

Chapter III

EXISTING PATTERN OF URBANISATION IN RELATION TO RURAL DEVELOPMENT: A DISTRICT-LEVEL ANALYSIS

Urbanisation, representing the “geographical manifestation of economic development and growth”¹(Bryant, 1982, p.6), is identical with the complete transformation of human habitat from rural to urban. Urban structure is the outflow of modernisation, while the rural structure is largely a survival of traditional society. Scholars consider urbanisation “as a finite process, a cycle through which nations go in their transition from agrarian to industrial society (Rao et al.2004; Davis, 1972 referred in Pradhan, 2005).”² Urban centres are the think-tanks of progress in economic, social and cultural arena, wherefrom the impulses of development trickle down to marginal and distant less advanced areas. Hence, urbanisation is contemplated as an index of development for a region as a whole. “Cities are the prime places for creating wealth. They provide the basic infrastructure for economic growth and social transformation...”³(UNDP, 1990, p. 90). Thus, increasing urbanisation may ideally be conceived as a balancing mechanism between an urban core and its rural peripheries which has as its aim the development of rural neighbours. According to Dasgupta, “Urban development to be effective, has to maintain a certain harmony with development in the rural hinterland”⁴(Dasgupta, 1987, p. 276)

3.1 Concept of Rural Development

As people must be at the centre of all development, the underlying concept of rural development is ‘a strategy designed to improve the economic and social life of a specific group of people—the rural poor’ (World Bank, 1975a, 3)⁵. The axis of rural development rotates on poverty alleviation which in turn depends on increasing production, employment generation, mobilisation of available land, labour and capital, improving the level of physical infrastructure and upgrading the quality of life of rural populace.

Rural development as a concept and as an experiment has a long history. Great thinkers like Gandhi, Mao Zedong, academicians and social scientists, international agencies (FAO, ILO, UN and others) emphasised the need for rural development especially in developing countries with these aims in view:

1. To raise the levels of life sustenance, human dignity and freedom in rural areas, generation of income and employment opportunity in rural areas is essential so that rural labour be utilised, development stimulated and rural-urban migration can be arrested.
2. Eradication of widespread unemployment and syndrome of poverty in consequence of accelerated population growth.
3. To draw the attention of the reformists to the plight of marginal farmers and landless labourers.

The formulation of the concept of rural development has led to the emergence of the thought of 'integrated rural development', which illustrates a multipurpose thrust to rural planning. It is a comprehensive scheme which in Gandhi's and Mao's conception provides for an organic integration aiming at ensuring the fulfilment of the basic needs of food, clothing, shelter, education, health, employment etc.

It is in this context that the question of rural development processes is integrated with that of urban development; for, rural economy is not a closed system, and the functions of rural ecosystems are symbiotically linked with that of urban environment. Accordingly, planning of rural development must be in cohesion with urban planning or urban planning should include rural planning in its formulation. The seventh five year plan makes it clear that rural development should get priority over urban problems.

Thus, the process of urbanisation is expected to contribute to rural development of the respective regions.

Keeping in mind the above ideal, the present chapter concentrates on the association between urbanisation and rural development in different districts of West Bengal in the light of the following *postulate*:

3.2 Hypothesis

The greater the magnitude of urbanisation, the higher will be the rural development in the district concerned and thus urbanisation has a positive impact on rural development.

3.3 Methodology

To have comprehensive pictures of urbanisation and rural development, two composite indices have been worked out which have been designated as the '*Index of Effective Urbanisation*' and the '*Index of Rural Development*'. Here, effectiveness in view of urbanisation means the combined interplay of some indicators (specified hereafter) representing the magnitude of urbanisation in the context of rural development. Reference, in this regard may be cited from Parveen⁶ (Parveen,2005, p. 73), who has used the expression 'effective urbanisation' in a different sense. Similarly, the '*Index of Rural Development*' refers to the combined function of the indicators (mentioned hereafter) representing various socio-economic, demographic and infrastructural facets of rural areas.

For constructing composite indices, the method of first principal component has been used as the weights of the standardised variables to create two new variables, i.e., '*Index of Effective Urbanisation*' (EUI) and '*Index of Rural Development*' (RDI). Thus, EUI and RDI may be respectively expressed as follows:

EUI (X)= $W_1*x_{s1}+...W_n*x_{sn}$ [W: weight or scores of first principal component, $x_{s1}...x_{sn}$ = standardised variable of $x_1...x_n$]

RDI (Y)= $W_1*y_{s1}+...W_n*y_{sn}$ [$y_{s1}..y_{sn}$ = standardised variable of $y_1...y_n$]

To find out the causal relationship between urbanisation and rural development, Pearson's product moment correlation(r) and Spearman's Rank Correlation (ρ) have been computed between the index of effective urbanisation and the index of rural development. Taking the index of rural development as the dependent variable and the index of effective urbanisation as the independent variable, regression coefficient has been worked out to understand the impact of urbanisation on rural development.

The values of composite indices have been represented cartographically on map with the help of choropleth technique. The values of rural development index have been superimposed on the values of effective urbanisation index to have a visual understanding of their relationship.

The indicators selected for measuring the extent of urbanisation are as follows:

1. Percentage of urban population to total population (x_1),
2. Urban-Rural ratio (in percentage) (x_2),
3. Rate of Urbanisation (in percent) (x_3),
4. Urban centres per 10, 00,000 rural populations (x_4),

5. Town Density (Urban settlements per 1000 sq. km.) (x_5),
 6. Percentage of class I cities to total urban settlements (x_6).
 7. Urban population density (per sq.km) (x_7),
 8. Decadal growth rate of urban population (x_8),
- Among these, variables x_1, x_2, x_3, x_4, x_5 have been considered for principal component analysis to compute the index of effective urbanisation (EUI).

The index of rural development (RDI) has been computed with the help of the indicators mentioned as follows. As data on all aspects (considered in 1991) are not yet published for 2001, the RDI for 2001 has been based on lesser number of variables.

The indicators chosen to identify rural development for 1991 are as follows:

1. Rural Population Density (per sq.km) (y_1)
2. Rural Female Literacy Rate (per cent) (y_2)
3. Rural Work Participation Rate (per cent) (y_3)
4. Agricultural labourer/Cultivator Ratio (per100) (Rural) (y_4)
5. Percentage of Rural Workers in Non-agricultural activities (y_5)
6. Percentage of Rural Male main workers in Secondary Activities (y_6)
7. Percentage of Rural Male main workers in Tertiary Activities (y_7)
8. Percentage of Rural Households occupying permanent houses (y_8)
9. Number of PHC s per one lakh rural population (y_9)
10. Percentage of Rural households with Toilet, Electricity, Safe Drinking Water (y_{10})
11. Percentage of villages with Communication (y_{11})
12. Percentage of villages with Power supply (y_{12})

The indicators aggregated to form the RDI for 2001 are as follows:

1. Rural Population Density (per sq km) (y_1)
2. Rural Female Literacy Rate (in percentage) (y_2)
3. Percentage of Rural Workers in non-agricultural activities (y_3)
4. Percentage of Rural Male main workers in Secondary and Tertiary Activities (y_4)
5. Percentage of Rural Household with Electricity (y_5)
6. Percentage of Rural Households with Toilet (y_6)
7. Percentage of Rural Households occupying permanent houses (y_7)
8. Percentage of factories, workshop, and work shed to occupied census houses (Rural) (y_8)

To investigate temporal changes, the analysis has been carried out both for 1991 and 2001 data. But to understand the trend of urbanisation the growth rates (for urban and rural areas) have been calculated for the consecutive five decades from 1951-2001.

The Evolution of Urban landscape in West Bengal and its Contour across the districts

The legacy of urbanisation in West Bengal may be traced to the state's pre-colonial era. During the pre-colonial days, trading centres, army camps, places of pilgrimage or the location of royal courts developed as towns. Some of the largest urban centres, such as Tamralipta, Saptagram, Chattogram and Dhaka were port towns. Murshidabad (the then capital), Maldah, Dhaka (old capital), Hugli, Cossimbazar etc. grew to facilitate textile trade with the patronage of foreign interests. Villages had a large concentration of textile production. The factories of Dhaka and Murshidabad produced luxury pieces for the nobles and the foreign market. "The level of urbanisation was high by the standards of time, some of the largest urban centres, such as Dhaka or Murshidabad, compared favourably with cities like London and Paris in population size."⁷(Dasgupta, 1987, p.277)

The colonial invasion of Bengal brought about a massive demolition of textile and other rural industries and thus a consequent de-urbanisation, de-industrialisation and disintegration (collapse) of urban economic base led to village-ward migration and urban depopulation. The population pressure on rural areas caused decline in rural economy all the more. As specified by Madan, the reasons for the decline of urban handicrafts were: "(1) disappearance of indigenous courts; (2) new tastes of the ruling classes for foreign and machine-made goods; (3) deliberate policy of the (British) Government to import raw material from India and to put tariffs on Indian made goods imported in England as against duty free goods imported from England to this country; (4) competition from cheap machine made goods manufactured on large scale; (5) less cost of transportation of foreign made goods due to revolution in transport system and specially after the opening of Suez Canal in 1869; (6) too rapid construction of railways which did not allow the artisans to adapt to new circumstances and (7) laissez-faire policy of the government which did not lend any helping hand to the struggling handicrafts."⁸ (Madan, 1983,p.30). Unemployment in the urban areas was the net result of the decline of urban handicrafts, which was accompanied by urban exodus to the

rural areas leading to “further ruralisation”⁹(Madan, 1983) and pressure on rural resources.

In these circumstances, a new pattern of urbanisation emerged serving the interests of the colonial economy. Certain urban pockets were developed centring round jute factories along the Ganga near Calcutta (Kolkata), the railway towns, coal and tea plantation towns and the rural ‘kuthis’ or factories engaged in different activities around such commercial crops as indigo, opium, mulberry etc aiming at export oriented production having few linkage with the local demands. These transplanted urban enclaves, sustained from external links, were dissociated from the rural hinterlands. (Unlike these industrial towns, the already existing administrative and trading towns, whose growth was also encouraged by the British policies, could protract their linkages with rural areas.) During this regime, Calcutta (Kolkata), the seat of colonial administration and the centre of colonial trade, experienced phenomenal growth from an utterly rural setting, because of the growth of infrastructure, trade and concentration of population.

Thus, this colonially-induced rootless urbanscape, which eventually evolved in West Bengal, became structured in a mono-nuclear system with Calcutta (Kolkata) in its centre, barring which a few towns originated along Durgapur-Asansol belt to fulfil the colonial industrial demands. But, the rest of the state witnessed stagnant agriculture, outright negligence and backwardness leading to rural push of huge masses and thus playing negative role in urban growth.

In this milieu, the country experienced independence. In 1951, shortly after independence, the level of urbanisation in West Bengal was 23.88%, which was above the national average (17.29%), though it ranked fourth preceded by Maharashtra, Gujarat and Tamilnadu. Henceforward, urban population (%) grew sluggishly till the recent time (2001) and accordingly the level of urbanisation has been low throughout the period, (despite the fact that it is higher than the national average) though the urban scene has been dominated by Calcutta (Kolkata) and few urban places in Barddhaman District. It is thus that the two significant features i.e., 1) the low level of urbanisation and 2) the high concentration of urban population in the primate city of Calcutta (Kolkata) shaped the state’s portrait of urbanisation to be asymmetrical as a whole. Although the predominance of Calcutta (Kolkata) declined subsequently because of the growth of Siliguri in the north and other small and medium towns, yet the present pattern of urbanisation in this state reveals an inequitable distribution.

The nature of urbanisation across the districts has been analysed through various parameters depicted in Table 3.1

3.4.i Percentage of Urban Population

The percentage of urban population to total population is one of the basic indicators to reflect the underlying dynamics of urbanisation as it assesses the levels of urbanisation. It reflects the on-going process of technological development, pace of industrialization and changes in the agrarian structure of the economy over a considerable period of time. “Thus, it is a cumulative and causative index of recording all pull and push factors operative in urban and rural areas respectively”¹⁰(Parveen, 2005, p.62). It depicts the proportionate allocation of population residing in urban areas to that of the total population.

The percentage of urban population in West Bengal was 27.48 and 28.03 in 1991 and 2001 respectively which are slightly above the national average but below that of six states.

It has been noticed that in terms of percentage of urban population, the district of North 24 Parganas is the most urbanised (after Kolkata) where more than half the population is urban, i.e., 51.23% and 54.3% in 1991 and 2001 respectively while Maldah with just 7% urban population is the least urbanised. Among the other districts, Haora, Barddhaman, Hugli, Darjiling have high ratio of urban population. The share of urban population in these six districts (including Kolkata) out of 18 districts is more than the state average. Excepting Darjiling in North Bengal, the rest viz., Barddhaman, Hugli, Haora, North 24 Parganas are situated within a maximum of 100km distance from Kolkata. “This mono-centric urban development in and around Kolkata... is a feature of urbanisation in WestBengal”¹¹ (Chatterjee, 2003). Because of the growth of Siliguri town, the proportion of urban population in Darjiling district has swelled largely.

Table: 3.1

INDICATORS OF URBANISATION IN DIFFERENT DISTRICTS: 1991 and 2001

Districts	Urban Population (%)		Urban-Rural Ratio (%)		Rate of Urbanisation (%)		Urban Centres/ 10,00,000 Rural Population		Town Density (Urban Centres/ 1000 sq.km)		Percentage of class I Towns to total urban settlements		Urban Population Density /sq.km	
	1991	2001	1991	2001	1991	2001	1991	2001	1991	2001	1991	2001	1991	2001
Darjiling	30.47	32.34	43.82	47.80	41.37	40.22	9.96	8.29	2.86	2.86	11.11	22.22	5717	6918
Jalpaiguri	16.36	17.84	19.56	21.72	25.1	24.75	6.40	5.72	2.41	2.57	6.67	12.50	2915	5013
Koch Bihar	7.81	9.10	8.46	10.01	11.82	18.22	4.50	4.44	2.66	2.95	.00	.00	5648	5458
Uttar Dinajpur	13.34	12.06	15.39	13.71	25.83	7.61	2.99	3.26	1.60	2.23	20.00	14.29	6382	6638
Dakshin Dinajpur	13.35	13.10	15.40	15.07	9.65	11.97	2.89	1.53	1.35	.90	33.33	50.00	7817	8672
Maldah	7.07	7.32	7.61	7.91	14.76	8.33	1.63	1.64	1.07	1.34	25.00	20.00	8985	9497
Murshidabad	10.43	12.49	11.64	14.27	14.23	21.16	4.24	5.65	3.38	5.45	5.55	3.45	4635	5685
Birbhum	8.98	8.57	9.87	9.37	12.18	6.28	3.01	2.18	1.54	1.32	.00	.00	3801	5170
Bardhaman	35.09	36.94	54.05	58.57	54.87	50.19	15.53	15.18	8.68	9.40	8.20	7.58	3179	3183
Nadia	22.63	21.27	29.25	27.02	26.12	14.27	9.06	6.99	6.87	6.37	7.41	12.00	3856	4661
North 24 Parganas	51.23	54.30	105.3	118.80	51.87	67.82	16.61	11.76	14.41	11.72	23.73	46.00	8558	9710
Hugli	31.19	33.47	45.32	50.32	38.57	47.98	12.01	11.93	11.43	12.70	16.67	22.50	7919	8489
Bankura	8.29	7.37	9.04	7.95	11.91	.71	2.72	1.69	1.02	.73	14.29	20.00	2991	3826
Puruliya	9.44	10.07	10.42	11.20	11.66	14.56	4.96	5.26	1.60	1.92	.00	8.33	3009	3218
Medinipur	9.85	10.24	10.93	11.41	15.62	12.74	2.93	2.43	1.56	1.50	13.64	14.29	2279	2554
Haora	49.58	50.36	98.33	101.46	66.9	55.73	25.0	25.00	32.04	36.13	6.38	5.66	8600	9816
South 24 Parganas	13.30	15.73	15.35	18.67	17.64	27.34	8.48	3.61	4.22	2.11	.00	9.52	4646	6140
West Bengal	27.48	28.03	37.89	38.83	31.57	30.75	7.74	6.51	4.30	4.24	10.73	15.43	6079	6745

Source: Census, 1991 & 2001

[Note: The Kolkata District has not been considered for discussion as it is totally urbanised]

In terms of percentage of urban population in 1991 and 2001, the districts may be clubbed in the following clusters: (a) districts having urban population of 50% or more to total population, (b) districts having urban population between 25% to less than 50%, (c) districts with urban population between 15% to less than 25% and (d) districts with urban population of less than 15%. Table 3.2 presents the classification of districts according to the criteria mentioned above. A visual illustration of the same has been depicted in figure 3.1.

Table 3.2 **Classification of Districts according to the proportions of urban population**

Percentage Range of Urban Population	Name of the Districts	Urban Population (%)	
		(1991)	(2001)
>50%	North 24 Parganas	51.23 (1)	54.30 (1)
	Haora	---	50.36 (2)
25 % ---- <50%	Haora	49.58 (2)	---
	Barddhaman	35.09 (3)	36.94 (3)
	Hugli	31.19 (4)	33.47 (4)
	Darjiling	30.47(5)	32.34 (5)
15 % ---- <25%	Nadia	22.63 (6)	21.27 (6)
	Jalpaiguri	16.36 (7)	17.84 (7)
	South 24 Parganas	----	15.73 (8)
<15 %	Dakshin Dinajpur	13.35 (8)	13.1 (9)
	Uttar Dinajpur	13.34 (9)	12.06(11)
	South 24 Parganas	13.3 (10)	---
	Murshidabad	10.43 (11)	12.49 (10)
	Medinipur	9.85 (12)	10.24 (12)
	Puruliya	9.44 (13)	10.07(13)
	Birbhum	8.98 (14)	8.57 (15)
	Bankura	8.29 (15)	7.37 (16)
	Koch Bihar	7.81 (16)	9.1(14)
	Maldah	7.07 (17)	7.32 (17)

Source: Census, 1991, 2001

Note: (The figure in brackets indicate the respective ranks of the districts in terms of the percent urban population)

It is clear from the above table that the topmost seven districts belonging to the first three tiers have maintained their positions in respect of the levels of urbanisation

along with slight increase from 1991 to 2001, except Nadia which showed slight decline in the level from 1991 to 2001, though maintaining its rank. But the respective positions of the districts at the lowest spectrum of urbanisation (according to 1991) have altered, because of certain variations, e.g., the districts of South Twenty four Parganas, Murshidabad, Medinipur, Puruliya, Koch Bihar experienced rise, while Uttar Dinajpur had a fall in percent of urban population from 1991 to 2001.

3.4.ii Urban-Rural ratio

The urban- rural ratio representing the proportion of urban to rural population is a general index of urban accretion. Compared to the percentage of urban to total population, the urban-rural index shows a higher disparity over space. Generally, the areas having high percent of urban population also have a high urban-rural ratio.

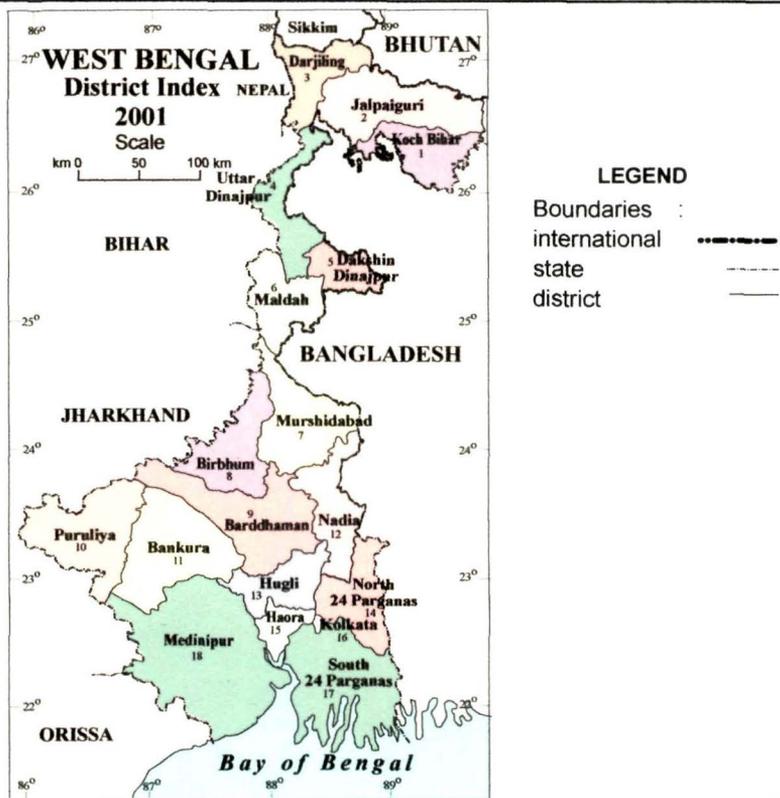
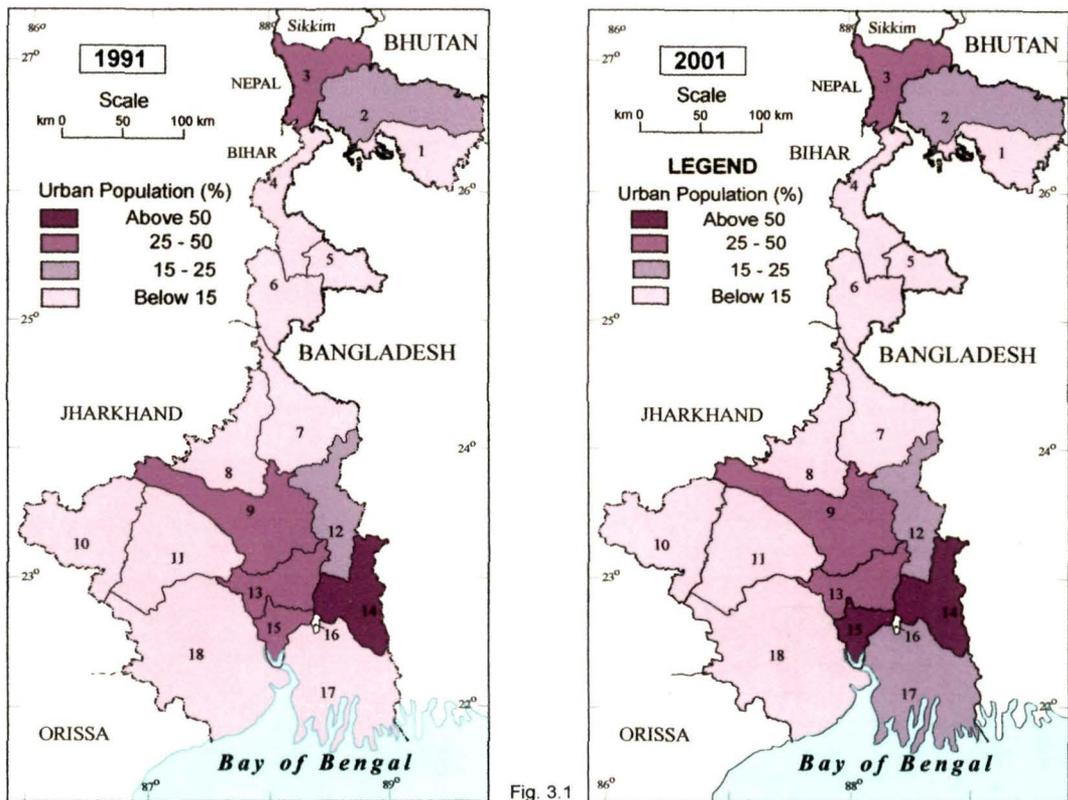
As per 1991 and 2001 censuses, the maximum urban-rural ratio is found to exist in North Twenty Four Parganas followed by Haora; contrarily, Maldah has got the least ratio of urban and rural population (Ref. Table 3.1). The districts of Barddhaman, Hugli and Darjiling have moderate to high index. The low ratios of the rest of the districts confirm the rural character of the region.

Considering the time factor, the districts of Uttar Dinajpur, Dakshin Dinajpur, Birbhum, Nadia and Bankura have experienced a decline in urban-rural ratio from 1991 to 2001 in response to the fact that the percentage of urban population of these districts has fallen down during this time period. The rest of the districts have experienced a rise in the ratio. Another noticeable phenomenon is that the disparity in terms of the highest and lowest values has increased over this ten-year period, as the urban-rural ratio in the district of North Twenty Four Parganas has got a leap from 105 to 119 (approx.), while Maldah (the least recorded district) has observed a slight rise from 7.6 to 7.9 (table 3.1). All these facts points to the further rise in population in the already concentrated location; and thereby disparities have increased in the state as a whole.

In general, the position of the districts in view of urban-rural ratios has not changed much over this decade. The spatial distribution of urban-rural ratios across the district for the two time periods of 1991 and 2001 has been illustrated in figure 3.3

WEST BENGAL

Levels of Urbanisation District-wise



3.4.iii Rate of Urbanisation

To understand the pace of change, the rate of urbanisation of a region needs to be reviewed. This index may be expressed by the following formula:

$$\text{Rate of Urbanisation (\%)} = (U_f - U_i) / (T_f - T_i) * 100$$

Where, U_f = Urban population of subsequent time period (e.g. 2001)

U_i = Urban population of previous time period (e.g. 1991)

T_f = Total population of subsequent time period (e.g. 2001)

T_i = Total population of previous time period (e.g. 1991)

This index, according to Kumaran, “indicates that section of population which gets urbanised as a percentage to the total growth. This decreases with increase in total growth and vice versa.”¹² (Kumaran, 1985)

In the present study, as per 1991 census, Haora has the maximum rate of urbanisation (67%) followed by Barddhaman, North Twenty four Parganas, Darjiling and Hugli which have values above the state’s average (31.5%). On the other hand, Puruliya has the minimum rate (12%). Again in 2001, North Twenty four Parganas has topped the list with 68% followed by Haora, Barddhaman, Hugli and Darjiling. These districts have a higher proportion of urban population. The rate of urbanisation is the least (.71%) in Bankura with its low base of urban population.

Analysing temporally, the rate of urbanisation has decreased drastically from 1991 to 2001 for the districts of Uttar Dinajpur, Maldah, Birbhum, Nadia, Bankura and Haora, moderately for Barddhaman and Darjiling and negligibly in Jalpaiguri.

Thus, it may be generalised that the districts having higher proportion of urban population exhibit comparatively higher rate of urbanisation than that of the districts with lower proportion of urban population. Figure 3.4 demonstrates the categorisation of the districts according to the rate of urbanisation.

3.4.iv Urban Centres/10, 00,000 Rural Populations

The existence of urban centres in a region is significant from the standpoint of regional development, since urban centres act as service centres for the population of the concerned region. The proportion of rural population served by urban centres may indirectly be expressed by the number of urban settlements per 10, 00,000 rural populations. It symbolises the availability of urban services to the rural people.

WEST BENGAL

Urban - Rural Ratio District-wise

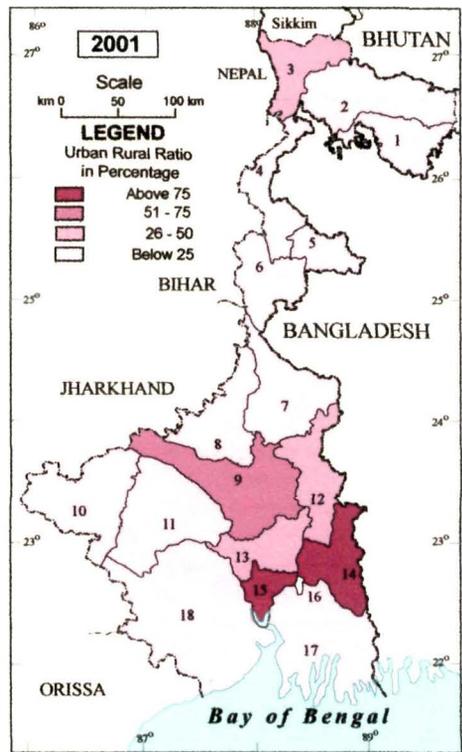
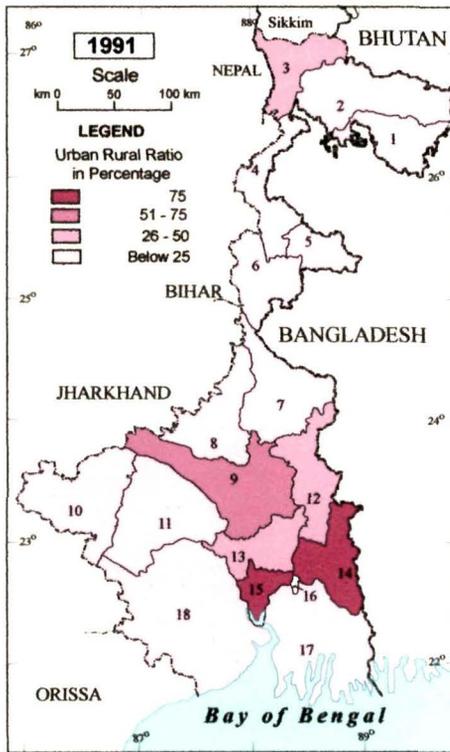


Fig. 3.3

Rate of Urbanisation District-wise

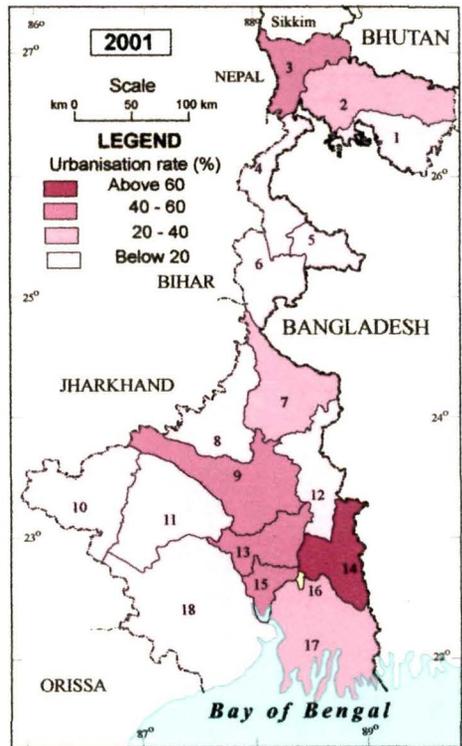
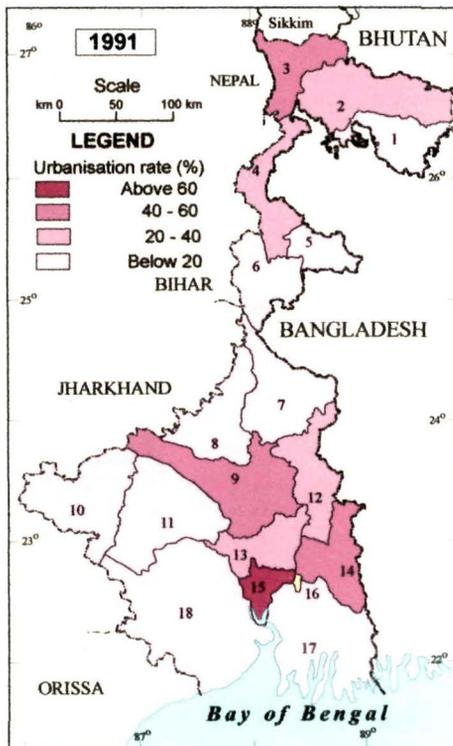


Fig. 3.4

The number of urban centres per 10, 00,000 rural populations in West Bengal was only 7.74 in 1991, which points to the absolute rural character of the state. Reviewing across the districts (Table 3.1 and figure 3.5) the maximum number of towns (25) per 10 lakh rural population was in Haora, followed by North Twenty four Parganas(16.6), Barddhaman(15.5), Hugli(12), Darjiling(10), Nadia(9), and South Twenty four Parganas(8.5). Except these districts that have figures above that of the state, the rest of the districts have very low number, Maldah having the lowest value of only 1.63 which matches with the low level of urbanisation of the respective districts. The spatial pattern in 2001 is almost the same as that of 1991 with Haora having remaining unchanged in the position and value of the index. The district of Dakshin Dinajpur has the lowest number (1.5) and Maldah has 1.64.

It is striking that North Twenty Four Parganas could not top the least while evaluating the number of urban centres per ten lakh population, despite its highest rank in the level of urbanisation (as expressed by the percentage of urban population) and in the urban-rural ratio. Further, a wide gap in the said number from the top-ranking district (Haora) to North Twenty four Parganas may be noticed in both the census periods. For example, the numbers of urban centres per ten lakh rural population of Haora are 25 both in 1991 and 2001, while in North Twenty four Parganas those are 17 and 12 respectively. That means, as compared to Haora, more population is concentrated in lesser number of urban centres in North 24 Parganas, the phenomenon that has reduced the accessibility of these urban centres to the rural population of the district. Also, within the same period of time, the number has decreased as a result of the incorporation of a number of towns of this district into the Kolkata municipal corporation.

3.4.v Town Density (urban centres per 1000 sq.km)

The number of urban centres per 1000 sq km, known as town density, explains the pattern of distribution of urban centres over space and thus determines the accessibility of rural population to the urban functions. As stated by Kundu, "Concentration of towns in parts of a district would leave the other parts unserved"¹³(Kundu, 1980, p.38-39). Hence, it is an indicator of the spatial organisation of a region.

WEST BENGAL

Urban Centres per One Million Rural Population District-wise

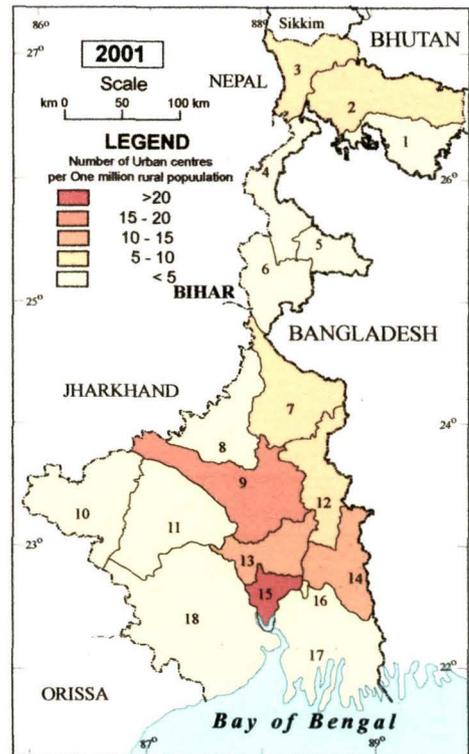
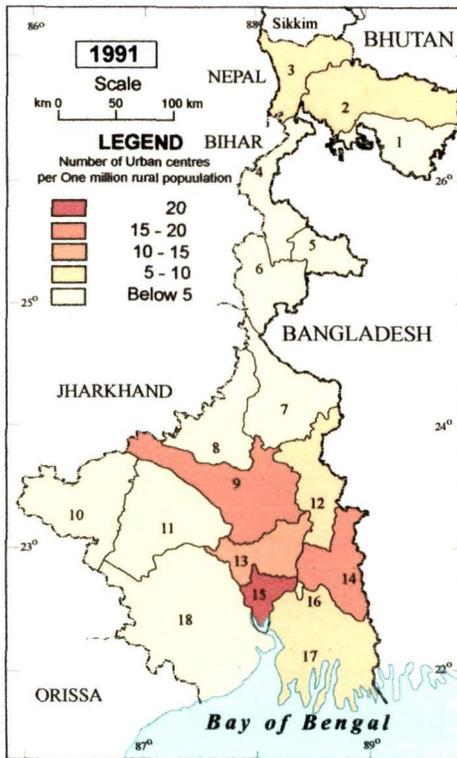


Fig. 3.5

Town Density District-wise

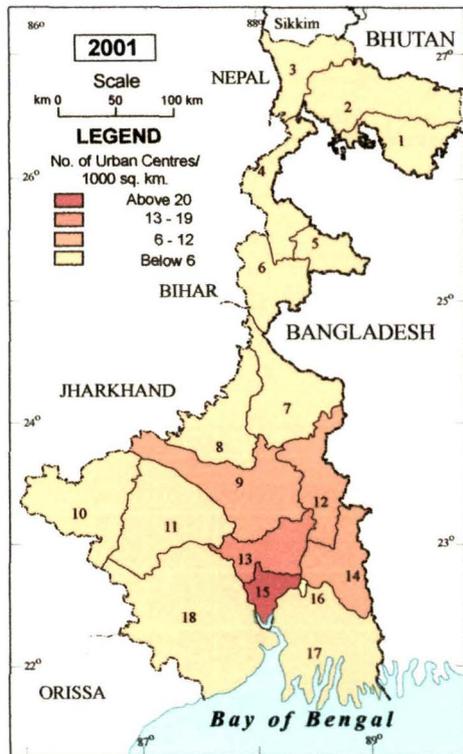
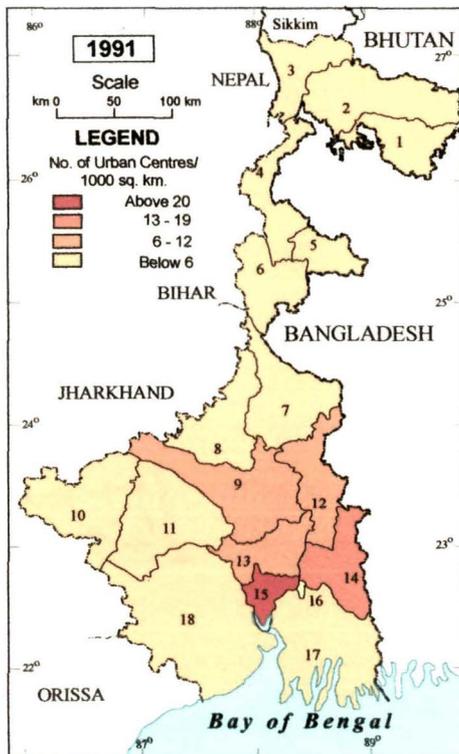


Fig. 3.6

The occurrence of the highest town density in Haora (both in 1991 and 2001) is an expected fact. But there is a vast gap between Haora and other districts concerning town density. The districts with higher percentage of urban population do not necessarily show a high town density value which establishes the uneven distribution of towns together with their small numbers. The example of North Twenty Four Parganas may again be cited in this context, as the town density values of this most urbanised district are 14 and 12 respectively in 1991 and 2001, which are far below than Haora having the town densities of 32 and 36 corresponding to 1991 and 2001.

The logic of concentration of urban population in case of North Twenty four Parganas on the one hand and dispersion of urban centres in case of Haora on the other may be supportive of this revealed scenario. Similar trend has been discussed in the previous section (3.4.4). Bankura has the least town density both in 1991 and 2001, and has further declined in 2001.

The district-wise illustration of town density has been observed in figure 3.6

3.4.vi Percentage of Class I cities to total urban settlements

From table 3.1, it is observed that in some low urbanised districts the proportion of class I cities to total urban settlements is high, as there is not much disparity between the total number of urban settlements and that of class I towns because of the small number of urban centres in those districts.

On the contrary, the districts with high percentage of urban population and larger number of urban settlements have low percentage of class I towns.

3.4.vii Density of Urban population

Urban density, a function of area and population demonstrates spatial concentration of urban population per unit of area. "The city-hinterland functional relation defines the urban population density on an aggregate level for the urban territory."¹⁴ (Parveen, 2005, p.66)

It is surprising to note that in 1991 Maldah had the highest density of urban population. But in 2001, Haora has topped the list with a density of 9816/sq.km, followed by North Twenty four Parganas and Maldah. This fact hints at the increasing congestion of population in the urban settlements of NorthTwentyfour Parganas and that of Haora over time in response to the dispersion of urban population from Calcutta.

This picture has got parity with that of the urban-rural ratio, as has been discussed in section 3.4.2.

Medinipur has been continuing with the least urban density in the two census years that may be explained by the fact that its area is larger than that of the other districts.

The indices discussed heretofore make it evident that the contours of urbanisation in West Bengal are closely packed in certain areas, e.g., encircling Kolkata in North Twenty four Parganas, Haora, Hugli, Nadia, Barddhaman and surrounding Siliguri in Darjiling.

3.4.viii Decadal Growth Rate

To substantiate this finding, one may analyse the trend of decennial growth rate for rural and urban areas of 1951-2001 for the districts clustered according to their percent of urban population.

Table 3.3 shows that in the two neighbouring districts of Kolkata---Haora and North Twenty four Parganas---the decadal population growth rate for the urban areas has been much higher than the corresponding growth rate for the rural areas throughout the period of 1951---2001. This picture along with the additional fact that the district Kolkata (which is entirely urban) has been experiencing lower (urban) growth rate than that in Haora and North Twenty four Parganas (i.e., 13.35% in 1951-61, 11.21% in 1961-71, 10.73% in 1971-81, 6.61% in 1981-91 and 4.11% in 1991-2001) indicates the exodus of some population from the core areas under Kolkata Municipal Corporation to the urban areas of neighbouring Haora and North 24 Parganas districts during the period under review wherefrom daily commuting is possible with improved transport.

Among the three districts, clustered in the next tier of percentage of urban population, Barddhaman has the highest urban growth rate. The growth of urban centres like Durgapur and Asansol industrial belts after Independence perhaps explains this high growth of the urban population between 1951-1981. But the growth rate appears to have stabilised subsequent to 1981. In case of the other two districts of Hugli and Darjiling, the growth of urban population has not been as high, except in the case of Darjiling district in the two decades of 1951-1961 and 1971-1981. In these two districts, the decadal urban growth rate is higher than the rural decadal growth rate during 1951- 2001, which is suggestive of considerable immigration into urban areas of

Table 3.3 Districts with their Decennial Urban and Rural Population Growth Rate (1951-2001) clustered according to the Percentage of Urban Population (2001)

Percentage of Urban Population	Name of the Districts	Urban Population (2001)	Rural/Urban	Decadal growth rate (%) of rural & urban population during 1951—2001				
				1951--1961	1961--1971	1971--1981	1981--1991	1991--2001
>50%	North 24 Parganas	54.30%	R	41.02	24.88	27.44	31.15	14.94
			U	57.16	46.03	35.49	32.22	30.00
>50%	Haora	50.39%	R	11.42	15.69	15.97	15.51	12.76
			U	57.97	22.84	32.09	38.12	16.47
25 % ---- 50%	Barddhaman	37.18%	R	41.02	24.88	27.44	31.15	14.94
			U	57.16	46.03	35.49	32.22	30.00
			Hugli	33.48%	R	11.42	15.69	15.97
25 % ---- 50%	Darjiling	32.44%	R	31.46	25.33	23.36	21.79	20.04
			U	53.09	24.60	56.57	40.37	31.51
15 % ---- <25%	Nadia	21.27	R	49.42	29.77	28.26	28.22	21.62
			U	51.53	32.57	53.06	36.25	12.3
			Jalpaiguri	17.74	R	45.25	28.05	20.33
15 % ---- <25%	South 24 Parganas	15.77	R	29.59	29.94	15.14	28.30	17.45
			U	54.85	109.17	69.92	44.48	43.31
<15 %	Dakshin Dinajpur	13.1	R	23.49	31.43	23.84	25.78	22.47
			U	61.34	106.06	60.75	16.10	19.74
	Murshidabad	12.49	R	32.49	28.40	24.51	26.68	20.86
			U	44.87	27.10	39.28	42.87	48.14
	Uttar Dinajpur	12.06	R	37.18	42.28	28.64	27.61	30.61
			U	263.65	52.30	48.52	98.76	16.40
	Medinipur	10.49	R	29.02	26.99	21.24	21.73	14.87
			U	32.19	25.69	36.32	43.34	23.14
	Puruliya	10.07	R	16.22	16.01	14.72	19.41	13.18
U			17.85	43.13	25.98	25.93	21.54	
Koch Bihar	9.10	R	53.27	38.93	25.19	21.36	2.55	
		U	42.38	35.28	26.50	38.64	33.04	
Birbhum	8.58	R	34.82	22.73	16.42	21.01	18.40	
		U	46.06	23.82	39.08	32.29	12.60	
Bankura	7.37	R	25.94	21.85	16.72	17.28	14.93	
		U	29.11	24.21	19.45	28.27	1.20	
Maldah	7.32	R	29.78	31.89	25.25	26.66	24.43	
		U	44.44	33.95	42.88	91.92	29.15	

Source: Census

these districts during 1951-2001.

The decadal urban growth (between 1951-2001) of the three districts belonging to the lower-middle class of urbanisation has also been quite significant except in Nadia in 1991-2001 where the rate for 1991—2001 is 12.30 which is lower than the corresponding rural growth rate of 21.62.(Table 3.3). This indicates the decline of share of urban to total population (from 22.63% in 1991 to 21.27% in 2001). Similar decline is noticeable in Uttar and Dakshin Dinajpur, Birbhum and Bankura where the percentage of urban population has actually gone down during 1991-2001 because of the fact that the decadal growth rates of rural population have exceeded those for the urban areas during this period indicating a reverse trend away from urbanisation.

As is observed in table 3.3, the urban growth rates (decadal) in the districts of Jalpaiguri and South Twenty four Parganas have been higher than that in rural areas throughout the period of 1951-2001. Moreover, South Twenty Four Parganas had a decadal urban growth during 1951-1981 which is even higher than that in North Twenty Four Parganas demonstrating possible shift of population from Kolkata to this peripheral district.

For the nine districts (Ref. Table 3.3) at the lower spectrum of urbanisation, the decadal urban growth rate has been much higher than the rural growth rate, excepting in Murshidabad and Medinipur in 1961-1971 and Uttar Dinajpur, Dakshin Dinajpur, Birbhum and Bankura in 1991-2001. Therefore, even in case of these districts with low level of urbanisation, some rural to urban migration is clearly implicit.

3.5 Index of Effective Urbanisation

To have a manifestation of the interplay of factors in an aggregate manner, the aforementioned indicators have been correlated first, and then only with the highly correlated indicators the Index of Effective Urbanisation (EUI) has been computed for each district using First Principal Component. Table 3.4 depicts the correlation matrix of the selected parameters narrating the scenario of urbanisation in West Bengal. The weightages assigned to the indicators of Index of Effective Urbanisation are shown in Appendix III.

The highly correlated indicators, as presented by the table 3.4, are percentage of urban population, urban-rural ratio, rate of urbanisation, urban centres per 10 lakh rural population and town density. Contrarily, the indicators viz., urban population growth

Table 3.4 Correlation Matrix of the Indicators of Urbanisation:

West Bengal, 1991

Indicators	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈
Urban Population (%) (X ₁)	1.000							
Urban-Rural Ratio (%) (X ₂)	.985**	1.000						
Rate of Urbanisation (%) (X ₃)	.954**	.923**	1.000					
Urban Centres per 10,00,000 Rural Population (X ₄)	.939**	.927**	.939**	1.000				
Town Density (X ₅)	.838**	.864**	.831**	.928**	1.000			
Class I Towns (%) to total Urban Settlements (X ₆)	.146	.156	.056	-.099	-.040	1.000		
Urban Population Density (X ₇)	.449	.489*	.369	.354	.475	.585*	1.000	
Urban Population Growth Rate (%) (1981-1991) (X ₈)	-.184	-.178	.002	-.210	-.165	.199	.199	1.000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 3.5 Correlation Matrix among the Indicators of Urbanisation: West Bengal, 2001

Indicators	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈
Urban Population (%) (X ₁)	1.000							
Urban-Rural Ratio (%) (X ₂)	.983**	1.000						
Rate of Urbanisation (%) (X ₃)	.954**	.926**	1.000					
Urban Centres per 10, 00,000 Rural Population (X ₄)	.875**	.844**	.833**	1.000				
Town Density (X ₅)	.771**	.778**	.692**	.936**	1.000			
Class I Towns (%) to total Urban Settlements (X ₆)	.292	.322	.226	-.081	-.075	1.000		
Urban Population Density (X ₇)	.480	.520*	.437	.341	.469	.512*	1.000	
Urban Population Growth Rate (%) (1991-2001) (X ₈)	.047	.029	.275	-.024	-.087	-.071	.211	1.000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

rate and percentage of class I towns to total urban settlements have no correlation with any other indices. A moderate positive correlation between urban population density and urban-rural ratio and between urban population density and percent of Class I Towns to total urban settlements has been observed.

The same pattern of correlation may be observed for 2001, which has been presented in the table 3.5.

Thus, analysing tables 3.4 and 3.5, only the highly correlated variables have been taken into account to obtain a comprehensive view of the pattern of urbanisation with the help of first Principal Component Method on the basis of which the districts have been appraised. Table 3.6 shows the ranks of the districts according to the composite scores of the Index of Effective Urbanisation, computed from the five highly correlated parameters, shown in tables 3.4 and 3.5.

Table: 3.6 **Ranking of the Districts according to the Index of Effective Urbanisation: West Bengal--1991, 2001**

DISTRICTS	EUI (1991)	Rank	DISTRICTS	EUI (2001)	Rank
Haora	12.12	1	Haora	11.22	1
N.24 Parganas	8.26	2	N.24 Parganas	8.01	2
Barddhaman	4.86	3	Barddhaman	4.61	3
Hugli	3.22	4	Hugli	3.88	4
Darjiling	1.94	5	Darjiling	1.80	5
Nadia	0.46	6	Nadia	-0.57	6
Jalpaiguri	-1.27	7	Jalpaiguri	-1.04	7
S.24 Parganas	-1.48	8	Murshidabad	-1.48	8
Uttar Dinajpur	-2.19	9	S.24 Parganas	-1.51	9
Murshidabad	-2.73	10	Koch Bihar	-2.41	10
Puruliya	-3.07	11	Puruliya	-2.46	11
Dakshin Dinajpur	-3.11	12	Uttar Dinajpur	-2.86	12
Medinipur	-3.13	13	Dakshin Dinajpur	-2.96	13
Koch Bihar	-3.18	14	Medinipur	-3.01	14
Birbhum	-3.4	15	Birbhum	-3.54	15
Bankura	-3.59	16	Maldah	-3.64	16
Maldah	-3.73	17	Bankura	-4.05	17

Computed by the author

In general, there exists a sharp variation in the index of effective urbanisation across the districts as the highest and lowest values are more than (+) 12 and less than

(-) 3.6 respectively for Haora and Maldah in 1991. In 2001 Haora again tops the list with Bankura at the lowest level. The ranking pattern has been maintained for the first seven districts in the two time periods of 1991 and 2001. The districts which have upgraded their position from 1991 to 2001 are Murshidabad, Koch Bihar and Maldah, of which the rise is the most significant in case of Koch Bihar. Of the rest, except Puruliya and Birbhum other districts have experienced a fall in their respective ranks, while Puruliya and Birbhum have maintained their positions in terms of EUI.

The districts have further been reviewed in certain range categories of EUI as depicted figure 3.7. The qualitative taxonomy of the districts in relation to the EUI as portrayed in figure 3.7 gives a distinct regionalised perception of the phenomena.

The classified design of the districts corresponds to the findings discussed earlier in this chapter, i.e. the effective urbanisation (worked out on the basis of selected indicators in the present study) is centralised around Kolkata, especially in Haora, North Twenty four Parganas, moderately in Hugli, Barddhaman and to some extent in Darjiling.

In the light of the foregoing analysis, the focus now turns on the extent of rural development of the districts concerned.

WEST BENGAL

INDEX OF EFFECTIVE URBANISATION (District-Wise)

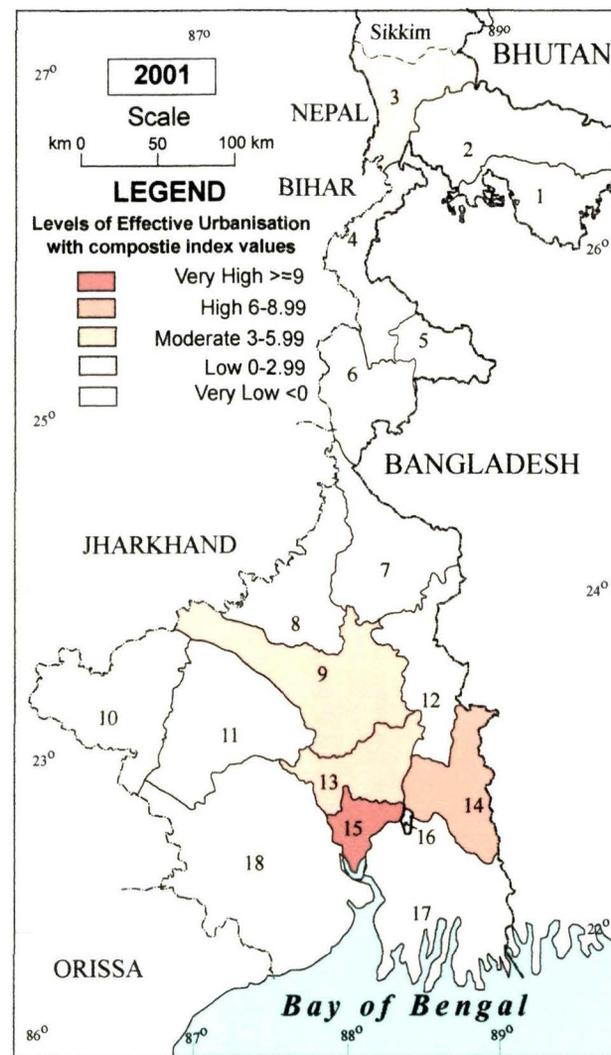
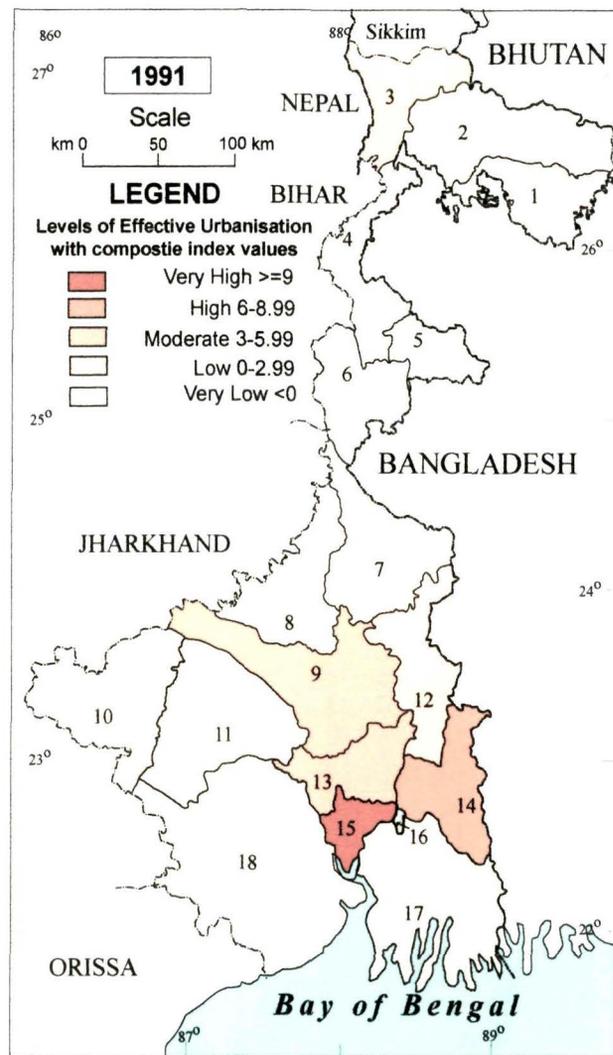


Fig. 3.7

3.6 Indicators of Rural Development

Since rural development includes several factors contributing to the progress of rural areas, attempt has been made to select indicators (discussed earlier) that represent an overview of rural development. The distribution of districts with the select parameters for 1991 and 2001 are given respectively in tables 3.7 and 3.8.

3.6.i Population Density

The density of population, referring to the population-area ratio, may be considered as one of the indicators of rural development, since the higher the density, the more is the concentration of economic, social, cultural, administrative activities and infrastructures to cater to the needs of the population of an area. In an ideal situation, it leads to the more concentration of welfare activities and in turn to the progress of a region. In this context, it may be remembered that the cut-off size of population density of 400/sq.km for a place to be urban, points to the fact that higher population density converts a rural area to urban. But this cannot be the sole determinant of development, for, in many cases, a higher density creates population pressure on the existing natural resources.

As revealed by tables 3.7 and 3.8, the districts of Haora and Darjiling belong respectively to the highest and lowest rung of rural population densities both in 1991 and 2001. The observed pattern of rural population density in different districts has been classified in figure 3.8, and according to that, districts having low rural density

Table: 3.7 Districts with the selected indicators of Rural Development, 1991

DISTRICT (RURAL) (1991)	Population Density/sq.km	Percent of Female literate (7years &above)	Work Participation Rate (%)	Agricultural Labourer/ Cultivator Ratio(per 100)	Percent of Workers in Non-Agricultural sector	MWPR(%) in Secondary Activities	MWPR (%) in Tertiary Activities	Households (%) with Permanent Houses	No. of PHC per 100,000 persons	Household (%) with Electricity, Safe DW, Toilet	Villages (%) with Communication	Villages (%) with Power supply
Darjiling	293	37.53	35.54	46.76	23.37	5.36	14.15	17.21	2.38	6.25	22.58	34.35
Jalpaiguri	386	26.99	31.97	56.29	21.41	5.8	13.27	18.83	1.86	4.48	43.32	50.55
Koch Bihar	596	29.74	30.78	53.82	19.32	5.31	11.42	3.93	1.8	3.47	27.3	30.03
Uttar Dinajpur	530	15.41	33.18	89.05	27.13	3.44	8.19	4.25	1.88	1.3	21.64	47.58
Dakshin Dinajpur	485	29.05	34.49	72.65	30.43	3.68	9.46	3.29	1.9	1.63	13.6	29.35
Maldah	660	21.6	32.00	100.19	23.55	6.21	10.08	13.69	1.93	5.19	15.78	57.4
Murshidabad	814	26.77	29.92	92.21	31.24	10.18	11.53	20.48	2.11	4.5	38.95	76.59
Birbhum	519	35	30.75	107.52	20.66	6.51	11.44	7.25	3.01	3.99	28.32	79.08
Bardhaman	618	45.95	31.45	138.67	23.25	7.66	12.99	18.73	2.17	8.13	39.47	49.04
Nadia	805	37.56	28.99	91.14	28.55	10.36	14.59	22.1	1.74	11.96	40.54	77.64
North 24 Parganas	971	42.12	28.27	96.05	31.64	11	17.34	22.98	1	9.36	38	63.19
Hugli	1007	51.08	31.38	124.32	33.08	14	16.25	27.36	0.79	13.57	48.81	38.11
Bankura	378	34.06	33.29	81.86	19.04	6.35	10.15	11.84	3.14	1.45	18.74	39.94
Puruliya	325	19.57	36.33	51.12	18.13	5.69	9.61	15.22	3.24	1.06	18	25.37
Medinipur	547	55.13	30.77	59.13	25.75	8.49	13.62	7.25	2.3	2.11	17.38	25.84
Haora	1502	49.61	27.25	129.04	50.33	29.14	18.02	32.05	1.5	6.66	46.46	87.87
South 24 Parganas	506	36.89	26.01	105.14	32.56	11.69	18.24	17.65	1.61	5.13	38.13	43.61
WB	576	38.12	30.61	84.89	26.04	9.07	13.25	15.74	1.59	5.54	19.38	31.51

Source: Census, Statistical abstract, Economic Review

(below 400/sq.km, the cut-off figure for an urban area) are Darjiling, Jalpaiguri, Bankura, Puruliya in (below 400/sq.km, the cut-off figure for an urban area) are Darjiling, Jalpaiguri, Bankura, Puruliya in 1991, while Jalpaiguri and Bankura have passed on to the moderate category (400-800/sq.km.) in 2001 leaving behind the other two. As Haora can be classed into the highest category, Hugli, North Twenty four Parganas, Nadia and Murshidabad belong to the high class in 1991, added with Maldah in 2001. The rest of the districts have moderate densities.

Analysing the causes of the disparities in rural population densities, it is to be noted that the poor physiographic and environmental conditions are some of the principal factors for the low densities of the districts, exemplified by Darjiling, Puruliya, and Bankura etc. On the contrary, the environmental favourability in terms of physiographic economic potentialities, i.e., industry, transport, communication, proximity to large urban centres etc., has become the major positive factors for the high rural population densities, as witnessed by Haora, Hugli, North Twenty four Parganas, Nadia etc.

An interesting observation may be made in this connection, viz., that there exists a moderate positive correlation between the rural population density and the urban population density of the districts of West Bengal for both 1991 and 2001 (the 'r' value for 1991 is .577 and for 2001 it is .594 and both are significant at 5% level of significance). This means that both these indicators are influencing each other.

An interesting observation in this connection is revealed from the positive significant correlation between the rural and the urban population density for both 1991 and 2001 (the 'r' value for 1991 is .577 and for 2001 it is .594). This indicates that increase in the population densities in either urban or rural areas in the districts of West Bengal may lead to an increase in the population densities of either of the sectors.

3.6.ii Female Literacy Rate

Literacy rate, the most widely used as a comprehensive indicator of education sector, is regarded as one of the inputs of human resource development. In particular, female literacy rate reflects status of women in an indirect sense. In the words of Kundu, "In the existing social conditions in India, female illiteracy may be taken as a rough measure of the degree to which the women folk are bound by tradition and superstition and operating within the environment of primary education."¹⁵(Kundu,

1980, p.52). Rural India characterises this pattern all the more and therefore, female literacy can be a good measure of educational as well as social advancement in rural areas.

Table: 3.8 Districts with the selected indicators of Rural Development, 2001

DISTRICTS	Population Density/sq km.	Female literacy rate (%)	Workers (%) in Non-Agricultural Activities	Male main workers (%) in Secondary & Tertiary Activities	Household (%) with Electricity	Households (%) with Toilet	Households occupying Permanent Houses	Percentage of factories, workshop, worked to occupied census houses
Darjiling	354	55.4	69.4	68	40.71	48.63	26.84	0.48
Jalpaiguri	458	47.2	59.8	57	23.2	28.38	22.38	0.43
Koch Bihar	674	53.6	30.4	30.4	7.43	22.58	10.6	0.43
Uttar Dinajpur	694	30.8	25.1	24	8.07	12.7	9.99	0.5
Dakshin Dinajpur	595	50.3	26	24.8	12.95	15.31	7.44	0.48
Maldah	823	38.4	45.1	37.8	14.32	16.29	26.85	0.48
Murshidabad	988	45.7	44.2	36.4	13.59	18.69	32.09	0.55
Birbhum	613	49.7	37.8	36.1	23.42	12.32	13.38	0.58
Bardhaman	699	56.1	39.5	39.1	25.66	31.57	23.54	0.69
Nadia	975	55	44.3	39.8	20	44.68	32.26	1.24
North Twenty four Parganas	1136	61	50.5	47.7	20.52	54	36.8	0.6
Hugli	1137	62.1	47.8	47.9	44.06	39.41	38.54	0.85
Bankura	434	47.6	33.6	34	23.94	8.47	19.02	0.66
Puruliya	369	33.2	37.5	40.3	13.71	3.65	21.14	0.48
Medinipur	630	63.1	39.9	38.6	15.69	27.36	15.11	0.53
Howrah	1700	64.5	73.8	72.2	81.52	61.23	50.65	1.4
South Twenty four Parganas	595	56.1	56.9	55.1	16.68	32.87	28.25	0.05
WB	676	53.82	41.40	42.36	20.27	29.15	24.87	.62

Source: Census, Statistical abstract, Economic Review

WEST BENGAL

Rural Population Density District-wise

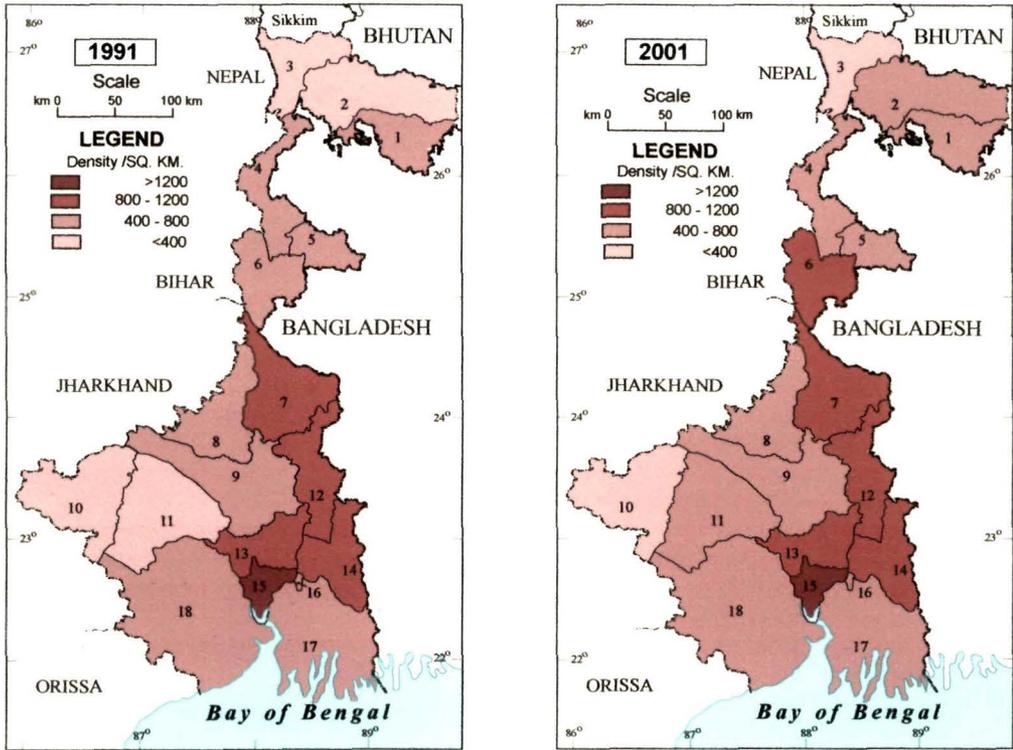


Fig. 3.8

Rural Female Literacy Rate District-wise

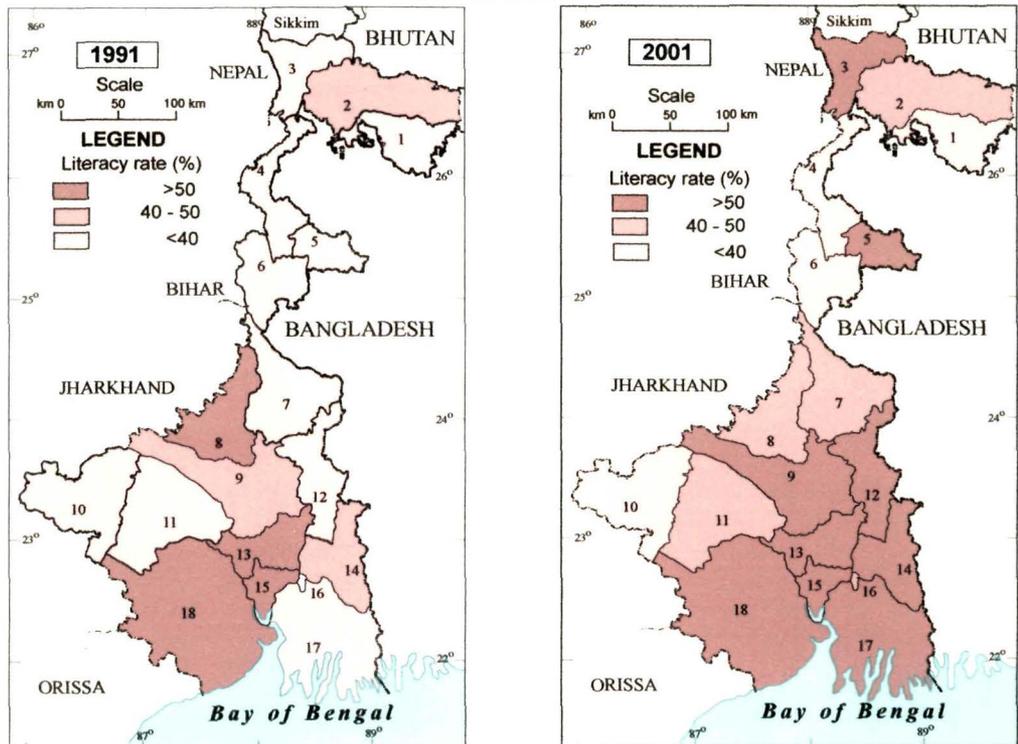


Fig. 3.9

In the present study, the highest female literacy rate has been recorded, in rural Medinipur, while the district of Uttar Dinajpur has the lowest value as per 1991. As such, the state as a whole has a low figure of rural female literacy rate and out of seventeen, twelve districts show lower figure than the state average. Apart from Medinipur, the districts of Haora, Hugli, North Twenty four Parganas and Bardhaman have higher female literacy rates in their rural part than the state average.

The 2001 census has marked an overall increase in the rural female literacy rate as the lowest rate has risen from 15% to 31% in the district of Uttar Dinajpur. Haora has the maximum rate followed by Medinipur.

From figure 3.9 it may be observed that the districts with higher levels of urban population have higher rural female literacy rates. This interesting correspondence has been supported by computing the correlation coefficient between these two indicators which are .573 and .616 respectively for 1991 and 2001 (significant at 5% and 1% levels respectively). Such a moderately high correlation leads to deduce that the levels of urbanisation have an obvious impact on the levels of rural female literacy of the districts. The district of Medinipur is the lone exception, where, in spite of low levels of urban population, the literacy rates for rural females are high.

Figure 3.9 also reveals that in 2001, literacy rates for rural females have increased even in the districts with lower literacy rates in 1991 as a result of the general literacy drive conducted in the country.

3.6.iii Work Participation Rate

The employment situation of any region is determined by the proportion of working population, denoted as work participation rate. In the Indian rural unemployment set-up the analysis of work participation rate is of utmost importance in evaluating the economic viability of the areas.

There is not much variation in the observed pattern of work participation rate in the districts of West Bengal as it ranges from 26% to 36%, with the maximum in Puruliya and the minimum in South Twenty four Parganas.

3.6.iv Agricultural labourer--Cultivator ratio

As the rural agrarian manpower is composed of cultivators and agricultural labourers, the percentage of agricultural labourer to cultivators is a significant index for measuring either the agricultural prosperity in view of the association of the increase in agricultural labourer with the phenomenon of the enhanced employment opportunities in the modern agricultural sector or agricultural poverty in accordance with the view of some experts as the proportional increase in agricultural labourer in relation to cultivators “is an outcome of the process of proletarianisation of the peasantry”¹⁶ (Kundu, 1980, p.52).

The district of Bardhaman has topped the list regarding the agricultural labourer--cultivator ratio, followed by Hugli and Haora, while Darjiling remains in the opposite end.

3.6.v Percentage of Workers in Non-agricultural sectors

The economic potentials are measured by the percentage of non-agricultural workers particularly in agro-based rural areas. One may remind of the cut-off figure between a rural and an urban area in this context which is 75%.

Table 3.7 displays that the districts of Haora and Puruliya hold the maximum and minimum percentages of non-agricultural workers respectively in 1991. Puruliya has been replaced by Uttar Dinajpur in 2001 (table 3.8). Figure 3.10 presents a comparative picture of the district-wise percentage of rural non-agricultural workers.

3.6.vi Male workers in secondary and tertiary activities

To be more accurate, the percentage of male workers in secondary activities in rural sectors represents their industrial bases and thereby the economic strength therein. The proportion of tertiary workers denotes the urban character of rural centres.

In 1991, the highest proportions of secondary and tertiary workers in rural sector have been possessed by the most urbanised district, Haora, while Uttar Dinajpur and South 24 Parganas belong to the bottom respectively for secondary and tertiary activities.

For 2001, the proportions of workers in secondary and tertiary activities in aggregate (due to the availability of data in clubbed form) have maintained the uniformity with Haora at the top and Uttar Dinajpur at the bottom.

WEST BENGAL

Percentage of Rural Non-Agricultural Workers District-wise

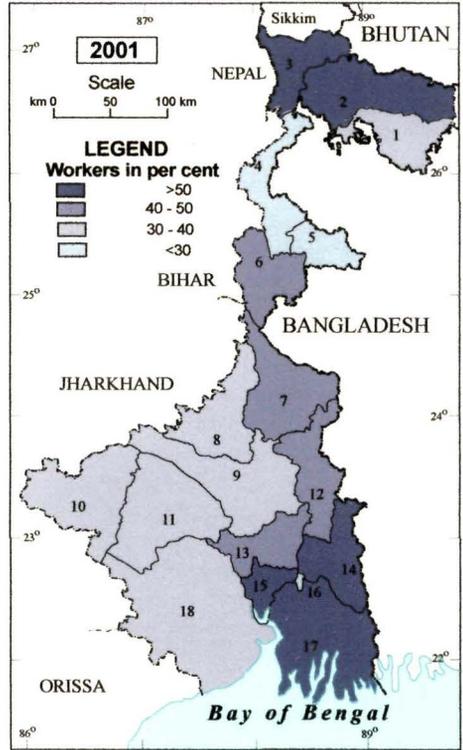
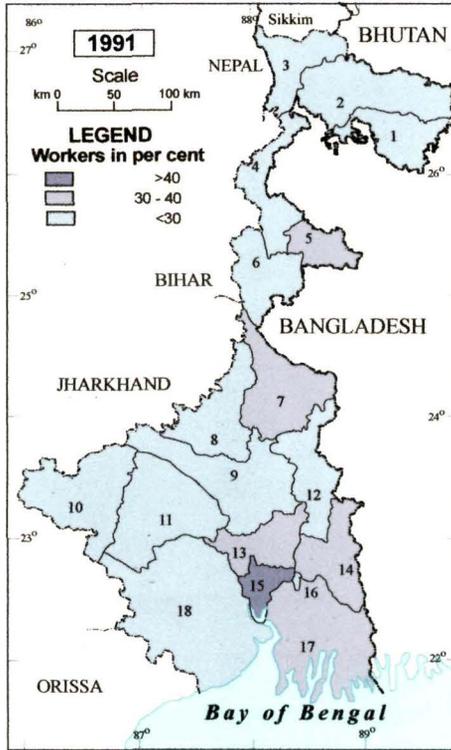


Fig. 3.10

Percentage of Rural Households with Permanent Houses District-wise

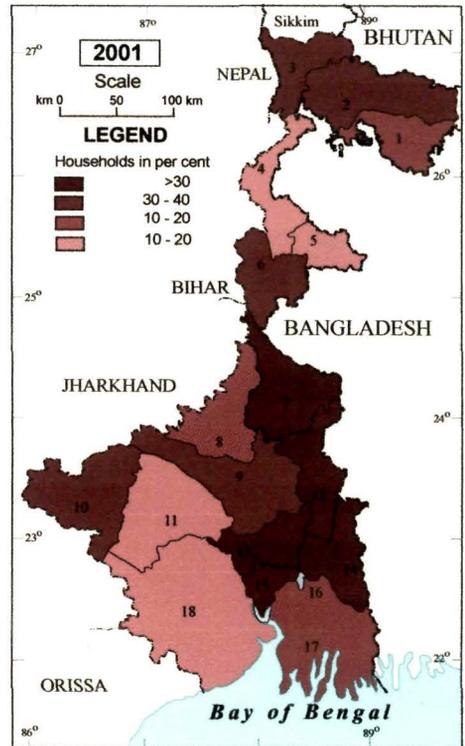
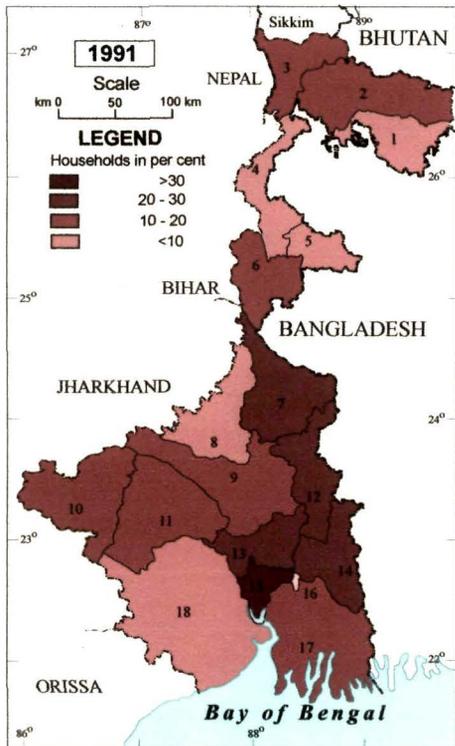


Fig. 3.11

An obvious association of the proportions of urban population of the district and the proportions of rural non-agricultural workers and the proportions of rural secondary and tertiary workers has been found from the computed 'r' coefficient. The respective values are above .6 and those are significant. Thus higher is the level of urbanisation, more will be the tendencies of rural areas to become industrialised and urbanised indirectly.

3.6.vii Percentage of rural households with permanent houses

Shelter being one of the basic needs of human being, the percentage of rural households with permanent houses seems to be imperative to measure the housing condition in the rural areas.

While comparing inter-district status in 1991, Haora again has the maximum percentage of households with permanent houses, followed by Hugli, North 24 Parganas, and Nadia. The district of belongs to the lowest position. Eight out of seventeen districts have the percentages below the state average.

The census 2001 has seen Haora and Uttar Dinajpur in the highest and the lowest ranks respectively. The district-wise variation has been shown in the figure 3.11. All the districts except Uttar Dinajpur, Dakshin Dinajpur and Bankura have experienced a temporal leap from the preceding class of percentage of households with permanent houses which certainly points to the progress in respect of this characteristic.

3.6.viii Percentage of rural households with electricity, toilet and safe drinking water

To assess the household amenities, the percentage of rural households with electricity, toilet and safe drinking water calls for no explanation regarding their essentiality.

The districts of Hugli and Puruliya belong to the opposite poles in 1991, but in 2001 Haora has ranked first with Koch Bihar and Puruliya at the bottom end accordingly for electricity and toilet.

3.6.ix Number of Primary Health Centres per one lakh population

To examine the extent of availability of medical services per capita, the number of rural primary health centres per one lakh population has been taken into consideration.

The obtained data (1991) shows a very poor scenario in all the districts as a whole in this regard, as the number ranges from .79 (Hugli) to only 3.24 (Puruliya). An interesting pattern marked is that the districts with low urbanisation have relatively more number of primary health centres in proportion to the rural population. The accessibility of urban services to rural population associated with the larger urban population may be a reason for the lesser number of rural medical services. The negative correlation coefficient between the percent of urban population and the number of PHC s per one lakh rural population (-.565) supports this assumption. (The correlation is significant at 5% level of significance).

3.6.x Percentage of Villages with Communication

Contacts between places and persons are furnished by the communication network of an area. The question of communication facilities is vital in the cases of rural India, which as such suffers from inaccessibility, remoteness and absence of proper network of communication.

With this idea in mind, the percentage of villages with communication facilities have been analysed for the districts concerned. As presented by table 3.8, district Hugli has the maximum percentage of villages (49%) with communication facilities, while the district of Dakshin Dinajpur has the least proportions (14%) of villages with communication facilities. Except Jalpaiguri, the districts of North Bengal and of the western part of the states (Puruliya, Bankura, Medinipur and Birbhum) have the figures below 30%, while the rest of the districts have above 35% of villages with communication facilities.

3.6.xi Percentage of Villages with Electrification

The percentage of villages with power supply is regarded as a relevant indicator of agricultural development because “the electrification programmes, an urban phenomenon until recently, are believed to be supporting agricultural development by bringing about ancillary activities in the villages.”¹⁷ (Kundu, *op.cit.*, p.46).

The inter-district disparity in the percentage of villages with power supply has been represented by Haora and Dakshin Dinajpur at the two extremes, respectively with 89% and 29% of villages with power supply. The districts with higher percentage (>70%) of villages with power supply are Birbhum, Murshidabad, Nadia along with Haora. At the lower range, i.e., <50%, remain all the districts of North Bengal (except Maldah and Jalpaiguri), Puruliya, Bankura, Hugli, Medinipur and South 24 Parganas.

3.6.xii Percent of factories, workshop, workshed to occupied census houses

Considered as an indicator of economic base, the percentage of factories, workshop and workshed to the occupied census houses of rural areas signifies the rural industrial base to a certain extent.

The depressing picture illustrated by the rural areas of the districts of West Bengal as the highest percentage witnessed by the rural Haora is only 1.4%, followed by Nadia with 1.24%, while rural South 24 Parganas holds .05%, which is the least. Among the seventeen districts, ten districts have a value above .5%, of which only two show a figure above 1%.

Thus, the entire scenario of rural industrialisation, represented by this particular aforementioned indicator, is in general upsetting.

From the foregoing analysis of the selected indicators of rural development, it is evident that there exists a correlation of some of the important indicators with the indices of urbanisation.

3.7 Levels of Rural Development

For a comprehensive picture of rural development, the indicators discussed heretofore have been correlated and then the method of first principal component has been applied to obtain the composite index of rural development. At the outset an inter-correlation matrix has been computed for the selected indicators of rural development. Then applying the principal component method, weightages have been calculated for the indicators and finally the indices of rural development have been computed for each district. The correlation matrices for 1991 and 2001 and the weightages assigned to the indicators, have been shown in Appendix IV.

Table 3.9 displays the rural development index values of the 17 districts which are ranked in descending order of the RDI (Index of Rural Development).

Similar to the pattern of Index of Effective Urbanisation, the district of Haora occupies the top position in respect of rural development indices. But unlike it, the districts of Puruliya and Uttar Dinajpur belong to the bottom.

A classification of the districts according to certain ranges of RDI will give a distinct spatial image. (Figure 3.12)

The pattern which has emerged from the figure 3.12 is that rural development is successful (in view of our frame of observation) in Haora followed by Hugli. A high picture is presented by the districts of Nadia, North Twenty four Parganas during 1991. The districts of Barddhaman, Murshidabad, and South Twenty four Parganas belong to

Table 3.9 **Ranking of the districts according to the Index of Rural Development: West Bengal, 1991, 2001**

DISTRICTS	RDI (1991)	Rank	DISTRICTS	RDI (2001)	Rank
Haora	17.01	1	Haora	14.82	1
Hugli	10.21	2	Hugli	5.27	2
N.24 Pgs.	7.95	3	N.24 Pgs.	4.31	3
Nadia	6.03	4	Darjiling	4.3	4
S.24 Pgs.	4.98	5	Nadia	3.15	5
Barddhaman	2.54	6	S.24 Pgs.	0.5	6
Murshidabad	2.43	7	Jalpaiguri	0.29	7
Jalpaiguri	-1.87	8	Barddhaman	0.04	8
Birbhum	-2.53	9	Murshidabad	-0.87	9
Maldah	-3.05	10	Medinipur	-1.33	10
Medinipur	-3.17	11	Maldah	-2.25	11
Darjiling	-4.72	12	Birbhum	-3.05	12
Koch Bihar	-5.01	13	Bankura	-3.54	13
Uttar Dinajpur	-6.48	14	Koch Bihar	-4.21	14
Bankura	-6.97	15	Purulia	-5.05	15
Dakshin Dinajpur	-7.08	16	Dakshin Dinajpur	-5.48	16
Puruliya	-10.23	17	Uttar Dinajpur	-6.89	17

WEST BENGAL

Index of Rural Development (District-wise)

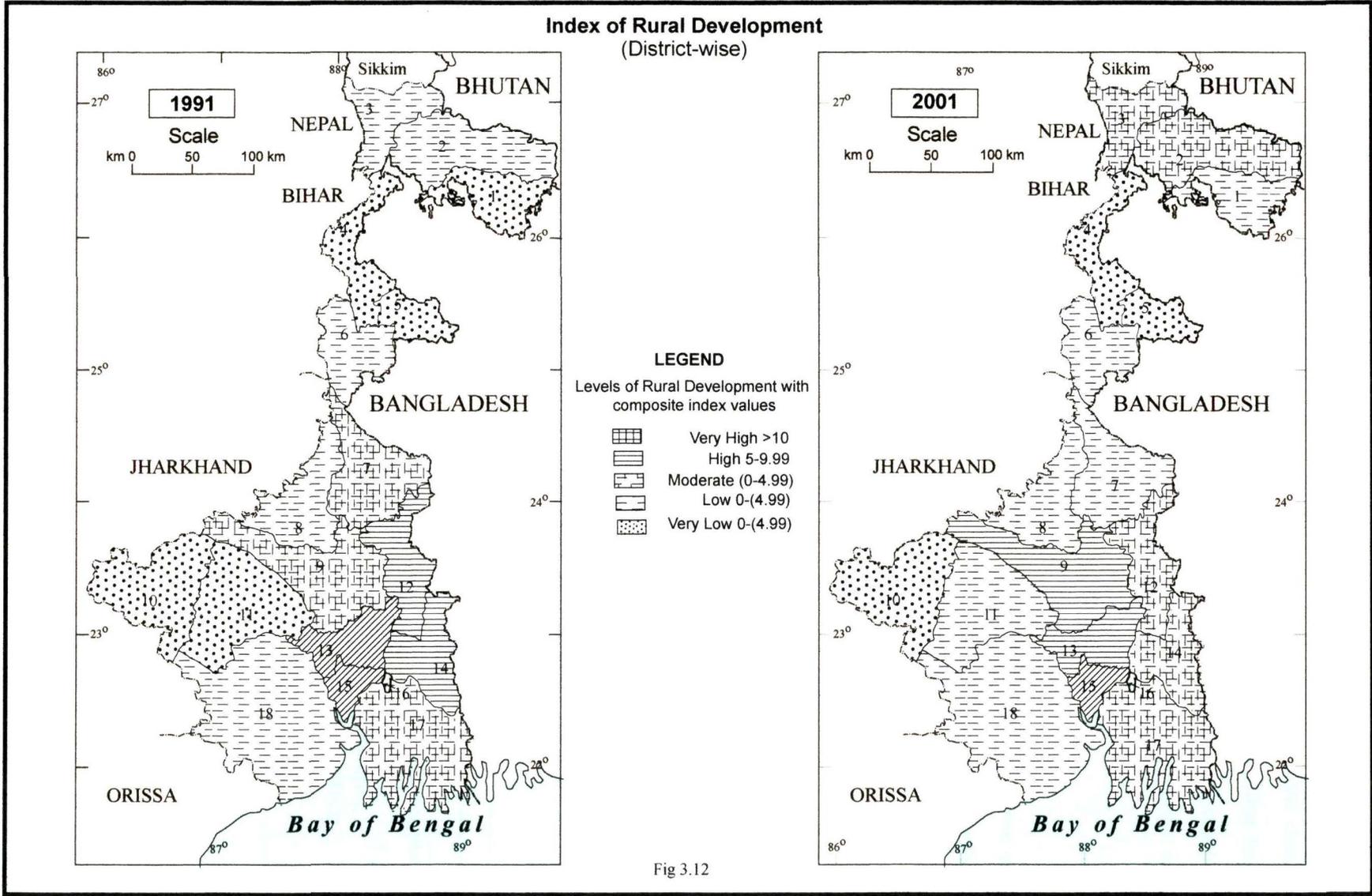


Fig 3.12

moderate level in 1991, while in 2001 this class has included four more districts, viz., North Twenty four Parganas, Darjiling, Jalpaiguri, and Nadia with the deletion of Murshidabad. Uttar and Dakshin Dinajpur, Puruliya, Bankura, Koch Bihar belong to the lowest stratum in 1991, while Maldah, Birbhum, and Medinipur have continued to remain in the same 'low' rank in both the time periods. There have been slight changes in the positions between the two censuses also.

3.8 Correlation between Urbanisation and Rural Development

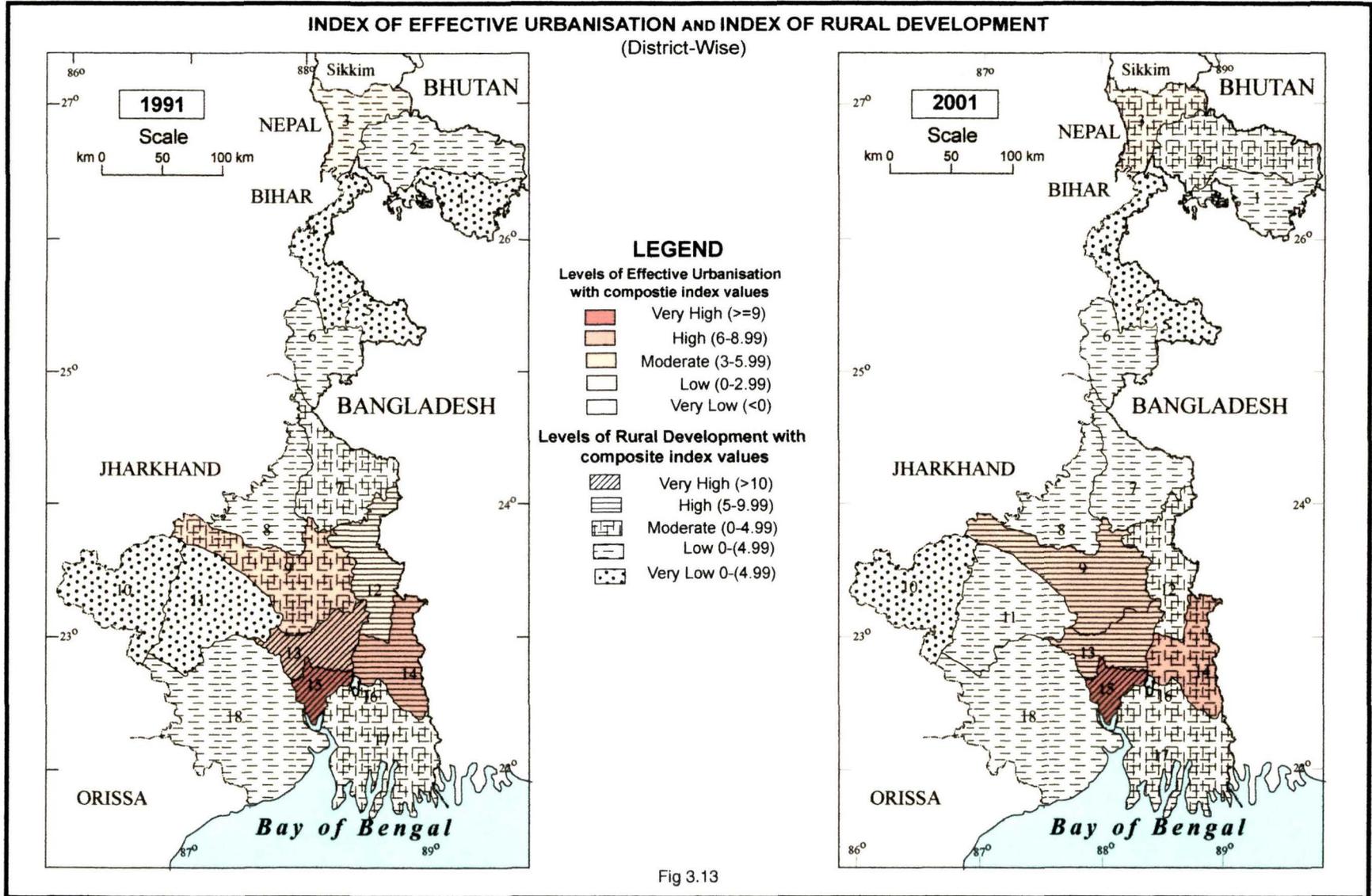
The present section highlights some interesting observations of the experience of rural development in association with the process of urbanisation. The said relationship has been illustrated by figure 3.13. The correspondence between the index of effective urbanisation and the index of rural development has been exhibited by the cross tabulation of the two results presented in tables 3.10 and 3.11.

Table 3.10 Districts cross classified according to the Index of Effective Urbanisation and the Index of Rural Development, 1991

Levels of effective urbanisation	Levels of Rural Development				
	Very high	High	Moderate	Low	Very low
Very high	Haora				
High		North Twenty four Parganas			
Moderate	Hugli		Barddhaman		
Low		Nadia,		Darjiling	
Very low			South Twenty four Parganas, Murshidabad	Birbhum, Maldah, Medinipur, Jalpaiguri	Uttar Dinajpur, Dakshin Dinajpur, Koch Bihar, Puruliya, Bankura

WEST BENGAL

INDEX OF EFFECTIVE URBANISATION AND INDEX OF RURAL DEVELOPMENT (District-Wise)



It has been observed that the districts with higher values of indices of effective urbanisation have higher RDI and vice versa, though there are a few exceptions. For example, in 1991, Hugli with moderate levels of effective urbanisation has experienced very high level of rural development; Nadia with low level of effective urbanisation has high level of rural development and being classed in the very low levels of effective urbanisation, South Twenty four Parganas and Murshidabad show moderate level of rural development.

Again in 2001, Nadia and South 24 Parganas with very low levels of effective urbanisation, have moderate levels of rural development.

Table 3.11 **Districts cross classified according to the Index of Effective Urbanisation and the Index of Rural Development, 2001**

Levels of effective urbanisation	Levels of Rural Development				
	Very high	High	Moderate	Low	Very low
Very high	Haora				
High			North Twenty four Parganas		
Moderate		Hugli	Barddhaman		
Low			Darjiling, Jalpaiguri		
Very low			Nadia, South Twenty four Parganas,	Maldah, Koch Bihar, Birbhum, Medinipur, Bankura Murshidabad	Uttar Dinajpur, Dakshin Dinajpur, Puruliya,

The main thrust of this part of the study is to find out causal relationship between the 'Index of Effective Urbanisation' and the 'Index of Rural development' to confirm the foregoing analysis statistically. Table 3.12 exhibits the results of both Pearson's Product Moment Correlation (r) and Spearman's Rank Correlation (rho) (ρ) along with the Regression values between these two aspects.

Table: 3.12

Results of Correlation and Regression analysis explaining the 'Index of Rural Development' by the 'Index of Effective Urbanisation'

Year	Correlation Coefficient		Regression Coefficient ('b')	Regression Constant ('a')	R ²
	'r'	'p'			
1991	.805**	.689**	1.263	0.00383838	.648**
2001	.863**	.787**	1.025	0.00059727	.745**

Note: ** Significant at .01 level of significance

Computed

It is observed from table 3.12 that rural development has a high positive association with the effective urbanisation both in 1991 and 2001 according to the product moment correlation values. Considering the rank correlation values, it may be inferred that these two phenomena have a moderately high association. As the relationship is statistically significant, it may be deduced that in West Bengal rural development is strongly linked with the phenomenon of urbanisation and the nature of association is increasing as has been observed by the two time periods in the present context.

Regarding the extent of the relation, the regression results suggest that for a unit increase in urbanisation, rural development would increase by 1.26unit and 1.025 respectively as in 1991 and in 2001. The regression equation can therefore be written as follows:

For 1991:

$$Y = .00383838 + 1.263(X)$$

$$\text{Rural Development} = .00383838 + 1.263(\text{Index of Effective Urbanisation})$$

For 2001, the equation is:

$$Y = .00059727 + 1.025 (X)$$

$$\text{Rural Development} = .00059727 + 1.025 (\text{Composite Index of Urbanisation})$$

As the two said indices (EUI and RDI) symbolise the constituent variables of the two characteristics, therefore we cannot straightaway spell out the exact percentage of rural development influenced by the index of effective urbanisation. But, the computed regression (mentioned above) certainly gives an indication of the relationship between the two characteristics and thus such computation can be dependable for future planning and policy prescription.

The values of coefficient of determination (R^2) highlight that 64.8% variations in rural development have been explained by effective urbanisation in 1991, while this percentage has increased to 74.5% in 2001. Thus the nature of relationship between these two characteristics is showing an increasing tendency. This fact again confirms the strength and the reliability of the relationship.

Since the correlation coefficient, the regression coefficient and the coefficient of determination for both the cases have been found to be significant at 1% level of significance, it may be said that the relationship between urbanisation and rural development in West Bengal is statistically significant. Thus, the hypothesis (no.1, as mentioned in the 'Introduction') that higher the extent of urbanisation, higher will be the levels of rural development and urbanisation, as a whole, has a positive impact on rural development has been validated.

Summary

The foregoing discussion makes explicit the following features:

1. The disposition of *urban landscape* in West Bengal is *colonially-induced* and, as such, is characterised by the overshadowing Kolkata and its surroundings in an otherwise low plane of urban populace.
2. An inter-district gap in relation to the level of urbanisation, measured in terms of *per cent urban population*, is exemplified by North Twenty four Parganas and Maldah at the two extremes with more than 51% and 7% urban population respectively.
3. The spatial disparity is also evident in view of *urban-rural ratio*, as the areas having high percentage of urban population have high urban-rural ratio and vice versa.
4. Regarding the *rate of urbanisation*, a generalised pattern has been observed, i.e., the districts with higher proportion of urban population (e.g. Haora, North Twenty four Parganas, Barddhaman etc) exhibit higher rate of urbanisation than the districts with lower ratio of urban population.
5. The predominantly rural character of the state of West Bengal is focused by the facts that there are only 7-8 *urban settlements per 10 lakh rural population* and that the *town density* is only 4.3 (as per 1991 census).

Further, variations across the districts are well-marked in these respects. Here again, we find Haora at the topmost position followed by North Twenty four Parganas.

6. The *urban population densities* of Haora and North Twenty four Parganas have increased over time in order to accommodate the excess population from Kolkata.
7. The district-wise scenario of *growth rates for urban and rural population* over a period of 1951-2001 indicates that the districts of Haora and North Twenty four Parganas have been experiencing higher urban growth rates than Kolkata as a result of movement of population from Kolkata core to these peripheries. Again, most of the districts (excepting Nadia, Uttar Dinajpur, Bankura, Birbhum in 1991-2001 and Dakshin Dinajpur in 1981-1991 and in 1991-2001) are showing higher growth rates for urban population than their rural counterparts.

8. The combined picture of urbanisation, reflected in the *Index of Effective Urbanisation*, has substantiated the findings discussed above, i.e., the intensity of urbanisation is centralised around Kolkata, especially in Haora, North Twenty four Parganas, moderately in Hugli, Barddhaman and Darjiling. Therefore, these areas comprise the urbanised zone of the state as a whole.
9. The inter-district assessment of composite development of rural areas (represented by the *Index of Rural Development*) reveals that rural development is effective in general in the zones of high effective urbanisation with a few exceptions, e.g., in Nadia where low effective urbanisation is accompanied by moderately high level of rural development in 1991.
10. The estimation of the *association between urbanisation and rural development* supports our assumption, made at the beginning of the chapter, as a high positive correlation between the *Index of Effective Urbanisation* and the *Index of Rural Development* has been observed. Further, the process of urbanisation as a whole has been found to have a positive impact on the process of rural development, which also has shown an increasing tendency over time.

It may therefore be concluded that without a strong and planned cohesion between urbanisation and rural development, progress in either direction may not be achieved.

References

1. Bryant, C.R., Russwurm, L.R., Mclellan, A.G., (1982) *The City's Countryside*, Longman, London and New York, p.6
2. Pradhan, Rudra Prakash (2005) "Urbanization in India and its impact on Rural Poverty and Non-farm Employment", *Indian Development Review*, Vol.3, No.2, Serials Publication, New Delhi, pp.193.
3. United Nations Development Programme (1990), *Human Development Report*, Oxford University Press, New York, pp.90.
4. Dasgupta Biplab (1987) "Urbanisation and Rural Change in West Bengal", *Economic and Political Weekly*, Vol XXII, No 7, February 14, 1987 pp.276
5. World Bank (1975a), *Rural Development Sector Policy Paper*, Washington .D.C., World Bank
6. Parveen Shahnaz (2005), *Changing Face and Challenges of Urbanization: A case study of Uttar Pradesh*, Concept Publishing Company, New Delhi, pp.73
7. Dasgupta Biplab (1987), *op.cit.*, pp.277
8. Madan,G. R. (1983) *India's Developing Villages*, Print House (India), Lucknow, p.30
9. *Ibid.*
10. Parveen Shahnaz, *op.cit.*, p. 62
11. Chatterjee, Biswajit & Ghosh, Dilip Kumar,(2003), *Towards a District Development Report for West Bengal*, State Institute of Rural Development, West Bengal, pp.70
12. Kumaran (1985), "Urban settlement system of Tamilnadu: directives for future planning from transdisciplinary perspectives", in Mukhopadhaya, S.C. (ed.), *Geographical Mosaic*, Modern Book Agency Private Ltd., Calcutta.
13. Kundu, A. (1980) *Measurement of Urban Processes*, Popular Prakashan, Bombay, pp. 38-39
14. Parveen Shahnaz (2005), *op.cit.*, pp.66
15. Kundu, A. (1980), *op.cit.*, pp. 52
16. *Ibid*, p.47
17. *Ibid*, p.52