23.7)	1 (23.0)	2 (28.4)	3 (19.2)	3 (9.9)	3 (4.6)
Below 5,000	2 (24.1)	2 (25.9)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total	4	4	4	7	8	12

Source: (i) Census of India (1991): *General Population Tables and Primary Census Abstract, Part II-A and II-B*, Director of Census Operations, Punjab, Haryana and Chandigarh.

(ii) Census of India (2001): *Provisional Population Tables Paper -2 of 2001, Rural -Urban Distribution of Population*, Punjab, Haryana and Chandigarh.

Note: J.H.M.T. Pinjore a town in 1991 was declassified after the census and was treated as an outgrowth of Pinjore urban agglomeration in 2001



Source: (i) Census of India (1991): *General Population Tables and Primary Census Abstract, Part II-A and II-B*, Director of Census Operations, Punjab, Haryana and Chandigarh.

(ii) Census of India (2001): *Provisional Population Tables Paper -2 of 2001, Rural -Urban Distribution of Population*, Punjab, Haryana and Chandigarh.

delineation of the periphery zone, recorded a compound annual growth rate of 2.7 per cent during 1951-2001. This rate was only 1.8 per cent during 1951-71. By comparison the compound annual growth rate of all the

existing towns in the periphery zone was 10.5, 8.2 and 7.0 per cent respectively during the three successive decades of 1971-2001 period.

Meanwhile the morphology of urbanization also underwent a dramatic

change. While up to 1971, the entire urban population was residing in small towns of population less than 20,000 each, in 2001, 56.9 per cent of urban population was concentrated in two towns of S.A.S. Nagar and Panchkula, each with a population exceeding 100,000 (Table 2). This marked beginning of a phase wherein even cities were now taking shape in the periphery zone.

Such developments were taking place and the envisaged rural character of the periphery zone was being violated mainly because the zone had been fragmented and divided among three different political dispensations of Punjab, Haryana and Union Territory of Chandigarh in 1966. The enforcement of the Periphery Control Act and the Controlled Area Plan became the responsibility of the respective states/union territory. Things got out of control. Punjab

planned the urban estate at Mohali, called Sahibzada Ajit Singh Nagar, in 1967 and Haryana followed with another planned urban estate at Panchkula in 1970. With their emergence, the urbanization process received a strong stimuli.

S.A.S. Nagar grew at the annual compound rate of 6.3 per cent and Panchkula at 20.1 per cent during 1981-91. In the following decade of 1991-2001, Panchkula grew annually at the rate of 7.2 per cent (Table 3). These two towns, located just adjacent to Chandigarh, render a feeling of continuum. The sectors in S.A.S. Nagar have been developed in such a way that these appear as an extension of Chandigarh. Panchkula also gives practically the same feeling.

An analysis of the growth behaviour of other urban centres in the Chandigarh periphery zone sheds an additional light on the theme. During 1951-71, there was hardly

Table - 3

Chandigarh Periphery Zone: Annual Rate of Growth of Towns (in per cent), 1951-2001

Name of the town	1951-61	1961-71	1971-81	1981-91	1991-01	Growth rate since emergence as a new town
Kharar	2.7	2.7	7.4	1.8	5.0	3.9
Kalka	2.5	-0.2	1.9	2.5	1.2	1.6
Banur	2.2	2.4	3.2	3.0	4.1	3.0
Derra Bassi	1.0	3.7	2.5	2.6	5.0	2.9
Panchkula				20.1	7.2	13.5
Pinjore				8.9	8.2	8.6
S.A.S. Nagar (Mohali)				6.3	4.6	6.9
Mullanpur-Garibdas						-
Karoran						-
Bhabat						-
Zirakpur						-
Bhankarpur						-

Source : (i) Census of India (1991): *General Population Tables and Primary Census Abstract, Part II-A and II-B*, Director of Census Operations, Punjab, Haryana and Chandigarh.

(ii) Census of India (2001): *Provisional Population Tables Paper -2 of 2001, Rural -Urban Distribution of Population*, Punjab, Haryana and Chandigarh.

any change in annual growth rate of Kharar and Banur towns. Kalka town was also stagnating; its population marked a decrease during 1961-71. All this was happening under the shadow effect of the city of Chandigarh. The effect persisted until the governments changed their role and started exploiting the zone by making liberal interpretation of the rules framed to protect the rural character of the periphery zone.

As it emerges, the government itself has proved to be the violator of its own rules. The

creation of Panchkula and S.A.S. towns are a violation of the Periphery Control Act. In fact, a large number of structures have come up both in the towns and villages in the periphery zone in violation of the Act. Above all, the Punjab government regularized the unauthorized structures, which had come into existence prior to 9th December, 1998.

Increase in urban area

The increase in area under urban settlements was a natural corollary of the rapid process of urbanization in the periphery zone.

Table - 4
Chandigarh Periphery Zone: Increase in Urban Area, 1951-2001

Year/decade	Number of towns	Urban area (in sq. km.)	Increase in urban area during the decade (in sq. km.)	Remarks
1951	4	10.2	-	-
1951-1961	4 (1961)	10.2	0	-
1961-1971	4 (1971)	10.2	0	-
1971-1981	7 (1981)	41.4	31.1	This area increase was due to emergence of 3 new towns (having an aggregate area of 26.2 sq. km.) and territorial extension of all four existing towns by 4.92 sq. km.
1981-1991	8 (1991)	51.9	10.5	The area increase was primarily due to expansion of the existing towns
1991-2001	12 (2001)	138.9	87.0	Physical expansion and emergence of new towns were equally responsible for accelerating the process of urbanization.
2001	12			

- Source:** (i) Census of India (1991): *General Population Tables and Primary Census Abstract, Part II-A and II-B*, Director of Census Operations, Punjab, Haryana and Chandigarh.
(ii) Census of India (2001): *Provisional Population Tables Paper -2 of 2001, Rural -Urban Distribution of Population*, Punjab, Haryana and Chandigarh.

as discussed above. During 1961-2001, the urban area of Chandigarh increased from 32.4 sq. km. to 79.2 sq. km., a rise by almost 2.5 times. During the same period urban area in the periphery zone shot from 10.2 sq. km. to 138.9 sq. km. an almost 14 times increase. The urban area of Chandigarh in 1961 was three times bigger than its periphery zone. The situation got reversed over time. In 2001, urban area in periphery zone became 1.7 times of that of the city. Table 4 provides a summary picture of decadal increase in urban area in the periphery zone, along with a statement of the associated factors. It is observed that the urban area did not experience any change up to 1971. Subsequently, it marked an extension, at an accelerating pace over the successive decades. The extension of territorial jurisdiction of the existing towns, in addition to, the emergence of new towns determined this process. In ultimate analysis, change in urban area has been both a cause and effect of the urbanization in the periphery zone.

Urban settlements adjacent to Chandigarh

were noted for bigger gains in their area. Punjab government increased the area of S.A.S. Nagar by almost 2 times, from 12.4 sq. kms. in 1981 to 25 kms. in 2001 (Table 5). On similar lines, Government of Haryana increased the area of Panchkula by almost 2.5 times, from 10.4 sq. kms. in 1981 to 25 sq. kms. in 2001. There was no pressure of population calling for immediate physical expansion of these two towns. The two governments developed new sectors in their respective cities as a lucrative proposition through land sales. They acquired land at a low price and sold at exorbitant prices.

Emergence of new planned towns adjacent to Chandigarh was an important factor underlying the increase in urban area in the periphery zone. Equally critical was the factor of escalating land values and the rents in Chandigarh, gave a fillip to this process, which is still not over. Both the towns are still physically expanding at a fast pace, by way of encroachment on the adjacent area.

Table - 5

Chandigarh Periphery Zone: Change in Area of the Individual Towns, 1951-2001

Name of town	Area (in sq. km.)					
	1951	1961	1971	1981	1991	2001
Banur	5.8	5.8	5.8	4.5	4.5	7.0
Kalka	2.8	2.8	2.8	3.4	3.4	3.4
Derri Bassi	0.8	0.8	0.8	3.1	3.1	20.0
Kharar	0.7	0.7	0.7	4.2	4.2	5.0
S.A.S. Nagar (Mohali)				12.4	16.7	25.0
Panchkula				10.4	15.2	25.0
Pinjore				3.4	4.8	7.0
Karoran						15.0
Zirakpur						11.4
Mullanpur - Garibdas						8.5
Bhankarpur						5.9
Bhabat						5.7

Source: (i) Census of India (1991): *General Population Tables and Primary Census Abstract, Part II-A and II-B*, Director of Census Operations, Punjab, Haryana and Chandigarh.

(ii) Census of India (2001): *Provisional Population Tables Paper -2 of 2001, Rural -Urban Distribution of Population*, Punjab, Haryana and Chandigarh.

In addition to the S.A.S. Nagar and Panchkula towns, other towns also recorded a somewhat similar experience. The area of Kharar town, which remained static at 0.7 sq. km. till 1971, increased to 4.2 sq. km. in 1981 and almost to 5 sq. km. in 2001 (Table 5). Similar increase, from 0.8 sq. km. in 1951 to 3.1 sq. km in 1981 and 20 km in 2001 was noted in the case of Derra Bassi. The area of Kalka town increased from 2.8 sq. km. in 1971 to 3.4 km. in 1981.

Initially, land colonization in peripheral area of these towns takes place. A large chunk of agricultural land gets urbanised and subsequently is legally brought within the existing boundaries of these towns. Large-scale speculation of land around the towns has become a common phenomenon. The stakeholders include primarily the influential politicians, bureaucrats, and other such public figures. Villages located along the major roads radiating out from Chandigarh are sought after, in particular.

The Government of Punjab, in 1995 had proposed to raise a New Chandigarh, just adjacent to the city in the northwest. It was to be a massive acquisition of rural land for development on planned lines. The process had started but the proposal was withdrawn in response to a stiff resistance from the villagers who were to be affected by such a move. This would have transformed the rural character of the periphery altogether. However, this would have, of course, checked the unplanned urban growth in the periphery zone (G. Krishan, 2003).

Conclusion

Despite the legal provisions to retain the rural character of the periphery zone, the process of urbanization has been rapid herein.

The year 1966, when Chandigarh Union Territory was carved out as a separate political entity at the time of the reorganisation of Punjab was critical in this respect. It fragmented the designated periphery into three subzones under Punjab, Haryana and Chandigarh itself.

In 1981, three new towns, in addition to the four already existing emerged in the periphery zone as a result of which urban population increased from 27,494 in 1951 to 1,07,376 in 1981; and urban area got extended from 10.23 to 42.0 sq. km. during this period. The process got accelerated further and by 2001, the periphery had as many as 12 towns/urban agglomeration covering an aggregate area of 140 sq. km.. As such, the rapid pace of urbanization in the periphery zone could be attributed to emergence of new towns, physical expansion of the existing towns, besides the rapid increase of the urban population in the existing towns.

The growth behaviour of the urban population in the periphery zone has been opposite of that of Chandigarh. In the initial years, Chandigarh was having a shadow effect on growth of towns in its periphery but its own growth rate was rapid. Since 1981, however, the annual urban growth rate of periphery zone was more than 2.5 times of that of the city. The city was now having spread effect.

A time has come when the haphazard growth in the periphery zone should be regulated by way of preparing its perspective land use plan for the year 2020, to begin with. This requires a coordinated effort on the part of three governments of Punjab, Haryana and Chandigarh. In absence of this, the undesired violation of the Periphery Control Act will continue.

References

- Census of India (1991)** : *General Population Tables and Primary Census Abstract, Part II-A and II-B*, Director of Census Operations, Haryana, Punjab, Chandigarh
- Census of India (2001)**: *Provisional Population Tables Paper -2 of 2001, Rural -Urban Distribution of Population*, Directors of Census Operations, Punjab, Haryana and Chandigarh
- Census of India (1991)**: *District Census Handbook, Village and Townwise Primary Census Abstract, Chandigarh, Series-28*, Director of Census Operations, Chandigarh
- Census of India (1991)**: *District Census Handbook, Village and Townwise Primary Census Abstract, Series-28, Patiala*, Director of Census Operations, Punjab
- Census of India (1991)** : *District Census Handbook, Village and Townwise Primary Census Abstract, Series-28, Rupnagar*, Director of Census Operations, Punjab
- Evenson, Norma (1966)**: *Chandigarh*, University of California
- Kalia, Ravi (1988)**: *Chandigarh: The Making of An Indian City*, Oxford University Press, New Delhi
- Krishan, G. (2002)**: "Has Chandigarh Periphery become a Peripheral Issue?", *Town and Country Planning Congress*, 2002, pp. 207-209
- Krishan, G. (1999)**: *Inner Spaces, Outer Spaces of a Planned City: Thematic Atlas of Chandigarh*, Chandigarh Administration, Chandigarh
- Sarin, Madhu (1982)** : *Urban Planning in the Third World: The Chandigarh Experience*, Mansell Publishing Limited, London
- Town & Country Planning Organisation (1982)** : *Inter State Chandigarh Region, Ministry of Works and Housing*, Govt. of India, New Delhi
- Vimal, Bindiya (1994)** : *The Planned City of Chandigarh: A Geographical Appraisal*, An unpublished doctoral thesis submitted to Panjab University, Chandigarh

MAP SERIES : 9**WOMEN IN HIGHER EDUCATION IN INDIA****GOPAL KRISHAN****Chandigarh, India**

Higher education, that is education beyond school level and based in universities, colleges, training centres and research institutions of all variety, is a vital agent of economic development, social transformation and ecological management. It is an essential input to raising of production capacity, professional capability, technical skill and cultural vibrancy of any society. Political maturation and governance upgradation are no less subject to the quality of higher education. Above all, the quality of education at the elementary and secondary levels is contingent upon the quality of higher education.

Whether the above listed outcomes of higher education can be realised faster through men or women is a moot question. What is beyond dispute is the fact that 'higher education' is a strong criterion for any assessment of the status of women. Gradually it is now emerging more as a cause rather than effect of the development process. Map Series 9 is devoted to identification of areal differences in India on this count.

Of the 88.2 million students in the institutions of higher education in India, 35.1

million or 39.8 per cent were women in 2001. This gave ratio of 100:66 between men and women in higher education; a distinct rise from the comparable ratio of 100:14, in 1951. Notably ratio between literate males and females was also 100:66 in 2001. Education is evidently a self-propelling process.

A wide range is observed between the percentage share of women enrollment in higher education from the highest of 60 in Kerala to the lowest of 23 in Bihar. Among the states, Goa and Punjab, besides Kerala, and Andaman and Nicobar Islands, Chandigarh and Pondicherry, among union territories, carry the distinction of having women in majority in higher education. The share of women in higher education lies between 37.5 to 50 per cent in states located in the south and west as well as in north-east of India. Comparatively, the lowest percentages are observed in the northern and central mainland states and in the coastal state of Orissa. What is notable is that the percentage share of women in higher education in the low literacy states is not that low as much one may expect. A clear inference is that the society here is highly structured wherein spread of higher education among

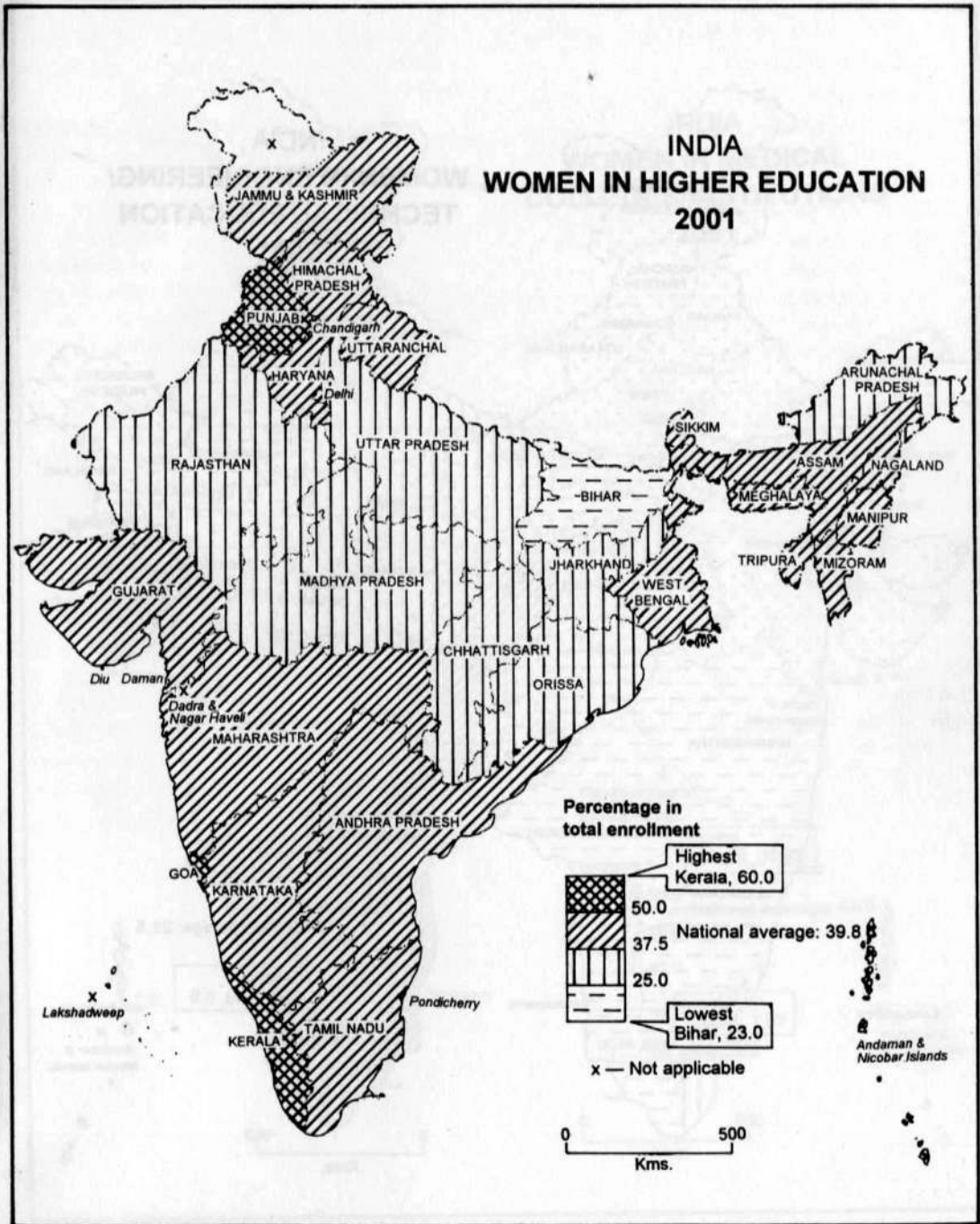
Table - 1
India : Women in Higher Education, 2001-02

State/ Union Territory/ India	Percentage in women students in		
	Universities/ colleges/institutions*	Engineering/ technical courses	Medicine courses
States			
Kerala	60.0	30.5	54.7
Goa	58.6	25.9	61.1
Punjab	52.9	19.1	55.97
Meghalaya	47.9	12.5	43.8
Jammu & Kashmir	47.0	11.3	38.2
Mizoram	46.7	**	98.5
Tamil Nadu	44.9	24.7	55.1
Gujarat	44.3	17.5	44.2
Manipur	44.3	20.2	30.3
Himachal Pradesh	42.7	13.5	48.1
Maharashtra	40.9	21.1	46.0
Tripura	40.8	35.5	11.8
Assam	40.5	10.9	36.1
Haryana	40.5	16.0	37.7
Sikkim	40.3	16.8	.*
Uttaranchal	40.0	12.4	29.1
Karnataka	39.9	23.2	45.5
West Bengal	39.3	9.8	28.1
Andhra Pradesh	39.1	28.6	45.5
Nagaland	38.7	-	-
Madhya Pradesh	37.0	17.6	38.6
Chhattisgarh	36.5	17.3	40.7
Uttar Pradesh	35.4	12.8	31.9
Orissa	34.6	18.6	23.7
Rajasthan	32.6	11.4	24.3
Jharkhand	30.5	6.8	33.8
Arunachal Pradesh	29.7	13.5	**
Bihar	23.0	11.8	20.2
Union Territories			
Andaman & Nicobar Islands	57.8	-	-
Chandigarh	55.5	24.9	57.3
Pondicherry	52.6	28.8	46.8
Daman & Diu	47.0	-	-
Delhi	45.8	15.0	45.0
Dadra & Nagar Haveli	-	-	-
Lakshadweep	-	-	-
INDIA	39.8		

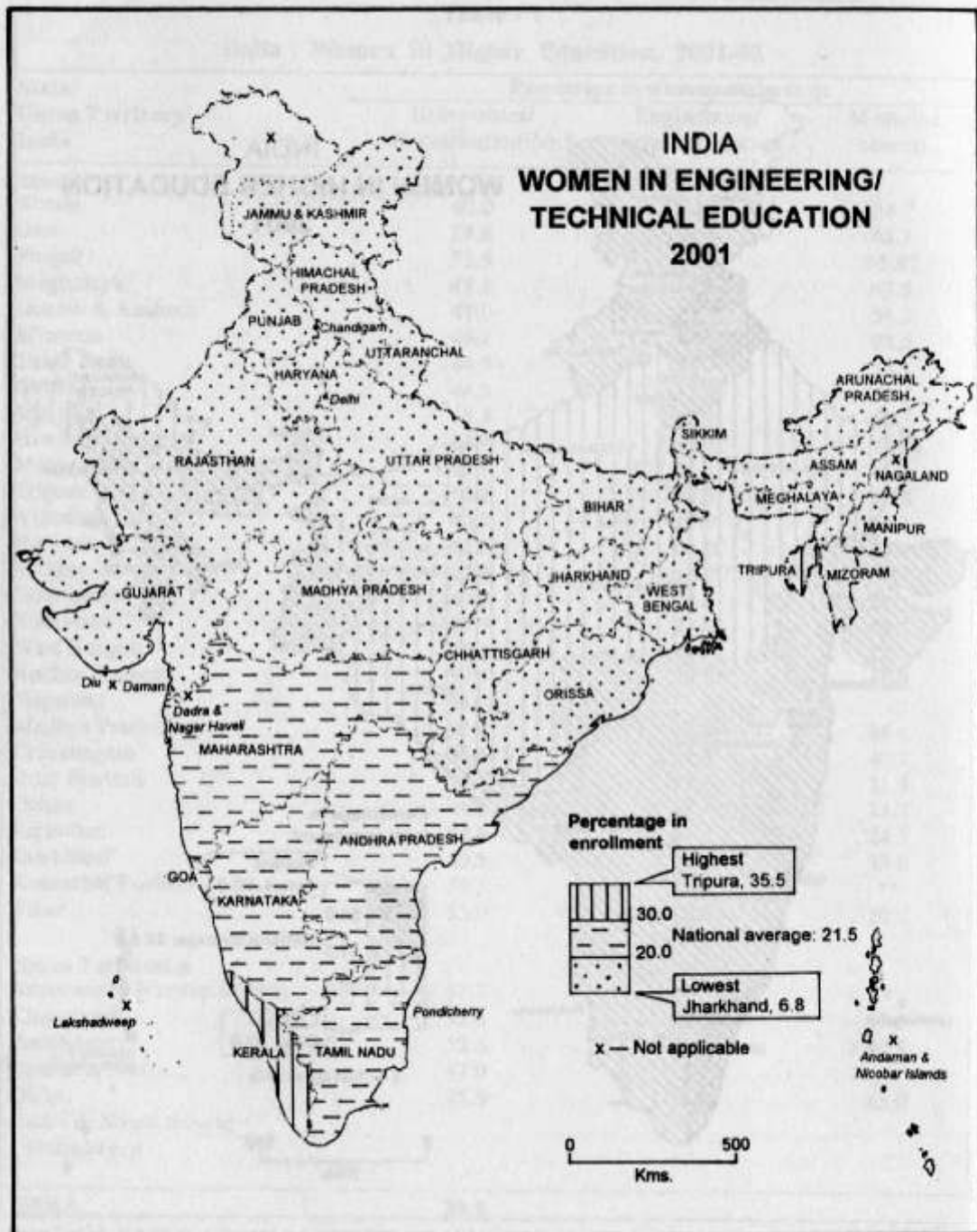
Source : India: Statistical Abstract, 2002, Ministry of Statistical and Programme Implementation, New Delhi, 2003.

* States/union territories are arranged in descending order of the women enrollment in universities/colleges.

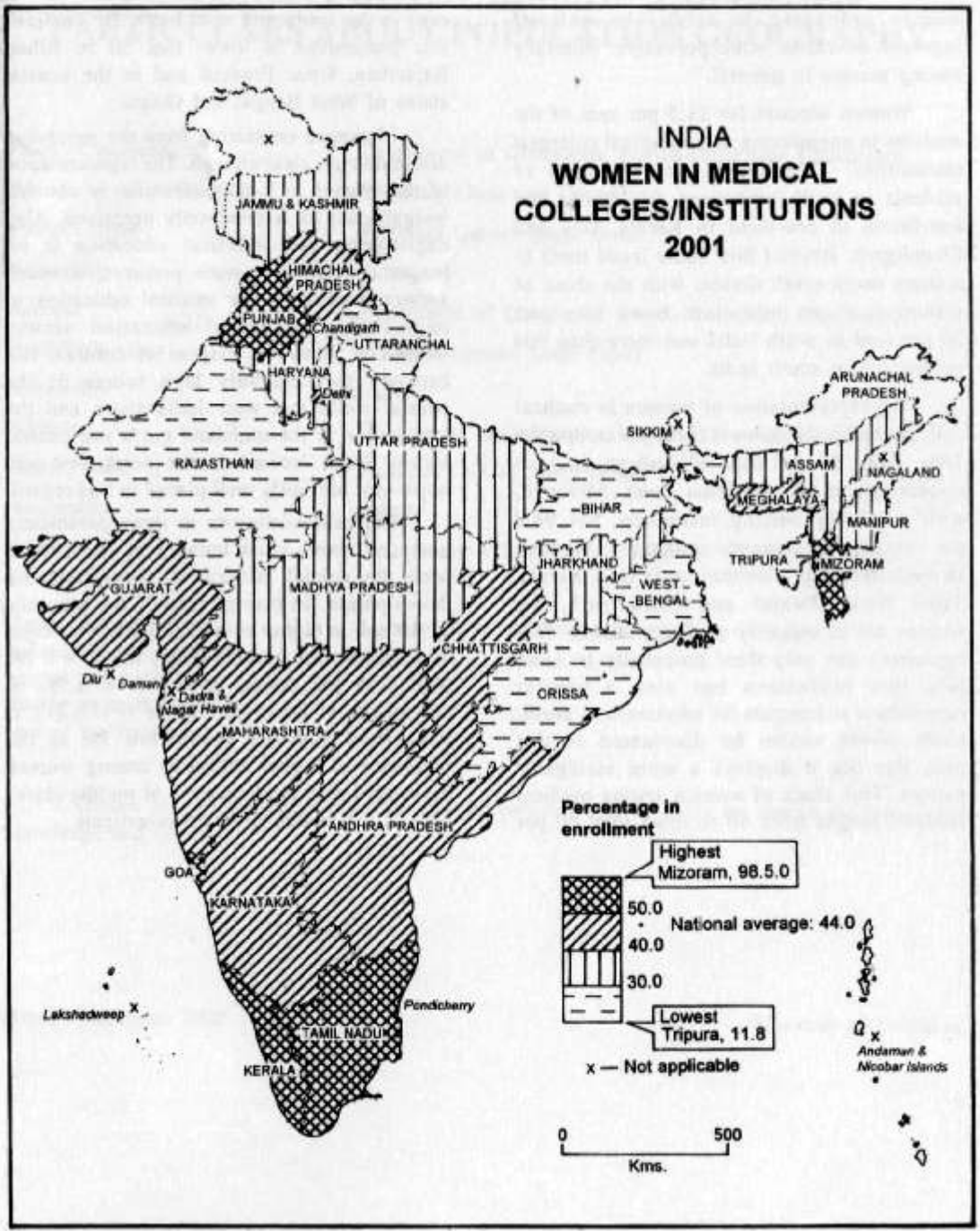
** denotes 'not applicable', because of the absence of any specialised college or institution



Map 1



Map 2



Map 3

women belonging to relatively well-off segment co-exists with pervasive illiteracy among masses in general.

Women account for 21.5 per cent of the students in engineering and technical colleges/institutions. They make over one-third of students in such institutions in Tripura and one-fourth to one-third in Kerala, Goa and Chandigarh. Beyond this, India lends itself to a sharp north-south divide, with the share of women in these institutions being less than 20 per cent in north India and more than this percentage in south India.

The representation of women in medical colleges and institutions is certainly creditable. They make 44 per cent of students in such institutions at the all India level. Mizoram, with a solitary nursing institution, has 98.5 per cent of this category students as women. In medical colleges/institutions in Goa, Kerala, Tamil Nadu, Punjab and Chandigarh, the women are in majority among students. This represents not only their propensity to enter into this profession but also a greater competence to compete for admission. A north-south divide cannot be discounted in this case also but it displays a more variegated pattern. This share of women among medical students ranges from 40 to more than 60 per

cent in the south and west India. By contrast, this percentage is lower than 30 in Bihar, Rajasthan, Uttar Pradesh and in the coastal states of West Bengal and Orissa.

Messages emanating from the preceding discussion are clear enough. The representation of the women in higher education is not that insignificant as is commonly perceived. Also engineering and technical education is no longer an exclusive male preserve. A much greater preference for medical education to engineering/ technical education among women is, however, evident. A contrast lies between the relatively high scores of the coastal south and west India states and the low scores of the mainland north and central states. States located in the north-west and north-east are fairly well placed in this regard.

Regional variations in three parameters analysed above exist broadly in consonance with the spatial pattern of socio-economic development. In precise terms, the presence of women in higher education finds a stronger correlation with female literacy rate ($r = 0.79$) than with per capita income ($r = 0.58$) or percentage of urban population ($r = 0.51$), if state level data are used. How far is the incidence of higher education among women associated with the formation of middle class? This is a research point to investigate.