CHAPTER 1

Introduction and Human Development Indices for West Bengal

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West Bengal is an unusual, indeed unique state in the country. It is the only one of the states in India to have been ruled continuously (since 1977) by a Left Front government for more than a quarter of a century. This government in turn has been motivated by a vision of political, economic and social change that has been different from that observed among most other state governments or the central government. This vision has determined a focus on two specific but inter-related strategies at the state level: land reform, including both greater security of tenure to tenant cultivators and redistribution of vested land; and decentralisation and people's participation through panchayat institutions. The West Bengal experience is therefore especially interesting, as it provides an insight into the possibilities and limitations of a particular strategy of change at the state level, in a wider federal context of rather different orientation of both the central government and other state governments.

This report will therefore have a particular focus on the nature and impact of the two major public initiatives which have characterised the state in the past 26 years: land reform and decentralisation. The central questions to be addressed are: how have these initiatives and the processes they have unleashed affected human development and the conditions of life of the people of the state? What specific effects have they had? Why have the positive effects not been even more pronounced? What explains the differences across regions and districts within the state in this regard? What are the factors constraining human development in the state at present and how can they be overcome?

It is important to remember that all states in the country are crucially affected by macroeconomic conditions that prevail in the country as a whole, and that the economic policies of the central government continue to have the dominant effects on the basic conditions of life and work of the people in all states. The division of economic responsibility between Centre and States which is part of India's federal structure has ensured that state governments have relatively limited powers in terms of resource mobilisation and control over basic economic processes, even while their responsibilities in terms of physical infrastructure and the provision of health and education facilities, remain onerous. Since the early 1990s, there has been even greater concentration of fiscal powers and reduced flow of resources to state governments from the Centre, which has dramatically affected both the fiscal position and the ability to engage in productive expenditure, of most state governments. Therefore, despite the fact that formally speaking the responsibility for several of the factors that affect human development (such as health and education) rests with state

This report focuses on two major public initiatives of the past 26 years: land reforms and decentralisation.

governments, in reality their powers to alter these conditions significantly are relatively limited. More precisely, when broader macroeconomic processes are adverse, the likelihood of dramatic positive improvements in the conditions of life of most people in any one state is relatively small. The best that can be hoped for is that changes at the margin, in conditions of livelihood, nutrition, human security, health, sanitation, education and also in the extent of people's participation, will be positive.

Macro processes and historical legacies both affect current human development conditions in the state.

To this more general effect of aggregate macro processes, must be added the burden of history. There are some states in the country – Kerala being the most obvious example – that have a long history of progressive state policies especially with respect to features such as education. There are others – such as Punjab – where again for historical reasons, the provision of physical infrastructure such as transport links and irrigation networks, was relatively well advanced. There are strong historical and structural factors that have influenced both the degree of development of individual states, as well as the relative backwardness of regions within states. In West Bengal, any discussion of the burden of history must also recognise the role played by the colonial administration in restricting access to education to certain social groups as well as creating a complex and oppressive system of land relations, along with the varied effects of final partition of the state at Independence.■

About West Bengal

With a population of about 82 million in 2001 according to the 2001 Census, West Bengal is the fourth most populous state situated in the eastern region of India. Accounting for about 2.7 per cent of India's area (88,752 square km) but about 7.8 per cent of the country's population, this state ranks first in terms of density of 904 per sq km as per the 2001 Census. The boundaries of the state are Nepal, Bhutan and the state of Sikkim on the North, Goalpara district of Assam and Bangladesh on the East, Orissa and Bay of Bengal on the South and Bihar on the West.

About 72 per cent of the people live in rural areas. According to the Planning Commission, the proportion of population below the poverty line in 1999-2000 in West Bengal was 31.85 per cent. The percentages of scheduled caste and scheduled tribe populations are 28.6 and 5.8 respectively in the rural areas and 19.9 and 1.5 respectively in the urban areas.[1] Among the minorities, the Muslims are the dominant section and they account for about 28.6 per cent of the total population in West Bengal.[2] The corresponding figures for rural and urban areas were 33.3 per cent and 11.8 per cent

1 NSSO Report 469-Employment and unemployment among social groups in India— 1999-2000.

2 NSSO, Report number 468: Employment and unemployment situation among religious groups in India, 1999-2000.

respectively. Further, it may be noted that these three categories, namely SC, ST and Minorities, together account for more than half the population, and these are also the three poorest groups in rural Bengal.

A significant part of the state is relatively more backward economically, and also tends to be less advanced in terms of human development. These include large parts of the six northern districts (Darjeeling, Jalpaiguri, Koch Behar, Malda, Uttar Dinajpur and Dakshin Dinajpur), the three western districts (Purulia, Bankura and Birbhum) and the Sunderbans area of the two 24 Parganas districts in the south of the state. The specific problems of these areas are considered in more detail in Chapter 10.

Recently, West Bengal has been one of the fastest growing states in terms of income.

The aggregate state domestic product in 2000-01 was about Rs. 17860 Crores in current prices and the per capita SDP was about Rs. 16072. This is higher than the national average. It reflects a compound annual growth rate of 7 per cent and per capita growth of 5.4 per cent over the period 1993-94 to 2000-01, making West Bengal one of the fastest growing states in India in that period.[3]

For most of its post-independence history, West Bengal was a food deficit state, dependent upon the central government for a major part of its supply, to be routed through the public distribution system. For a long time, food production remained stagnant and the technology of green revolution bypassed the state. However, there was a significant spurt in agricultural production from the early 1980s and the state is now surplus in foodgrain. There has also been some diversification in cultivation, so that along with jute, West Bengal is now the major producer of vegetables in the country. Tea plantations, a major foreign exchange earner, also occupy a substantial proportion of land in North Bengal.

The share of West Bengal in the total value of industrial output in India was about 9.8 per cent in 1980-81 and it had declined gradually over time to 5.0 per cent by 1997-98. However, the services sector has expanded in the state, faster than the national average. These issues are discussed in more detail in Chapter 4.■

The macroeconomic context

Since aggregate macroeconomic processes are so important, it is useful to highlight the main patterns of change in the Indian economy and society as a whole over the past two decades. For the Indian economy as a whole, there were major changes in economic strategy that began in the mid-1980s but became much more marked from the early 1990s. The economic reforms of this

3 BAES, Government of West Bengal, Report on the West Bengal Economy, August 2003.

Economic growth in India as a whole has not led to much improvement in material condition for most of the population, and has increased economic vulnerability.

period, which are typically described as a package of "globalisation, liberalisation and privatisation", bore a strong resemblance to the standard "Washington Consensus" policies. The main policy changes included:

- very substantial reduction in direct state control in terms of administered prices, regulation of economic activity,
- privatisation of state assets, often in controversial circumstances
- rationalisation (usually also a euphemism for reduction) of direct and indirect tax rates, which became associated with declining tax-GDP ratios
- attempts (typically unsuccessful) to reduce fiscal deficits which usually involved cutting back on public productive investment as well as certain types of social expenditure, reducing subsidies to farmers and increasing user charges for public services and utilities
- trade liberalisation, involving shifts from quantitative restrictions to tariffs and typically sharp reductions in the average rate of tariff protection
- financial liberalisation involving reductions in directed credit, freeing of interest rate ceilings and other measures which raised the cost of borrowing, including for the government
- moving from administered exchange rates to open market intervention in exchange rate management and liberalisation of current account transactions
- allowing some degree of capital account liberalisation, including easing rules for Foreign Direct Investment, allowing non-residents to hold domestic financial assets and providing easier access to foreign commercial borrowing by domestic firms.

Despite some apparent successes in certain sectors, on the whole the process of global economic integration did little to improve the trend rate of GDP growth beyond the levels achieved from the early 1980s, did not cause a dramatic improvement in the material conditions of most of the population, and generally added to the greater vulnerability and insecurity. The rate of growth of aggregate GDP in constant prices has been between 5.5 per cent and 5.8 per cent in each five-year period since 1980, and the process of accelerated liberalisation of trade and capital markets did not lead to any change from this overall pattern. Accounting for annual fluctuations, the very recent period has not witnessed any departure from this trend of aggregate growth. Moreover, this growth has been marked by significant increases in regional and spatial inequalities.

More significantly, the period since 1990 has been marked by very low rates of employment generation. Rural employment in the

period 1993-94 to 1999-2000 grew at the very low annual rate of less than 0.6 per cent per annum, lower than any previous period in post-Independence history, and well below (only one-third) the rate of growth of rural population. Urban employment growth, at 2.3 per cent per annum, was also well below that of earlier periods, and employment in the formal sector stagnated. There has been, for the past three years, a severe crisis in the agriculture sector, as cultivators have been hit by lower or stagnant crop prices because of the threat of import competition from highly subsidised imports, even as they struggled to cope with higher costs because of cuts in domestic input subsidies.

Other indicators point to disturbing changes in patterns of consumption. Thus, per capita foodgrain consumption declined from 476 grams per day in 1990 to only 418 grams per day in 2001. The National Sample Survey data also suggest that even aggregate calorific consumption per capita declined from just over 2200 calories per day in 1987-88 to around 2150 in 1999-2000. Meanwhile, declining capital expenditure by the government has been associated with more infrastructural bottlenecks and worsening provision of basic public services. All these features: decelerating employment growth, declining access to food for ordinary people, and worsening coverage and quality of public services, have had particular impact upon the condition of women.

While there has been some overall stability of the growth process compared to the boom-and-bust cycles in other emerging markets, this basically reflects the relatively limited extent of capital account liberalisation over much of the period, and the fact that the Indian economy was never really chosen as a favourite of international financial markets over this period. In other words, because the economy did not receive large inflows of speculative capital, it did not suffer from large outflows either. Meanwhile, stability to the balance of payments was imparted by the substantial inflows of workers' remittances from temporary migrant workers in the Gulf and other regions. This has amounted to more than all forms of capital inflow put together.

All-India trends of concern include poor employment generation, problems of agriculture and falling per capita food consumption.

While the actual capital inflows into the economy did not amount to much over the 1990s, the apparent desire to attract and maintain such inflows led to significant constraints on government policy. In particular, there were (self-imposed) limits on fiscal expansion, and more particularly on enhanced productive spending. This had unfortunate implications especially in the more recent past, which has witnessed hardly any increases in the state's productive expenditure, despite domestic recession, unemployment, crisis in

For India as a whole, there has been only slow progress in improving human development conditions.

agriculture, and clear signs of slack in the form of high surplus holdings of foodgrain and large foreign exchange reserves. In sum, therefore, there were a number of adverse effects of such policies, which included increasing inequalities of income; worsening trends in per capita food consumption and nutrition; deceleration of employment generation; a relative decline of manufacturing, especially in the small scale sector, and the stagnation or decline of manufacturing employment; and deterioration in the quality of employment.

All this in turn meant that progress in improving human development indicators for India as a whole has been relatively slow.

Obviously, West Bengal was affected by all of these macroeconomic processes, which have affected pattern of growth and employment generation as well as the ability to progress in terms of human development. One feature which has been crucial for West Bengal as a state which is heavily dependent upon agricultural production, and whose performance in this sector has been well above the national average, is the decline in crop prices for farmers, which was strongly marked from 1996 onwards. Across India there is now an agrarian crisis related to this phenomenon, which has been associated with rising input prices as well. Agriculture was driving the West Bengal economy, so this naturally created enormous pressure upon the state. In addition, the state has faced even more adverse fiscal conditions than some other states, in some cases resulting from a relatively unsympathetic central government.■

West Bengal in the national context

Comparisons of West Bengal with the rest of India, in terms of economic growth and human development, are provided in the chapters that follow. Here, it is worth mentioning that in terms of the more obvious indicators of human development, the state is somewhere in the middle of all Indian states. Per capita State Domestic Product in West Bengal in the late 1990s was just above the national average. Per capita consumption expenditure in 1999-2000 (according to the National Sample Survey Organisation) in West Bengal was Rs. 572 per month, lower than the national average of Rs. 591 per month. The inequality in consumption was lower in the state than for all-India, and for most other states, in both rural and urban areas.[4] However, the difference between rural and urban per capita consumption was higher in West Bengal than the all-India pattern. When consumption is adjusted for different rates of inflation and inequality, per capita consumption in West Bengal turns out to be higher than the all-India average.[5]

4 The Gini coefficient for rural consumption expenditure in West Bengal was 0.224 compared to the national average of 0.258, and for urban areas it was 0.328 compared to the national average of 0.341.

5 Thus, the adjusted figure for West Bengal was Rs. 119 per month per capita, while for All-India it was Rs. 111 per month per capita. Planning Commission, National Human Development Report 2001, page 150.

According to the Planning Commission, the incidence of poverty in West Bengal in 1999-2000, at 27 per cent of the population below the poverty line, was only marginally higher than the national average of 26 per cent. However, it was more rurally concentrated: 84 per cent of the absolutely poor population of West Bengal lived in rural areas, compared to 74 per cent in India as a whole.

West Bengal ranks in the middle of all Indian states in both per capita income and human development.

In terms of basic household amenities, West Bengal's performance tends to be lower than the national average. In the late 1990s, 68 per cent of urban households and only 16 per cent of rural households had pukka houses, compared to 71 per cent and 29 per cent respectively for all-India. Half the households had access to toilet facilities, which is the same as for all-India. Many more households – 82 per cent – had access to safe drinking water in West Bengal than the Indian average of 62 per cent. Electrification has proceeded more slowly than in the rest of India: in 1991, only 33 per cent of all households in West Bengal had electricity connection, compared to 42 per cent for All-India.

As will be seen in Chapter 7, literacy and education indicators in West Bengal are well below what could be expected given the social and political orientation of the ruling state government in the last two and a half decades. The aggregate literacy rate (at 69 per cent in 2001) was only marginally above the national average of 65 per cent. Only 63 per cent of children in West Bengal in the age group 7-14 years were literate in 1991, compared to the All-India proportion of 64 per cent. Age-specific school enrolment ratios for children tended to be lower than the national averages in 1991, although these ratios have improved since then.

Health indicators, which are discussed in more detail in Chapter 6, suggest a very mixed performance. Infant mortality rates are among the lowest in India, child mortality rates are also relatively low, and life expectancy is higher than the national average. This seems to have occurred despite the relatively less developed conditions of health infrastructure, since the state has lower ratios of health care centres per population as well as higher ratios of population per hospital bed, than the All-India average. Nutrition indicators are rather poor, with higher incidence of anaemia and iron deficiency especially among women and young children, than for India as a whole.■

Demographic profile of West Bengal

A fundamental feature of West Bengal is the very high population density, which is nearly 3 times that of the Indian average. There has been a great concentration of population over the centuries in

West Bengal is the most densely populated state in the country.

the alluvial lands of the Gangetic plains of West Bengal. Historical and socio-economic factors have determined the present very high density of population in the state. Apart from the internal migration from the neighbouring states such as Bihar, Orissa and Uttar Pradesh to Calcutta, Haora and other industrial areas of the state, Partition led to an almost continuous stream of migrants into the State from across the Indo-Bangladesh borders. The phenomenal growth of population in some of the Northern districts such as Koch Behar and West Dinajpur and also in the Southern districts of Nadia and 24 Parganas in the first forty years after Independence gives an indication of the enormity of migration. The density of population consequently increased sharply in a number of areas of the State. With a population density of 904 persons per sq. km. in 2001, West Bengal is currently the most densely populated state in the country.

Greater population pressure inevitably puts more pressure on basic infrastructure as well as on the provision of health and education services. The extremely high population density obviously affects per capita resource allocation, so whatever West Bengal has achieved has been in spite of this critical negative factor of having the highest population density in the entire nation. The variation across districts in this regard also needs to be borne in mind when considering inter-district differences in human development indicators.

Table 1.1 Districtwise population density (persons per square km)
Source: Guha Roy (2003) using Census of India.

	1991	2001	Annual Population growth rate 1991-2001, per cent
Darjeeling	413	510	2.4
Jalpaiguri	450	547	2.2
Koch Behar	641	732	1.4
Uttar Dinajpur	604	778	2.2
Dakshin Dinajpur	555	677	2.9
Malda	706	881	2.5
Murshidabad	890	1101	2.4
Birbhum	562	663	1.8
Bardhaman	861	985	1.4
Nadia	981	1172	2.0
Kolkata	23783	24760	0.4
North 24 Parganas	1779	2181	2.3
Hugli	1383	1601	1.6
Bankura	408	464	1.4
Purulia	355	405	1.4
Medinipur	592	685	1.6
Haora	2542	2913	1.5
South 24 Parganas	574	694	2.1
West Bengal	**767**	**904**	**1.8**

As Table 1.1 indicates, there is substantial variation across districts even with respect to density of population, even if we exclude those districts which are dominantly urban (Kolkata) and suburban (Haora). Nor is there any clear pattern with respect to growth of population.

Birth and death rates have declined more quickly in West Bengal than in India as a whole.

Contrary to some popular perceptions, it is not very likely that recent increases in population density have resulted dominantly from in-migration from neighbouring countries. Out of the nineteen districts (Medinipur has recently been bifurcated) of the State, nine have international borders with Bangladesh. Two such districts – Jalpaiguri and Koch Bihar – show uniformly a declining rate of growth over the decades from 1961-71 to 1991 – 2001. Nadia, another border district, also experienced a sharp decline in growth rate from 3.3 per cent in 1971-81 to only 2.0 per cent in 1991-2001. In the cases of 24 Parganas and Dinajpurs, the increase in growth rates from 1971-81 to 1981-91 was followed by a sharp decline in 1991-2001. The other two border districts Malda and Murshidabad contributed a little over 12 per cent to the decadal (1981-91) growth of population of West Bengal.

All the border districts together account for 44.5 per cent of the 13.4 million population that were added to 1981 census aggregate to make the State population size stands at 68 million in 1991. On consideration of the contribution of natural growth (that is, excess of births over deaths), which is not insignificant, a major concentration of recent migrants in the border districts does not seem to have occurred. Non-border districts accounted for 55.5 per cent of the total population growth of West Bengal in 1981-91. Given the moderate levels of vital rates, this implies that the reported increase in immigration over the decade was not confined to a few border districts, but has possibly undergone a spatial diffusion to other parts of the state.[6]

West Bengal has been successful in bringing down both birth rates and death rates, with one of the most rapid decline in birth rate in India. As Table 1.2 indicates, the decline in the birth rate has been nearly double that of the all-India average over the period 1990-2001, while the decline in the death rate has been one and a half times that of the national average. Infant mortality had also declined at a marginally more rapid rate than all of India.

Year	Birth Rate		Death Rate		Infant Mortality Rate	
	India	West Bengal	India	West Bengal	India	West Bengal
1990	30.2	28.2	9.7	8.4	80	63
1996	27.5	22.8	9.0	7.8	72	55
2000	25.8	20.7	8.5	7.0	68	51
2001	25.4	20.5	8.4	6.8	66	51

Table 1.2 Vital Rates of India and West Bengal (per thousand)
Source: Sample Registration System, Registrar General of India.

6 Guha Roy 2003.

Life expectancy in West Bengal is well above the national average, and the state is one of the better performing states in this regard, even in terms of increases over time. However, there are certain districts with life expectancy well below average, which require special attention, such as Malda, Koch Behar, Birbhum and Murshidabad, all of which have average life expectancy of below 60 years.

Table 1.3 Life expectancy at birth, (estimated for 2001)
Source: Guha Roy (2003)

	Female	Male
Darjeeling	71	67
Jalpaiguri	63	61
Koch Behar	57	53
Dinajpur	63	61
Malda	55	54
Murshidabad	60	58
Birbhum	58	56
Bardhaman	71	68
Nadia	65	63
Kolkata	75	74
North 24 Parganas	71	66
Hugli	73	69
Bankura	68	62
Purulia	63	60
Medinipur	67	65
Haora	73	70
South 24 Parganas	70	65
West Bengal	**69**	**65**
India	**65**	**64**

Table 1.4 Sex ratios by district
Source: Census of India, 2001

	1991	2001	Per cent change
Darjeeling	914	943	3.2
Jalpaiguri	927	941	1.5
Koch Behar	935	949	1.5
Uttar Dinajpur	921	937	1.7
Dakshin Dinajpur	944	950	0.6
Malda	938	948	1.1
Mushidabad	943	952	0.9
Birbhum	946	949	0.3
Bardhaman	899	921	1.4
Nadia	936	947	1.2
Kolkata	799	828	3.6
North 24 Parganas	907	927	2.2
Hugli	917	947	3.3
Bankura	951	953	0.2
Purulia	947	953	0.6
Medinipur	944	955	1.2
Haora	881	906	2.8
South 24 Parganas	929	938	1
West Bengal	917	934	1.8
India	927	933	0.6

Sex ratios have shown faster improvement in West Bengal than in most other states.

The sex ratio in West Bengal has historically been worse for women than the national average, but it has shown greater improvement in the recent period, so that it is now just above the national average. Further, the sex ratio for the age group 0-6 years, which has recently shown rapid deterioration at the all-India level, does not indicate such a decline in West Bengal, where it was 963 in 2001 compared to 927 for all-India. This is higher than the sex ratio for all age-groups, which is a very positive sign.■

Human development indicators for the districts of West Bengal

It is evident that human development in West Bengal presents a mixed picture, and this picture is further complicated by the variations across districts in the state. Table 1.5 presents the calculations for the Human Development Index for the different districts, as well as for the state as a whole. The method of calculation of the index, as well as the statistical sources, are described in the Appendix to this chapter. It should be noted that the table refers to undivided Dinajpur, because of the nature of the data available for consumption, poverty and life expectancy. There are very substantial differences across districts, such that the HDI ranges from a high of 0.78 for Kolkata, to a low of 0.44 for Malda.■

Table 1.5 Human Development Indices by district

	Health Index	Income Index	Education Index	HDI	HDI Rank
Darjeeling	0.73	0.49	0.72	0.65	4
Jalpaiguri	0.61	0.38	0.60	0.53	10
Koch Behar	0.50	0.41	0.65	0.52	11
Dinajpur	0.62	0.39	0.53	0.51	13
Malda	0.49	0.36	0.48	0.44	17
Murshidabad	0.57	0.29	0.52	0.46	15
Birbhum	0.53	0.27	0.61	0.47	14
Bardhaman	0.74	0.47	0.71	0.64	5
Nadia	0.65	0.41	0.66	0.57	9
North 24 Parganas	0.72	0.49	0.76	0.66	3
Hugli	0.77	0.46	0.67	0.63	6
Bankura	0.67	0.26	0.62	0.52	11
Purulia	0.61	0.18	0.55	0.45	16
Medinipur	0.68	0.45	0.74	0.62	7
Haora	0.77	0.53	0.75	0.68	2
Kolkata	0.82	0.73	0.80	0.78	1
South 24 Parganas	0.71	0.40	0.68	0.60	8
West Bengal	**0.70**	**0.43**	**0.69**	**0.61**	

Gender issues

This report does not have a separate chapter on gender. Rather, the attempt has been to incorporate a gender perspective on all the issues considered throughout the report, and to assess the particular conditions and implications for women in each chapter. However, it may be worth outlining some of the important findings with respect to gender differences at this stage. Gender discrimination has been an important feature of economic and social processes in West Bengal, and while it has declined in some respects in the recent past, it remains significant. But it is more evident in economic variables and in literacy than in the longevity data, which indicate improving health position of women relative to men. This comes out very clearly in the calculations of the Gender Development Index which are presented here.

Human development in West Bengal presents a mixed picture, complicated further by inter-district differences.

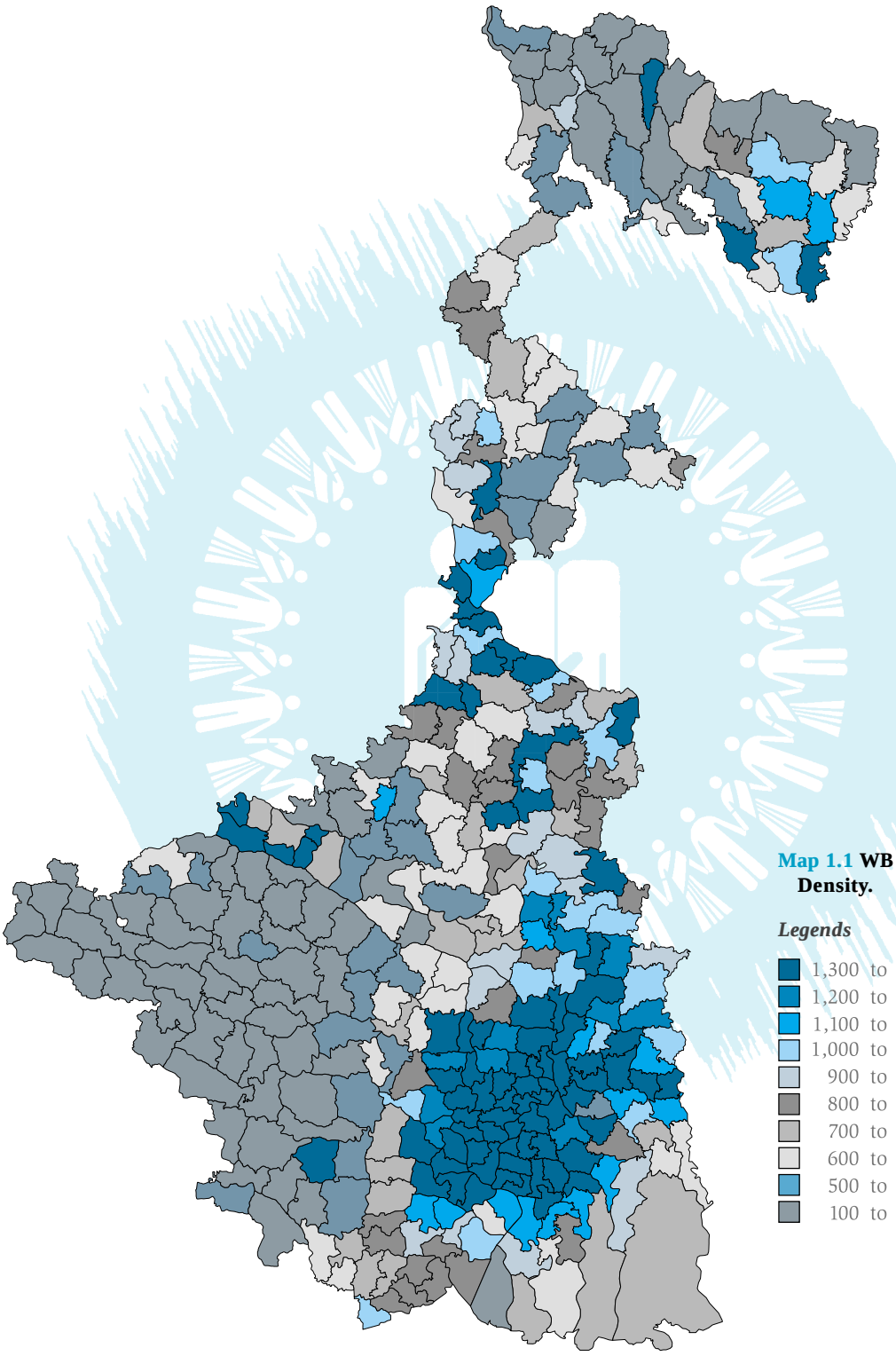
It is worth noting that the rankings of the GDI broadly follow the same pattern as the HDI rankings, in that districts with low HDI also tend to have low GDI. However, some districts such as Haora, North 24 Parganas, Bardhaman and Koch Behar tend to have worse ranking in terms of GDI than HDI, suggesting especially acute gender discrimination. The very low "Income index" component of the GDI essentially reflects the low workforce participation of women in West Bengal, which in turn suggests a combination of greater restrictions on women's economic agency as well as social lack of recognition of women's unpaid work. Both of these suggest a major undercurrent of gender discrimination in society.

Table 1.6 Gender Development Indices by district

	Health Index	Income Index	Education Index	GDI	GDI Rank
Darjeeling	0.731	0.356	0.714	0.600	2
Jalpaiguri	0.614	0.281	0.581	0.492	11
Koch Behar	0.497	0.287	0.628	0.471	13
Dinajpur	0.616	0.291	0.527	0.478	12
Malda	0.491	0.291	0.465	0.416	17
Murshidabad	0.566	0.176	0.527	0.423	16
Birbhum	0.533	0.178	0.595	0.435	14
Bardhaman	0.740	0.270	0.669	0.560	7
Nadia	0.649	0.215	0.653	0.506	9
North 24 Parganas	0.721	0.219	0.752	0.564	6
Hugli	0.764	0.259	0.720	0.581	3
Bankura	0.662	0.215	0.605	0.494	10
Purulia	0.606	0.161	0.506	0.424	15
Medinipur	0.683	0.323	0.728	0.578	4
Haora	0.773	0.194	0.742	0.570	5
Kolkata	0.824	0.320	0.783	0.642	1
South 24 Parganas	0.705	0.192	0.666	0.521	8
West Bengal	0.697	0.270	0.681	0.549	

Gender concerns are mentioned throughout the Report, confirming an undercurrent of continuing gender discrimination in society.

Such gender differences will be apparent throughout the report, in terms of differential rates of literacy and access to schooling, health and nutrition indicators. The policy interventions of the state government have had mixed effects in this regard. Until recently the choice of land reform beneficiaries tended to aggravate gender inequalities. However, women's participation in panchayats has been greater and more substantive than in many other states, and there are some regions within the state where this has had very positive social effects, including more diverse forms of empowerment of women. With respect to human security issues, women in West Bengal tend to be relatively better placed than in many other parts of India. Economic exclusion remains one of the most significant problems for women in the state, which tends to have spill-over effects in other aspects of life. However, the trends in all of these variables are broadly in a positive direction, although the pace of change is not as rapid as could be desired.■

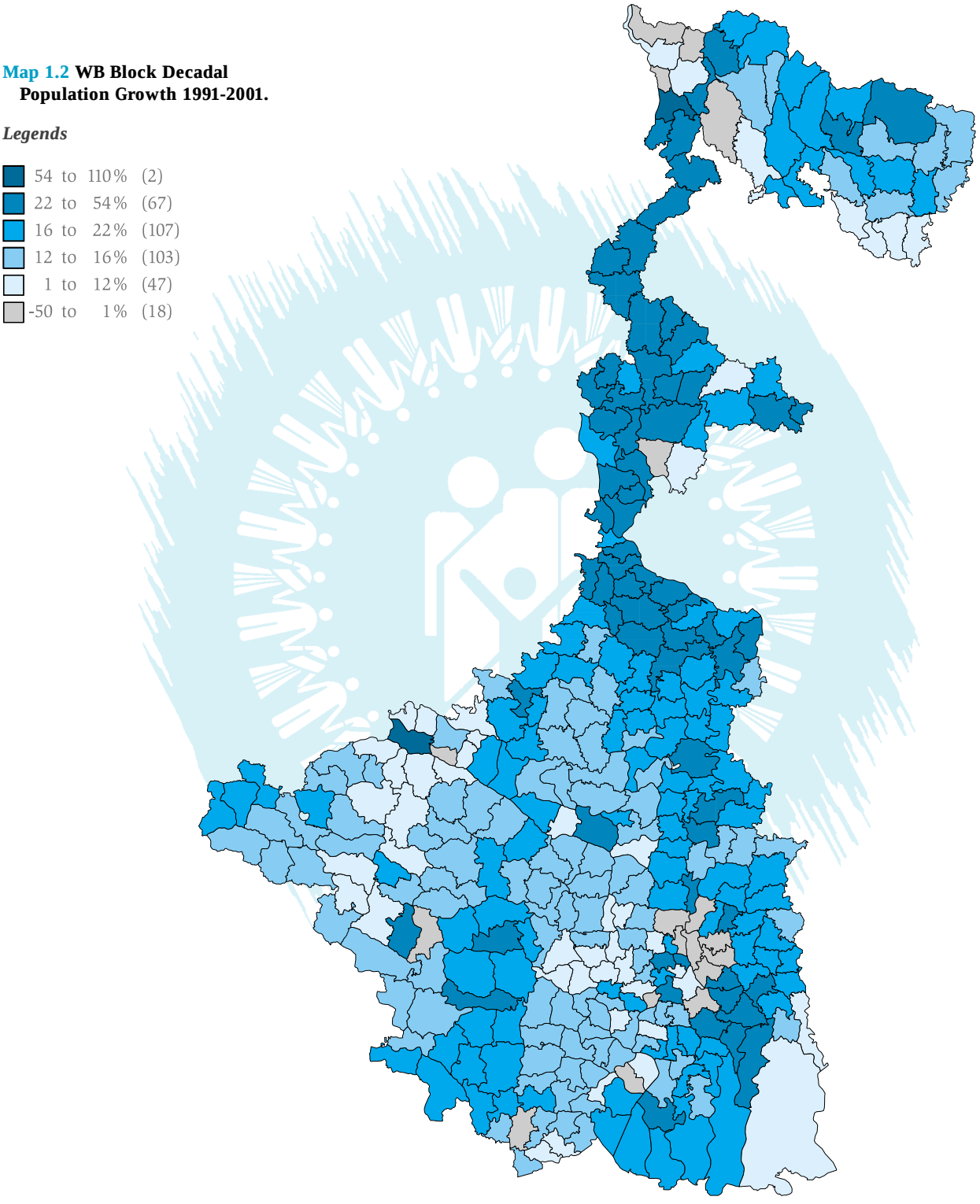


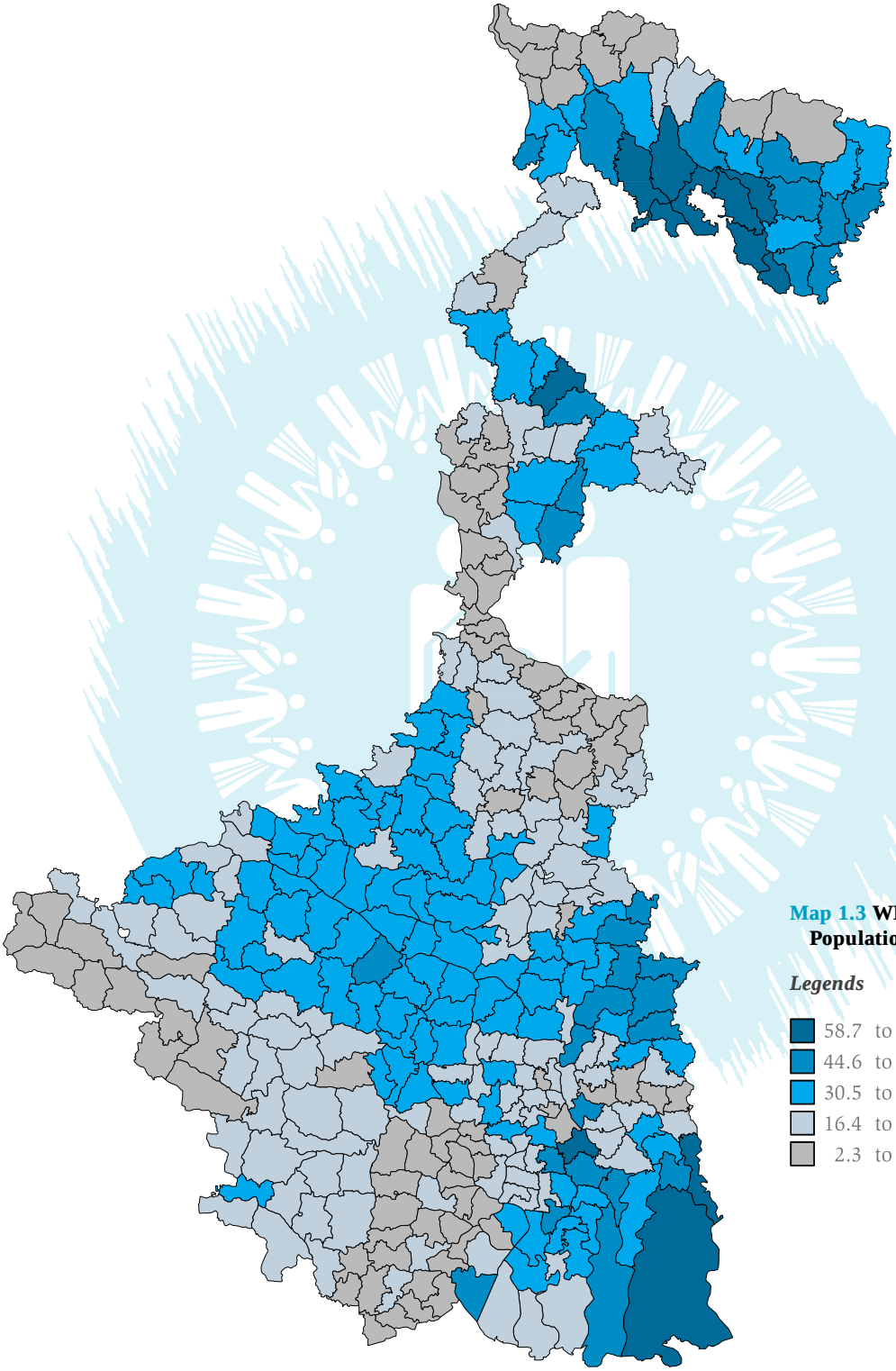
Map 1.1 WB Block Population Density.

Legends

1,300	to	24,800	(81)
1,200	to	1,300	(12)
1,100	to	1,200	(16)
1,000	to	1,100	(20)
900	to	1,000	(18)
800	to	900	(31)
700	to	800	(29)
600	to	700	(39)
500	to	600	(29)
100	to	500	(69)

Map 1.2 WB Block Decadal Population Growth 1991-2001.



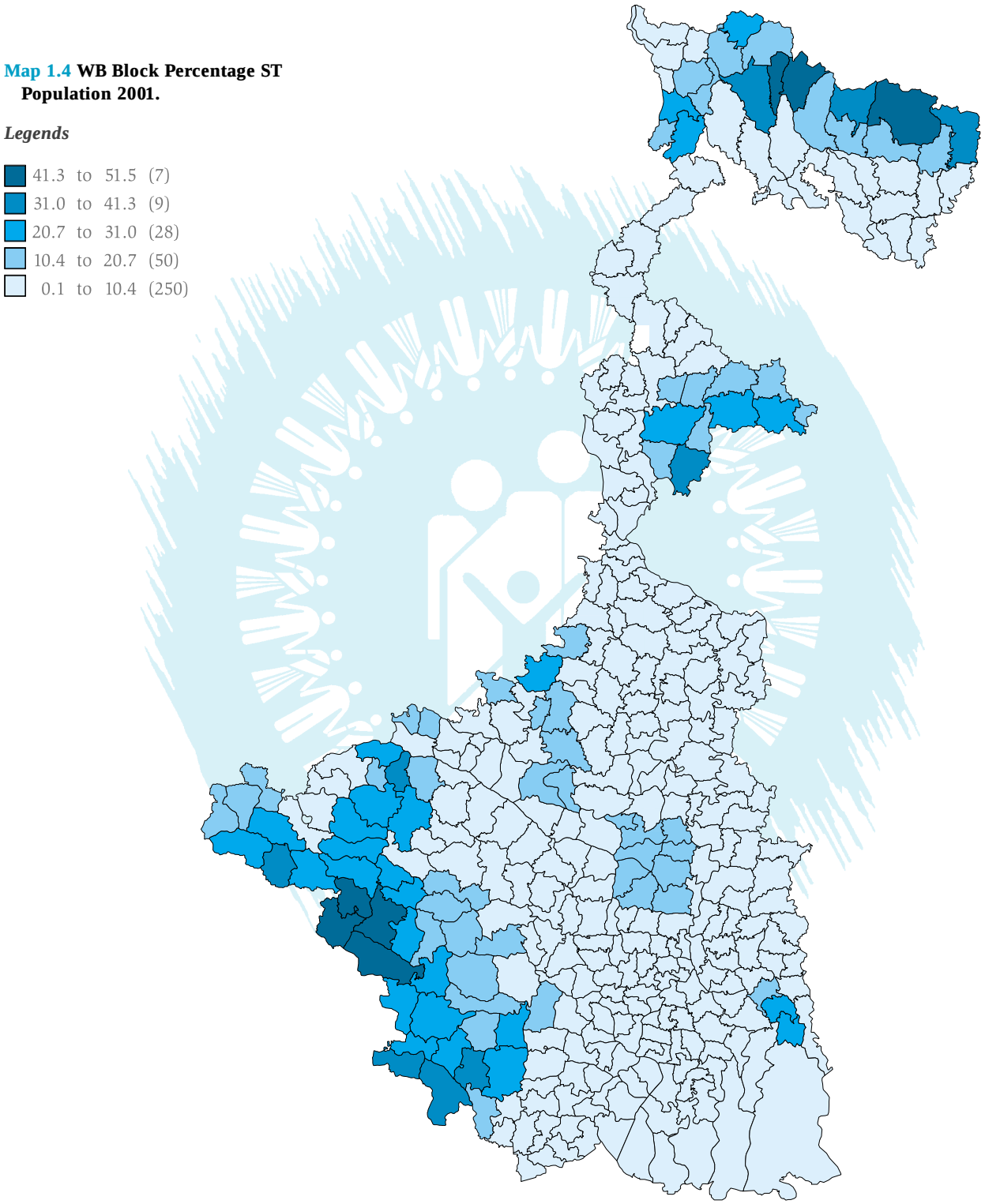


Map 1.3 WB Block Percentage SC Population 2001.

Legends

- 58.7 to 72.6 (12)
- 44.6 to 58.7 (29)
- 30.5 to 44.6 (103)
- 16.4 to 30.5 (114)
- 2.3 to 16.4 (86)

Map 1.4 WB Block Percentage ST Population 2001.



Technical Appendix: Calculation of the HDI and the GDI

The Human Development Index

The calculations of Human Development Index and Gender Development Index are similar to those followed by the UNDP, with some variations with respect to the estimation of the income index. The HDI attempts to capture in summary form, the three basic dimensions of health (expressed through longevity, that is, life expectancy at birth) knowledge (expressed as a combination of the literacy rate and the school enrolment ratio) and the standard of living (expressed as a combination of per capita income, per capita consumption expenditure and population living above the poverty line).

Each of these indicators is defined as a dimension with value between 0 and 1 with reference to maximum and minimum values. The general formula for calculating each dimension index is:

$$\text{Index} = \frac{\text{Actual value} - \text{minimum value}}{\text{Maximum value} - \text{minimum value}}$$

The HDI is then calculated as a simple average of the three different dimension values.

1. The health index has been worked out by simply using the district-level life expectancy ratios calculated for 2001 (details on this calculation are provided below) and using the UNDP norms of 85 years for maximum value and 25 years for minimum value. For illustration, consider the life expectancy rate for Nadia district estimated for 2001, which is 64 years.

$$\text{Health index for Nadia} = \frac{64 - 25}{85 - 25} = \frac{39}{60} = 0.65$$

2. The education index consists of a weighted average of the Census literacy rate (two-thirds weight) and the school enrolment rate provided by the NSS for age group 6-14 years (one-third weight). The maximum and minimum values of both of these are taken as 1 and 0. For illustration, consider again the case of Nadia where the literacy rate was 0.66 and the school enrolment rate was 0.64.

Education index for Nadia = (0.66 x 2/3) + (0.64 x 1/3) = 0.656 (rounded to 0.66).

3. The income index differs from that typically used by other Human Development Reports, because it contains within it three different variables, in order to capture as far as possible the actual income of people. It is a simple unweighted average of the dimensions of per capita District Domestic Product, the per capita monthly consumption expenditure and the per cent of the population above the poverty line in that district.

3.1 Per capita District Domestic Product index, based on data for 2000-01 from the BAES and Census population figures. The normalisation is by using the highest per capita State Domestic Product for 2000-01, which is Goa at Rs. 45,105 and the lowest, which is Bihar at Rs. 5108. The formula for the index for any one district is (district pc DDP-lowest SDP)/(highest SDP-lowest SDP). Illustrating with the case of Nadia which had a per capita DDP of Rs. 16,211 in 2000-01,

$$\text{Per capita DDP dimension for Nadia} = \frac{16211 - 5108}{45105 - 5108} = 0.28$$

3.2 Per capita monthly consumption expenditure, based on data from the NSS, 55th Round 1999-2000. The normalisation is by using the highest state mpce, which is Chandigarh at Rs. 1382, and the lowest region within a state, which is Southern Orissa at Rs. 246. With per capita monthly consumption expenditure of Rs. 525 in Nadia,

$$\text{Per capita consumption dimension for Nadia} = \frac{525 - 246}{1382 - 246} = 0.25$$

3.3 Per cent of population above the poverty line, using the NSS 55th Round data for 1999-2000. The normalisation is by using the highest possible proportion of people above the poverty line as 100 per cent, and the lowest as the current rate in rural Southern Orissa, which is 12 per cent, corresponding to a poverty ratio of 88 per cent. Since Nadia is estimated to have a poverty ratio of 26 per cent (which implies that 74 per cent of the people are above the poverty line)

$$\text{Poverty dimension for Nadia} = \frac{74 - 12}{100 - 12} = 0.70$$

3.4 The three dimensions are then combined into a simple average to give the composite income index. In the case of Nadia,

$$\text{Income index for Nadia} = \frac{0.28 + 0.25 + 0.7}{3} = 0.41$$

The three different indices for health, education and income are then combined into a simple average to give the Human Development Index for that district. In the case of Nadia,

$$\textbf{HDI for Nadia} = \frac{0.65 + 0.66 + 0.41}{3} = \textbf{0.57}$$

Gender Development Index

The GDI adjusts the average achievement in respect of these three dimensions, in order to reflect the inequalities between men and women. For this purpose, each dimension is calculated separately for men and women, according to the formula mentioned above. The measures for life expectancy and education are straightforward since separate data exist for males and females. For income, the share of women (or men) in all workers (according to Census 2001) and the ratio of female to male wage are taken as proxies for the share of income, with equal wage. Since gender-based wage differentials are not available by districts separately, the average ratio of 0.73 is taken for all districts in the state, based on state-level data from the Rural Labour Enquiry 1995-96 and the NSS 55th Round.

Then, the female and male indices in each dimension are combined such as to penalise the differences between men and women, to generate what is called "the equally distributed index" in each dimension. This assesses the difference from what would have been the case had there been no gender differential.

The general formula for this is as follows:

Equally distributed index = $\{[\text{female population share (female index}^{1-e})] + [\text{male population share (male index}^{1-e})]\}^{1/1-e}$

If e = 2, the formula then becomes the harmonic mean of the two indices:

Equally distributed index = $\{[\text{female population share (female index}^{-1})] + [\text{male population share (male index}^{-1})]\}^{-1}$

This is the formula used to derive the different equally distributed dimension indices. The simple unweighted average of these three is then to arrive at the GDI.

In the case of Nadia, the GDI is therefore calculated as follows:

1. *The equally distributed health index*. In Nadia the male life expectancy index is 0.633 and the female life expectancy index is 0.667. The male share of population is 0.514 and the female share of population is 0.486. Therefore the equally distributed health index for Nadia would be

$$\{[(0.667^{-1})0.486] + [(0.633^{-1})0.514]\}^{-1} = 0.649$$

2. *The equally distributed education index*. In Nadia the female education index (with two-thirds weight to literacy and one-third weight to school enrolment) is 0.601 and the male index is 0.711. With the same population shares as above, the equally distributed education index comes to

$$\{[(0.601^{-1})0.486] + [(0.711^{-1})0.514]\}^{-1} = 0.653$$

3. *The equally distributed income index.* The aggregate income index for Nadia is 0.41. With female share of all workers at 0.19 and the standard female-male wage ratio of 0.73, this gives the female share of income as (0.19 x 0.73)/ (0.19 x 0.73 + 0.81) = 0.148. The male share of income would therefore be (1-0.148) = 0.852. The per capita income index for women is then derived by multiplying this share of income with the income index and dividing by the female population share, which gives the female income index as 0.125 A similar procedure is adopted for men, to yield the male income index of 0.68. With the same population shares above, the equally distributed income index comes to

$$\{[(0.125^{-1})0.486] + [(0.68^{-1})0.514]\}^{-1} = 0.215$$

The GDI is a simple average of these three equally distributed indices, as follows:

$$\text{GDI for Nadia} = \frac{0.649 + 0.653 + 0.215}{3} = 0.506$$

Data Sources

As far as possible, the most reliable and universally accepted sources of data have been used. However, for many of these variables, district-level data have had to be generated through statistical techniques applied to the existing official data. Two major studies commissioned as part of the preparation of this report have generated the required district-level information.

The data on life expectancy by sex and district have been generated by a study by Professor Samir Guha Roy of the Indian Statistical Institute, Kolkata. This has used life-tables generated by smoothing the age-distribution of the 1981 and 1991 Censuses through the strong moving average method and then using the intercensal survival technique to generate age-distribution estimates for 2001 through extrapolation. Based on this, the estimation of life expectancies at birth for the districts used the Registrar-General's estimates for the state as a whole (65 years for men and 69 years for women) and the expected age-distributions derived from the intercensal data.[7]

The data on school enrolment, per capita monthly consumption expenditure and percentage of population above the poverty line, have been generated by a study organised by Professor Arijit Chaudhuri and Professor Nikhilesh Bhattacharya of the Applied Statistics Unit, ISI, Kolkata, with the assistance of staff from the Bureau of Economics and Applied Statistics, Government of West Bengal. This used Small Area Estimation techniques on data from the central sample of the NSS for the 55th Round (1999-2000), to generate district-level estimates for these variables. Therefore district-level data were made available in two forms: (1) estimates by the usual NSS procedures based on half-sampling; and (2) synthetic generalised regression estimates (GREG) derived from using the SAE technique. The SAE is supposed to yield improvements over the traditional NSS procedure in the form of lower standard errors; however, this was found to be not always the case. Therefore, in this report, both of these sets of data have been used: whenever the GREG estimate had a lower standard error, that estimate has been used, and otherwise the usual NSS estimate based on the central sample has been used.

The data on literacy rates are those provided by the 2001 Census. The data on District Domestic Product are those provided by the Bureau of Economics and Applied Statistics, Government of West Bengal. West Bengal is the only state to have a relatively long time series in the form of DDP data, which are estimated and published under the guidance and with the collaboration of the Central Statistical Organisation of the Government of India.

7 Details of the methodology and nature of calculations are available in Guha Roy (2003).