

Infrastructural Development Disparities In West Bengal, India

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Abstract: The part of infrastructure in nurturing economic growth and attractive public welfare is more manifest in rising economies like India. It is usually remarkable that there exists significant regional disparity in infrastructural facilities in West Bengal, more than ever within the districts. It is generally agreed that rapid industrial growth depends critically upon the availability of infrastructure support in the form of electric power, road and rail transportation and telecommunications. Similarly, agricultural growth depends upon rural infrastructure such as spread and quality of irrigation, land development, extent of rural electrification and increase of rural roads. A set of 10 indicators has been considered to represent the level and pattern of economic infrastructural development at the district level. The two aspects that have been given due consideration in the present context are the level of infrastructural facilities per unit of geographical area and the proportion of total population that play a part of these facilities. In the present paper, an attempt has been made to make a detailed district-level analysis. Some statistical techniques like average, coefficient of variation, cluster analysis, etc., have been used to show inter-district disparities in infrastructural development. The study finds that there are sharp disparities among the districts in the state of West Bengal. Summary of findings and conclusions have been made at the end of the paper for reducing of inter-district disparity in infrastructural development.

I. INTRODUCTION

The prosperity of a country depends directly upon the development of agriculture and its industry. Agricultural production, however, requires irrigation, power credit, transport facilities, etc. Industrial production requires not only machinery and equipment but also skilled manpower management, energy, banking and insurance facilities, marketing facilities, transport services which include railways, road and shipping, communication facilities, etc. All these facilities and services which help in industrial and agricultural production constitute collectively in the infrastructure of an economy. The development and expansion of these facilities are an essential pre-condition for increasing agricultural and industrial production in a country. In the last 200 years or more, industrial and agricultural revolutions in England and in other countries were accompanied by a revolution in transport and communications, the extensive use of coal and later oil as source of energy, tremendous expansion in banking, insurance and other financial institutions to finance production and trade, an explosion of knowledge of science and technology and so on.

Infrastructure facilities—often referred to as economic and social overheads consist of:

- ✓ Irrigation: including flood control and command area development.
- ✓ Energy: coal, electricity, oil and non-conventional sources.
- ✓ Transport: Railways, roads, shipping and civil aviation.
- ✓ Communications: Posts and telegraphs, telephones, telecommunications, etc.
- ✓ Banking, finance and insurance.
- ✓ Science and technology.
- ✓ Social overheads: health and hygiene and education.

Indian planners were fully aware of the link between infrastructural facilities and general economic development and accordingly, they gave high priority to the rapid expansion of these facilities right from the First Plan itself. The plans have generally devoted over 50 per cent of the total plan outlay on infrastructure development. As a result, there has been phenomenal increase in infrastructural facilities.

According to the Economic Survey 2007-08, we should however, note three basic features of infrastructural development here—

- ✓ The heavy investments by the Government on infrastructural facilities could be easily justified since they had provided the necessary impetus for rapid agricultural development and industrial expansion. In fact, without the rapid development of the infrastructure, it would have been impossible to register the threefold rise in agriculture production and seven fold rise in industrial production during the last six decades.
- ✓ Though infrastructural facilities were not altogether neglected for the rural areas—for example, expansion of irrigation, rural electrification, etc. —the overwhelming emphasis was on the provision of infrastructural facilities mainly for the urban areas. It is the people in our cities and towns who could take full advantage of the development of power, transport, communication, banking and such social overheads as education and health. The concentration of infrastructure in urban areas and their relative neglect in rural areas resulted in inadequate development and therefore, of inadequate employment opportunities in rural areas. This lead to mass exodus of the rural poor to urban areas—causing problems of urban congestion, growth of slums, acute housing shortage, transport bottlenecks, and so on.

Infrastructural development has not only shown an urban-bias, but it has also shown a bias in favour of the rich and the more affluent. It is the higher income groups who could take full advantages of such facilities, as power, transport and communications, health, etc. The major and medium irrigation works have generally benefited the rich farmers. Our planner generally neglected the minor irrigation works which would have benefited a large number of small and marginal farmers.

The economic infrastructure includes all such activities that provide general facilities for carrying on economic activities. These facilities mainly take the form of physical asset formation and termed as hard core of infrastructure. Such facilities are basic for general economic activity to continue smoothly.

II. INDICATORS OF ECONOMIC INFRASTRUCTURE DEVELOPMENT

In order to show the inter-district disparity in infrastructural sector development we have used the following indicators:

- 1: Length of roads per 100 Sq. Kms. of area
- 2: Length of roads per lakh of population
- 3: Gross irrigated area as percentage of gross cropped area
- 4: Number of tractors per ten thousand hectare of net area sown
- 5: Number of bank offices per hundred Sq. Kms. of area
- 6: Number of bank offices per lakh of population
- 7: Number of veterinary institutions per lakh of livestock population
- 8: Number of post offices per hundred Sq. Kms. of area
- 9: Number of post offices per lakh of population
- 10: Percentage of villages electrified

III. RATIONALE FOR THE CHOICE OF INDICATORS

The indicators 1 and 2 have been selected for measuring the level of development of road infrastructure. Roads are considered as the only effective transport infrastructure in the absence of other modes of transportation. The indicators 3 and 4 have been selected because of their significance and role in modernization of agriculture. Indicators 5 and 6 have been selected because bank offices play a pivotal role in catering to the financial needs of the villagers through advancing loans for the development of agriculture and industry. The choice of indicator 7 is made to show the extent of veterinary services available in different districts for providing proper health cover to the existing livestock population. The indicators 8, 9 and 10 have been selected for measuring the level of development of communication infrastructure.

IV. DISTRICT-WISE ECONOMIC INFRASTRUCTURE DEVELOPMENT: INDICATOR-WISE ASSESSMENT

The distribution of districts according to their respective level of development with respect to different indicators of economic infrastructural development is shown in Tables-1, 2 and 3 for the years 1980-81, 1990-91 and 2000-01 respectively.

A cursory look at the listing of indicators reveals that there has been significant increase in the various components of economic infrastructural facilities. Highest increase, during 1980-81 to 2000-01, has been observed in communication and electricity facilities, particularly availability of length of roads relative to population and electricity connection relative to villages. Bumpy geographical characteristics of cultivable lands in the West Bengal districts limits have expansion in gross irrigation facilities. It may be observed that gross irrigation facilities have marginally increased during the two decades.

Sl. No.	Indicator	State Average	Developed Districts	Developing Districts
1	Length of roads per 100 Sq. Kms. of area	20.30	Cooch Behar, Howrah,	Birbhum, Murshidabad,
			Hooghly, Darjeeling,	Jalpaiguri, 24 Parganas (S),
			Nadia, Burdwan	24 Parganas (N), Malda,
				Uttar Dinajpur, Dakshin Dinajpur,
				Bankura, Midnapore,
				Purulia, Kolkata
2	Length of roads per lakh of population	36.18	Darjeeling, Cooch Behar,	Uttar Dinajpur, 24 Parganas (S),
			Jalpaiguri, Bankura,	Burdwan, Hooghly, Nadia,
			Birbhum, Dakshin Dinajpur,	Malda, Murshidabad,
			Purulia	Midnapore, Howrah,
				24 Parganas (N), Kolkata
3	Gross	4.37	Burdwan,	Nadia, Howrah,

	Irrigated Area (% of GCA)		Birbhum	Midnapore
			Hooghly, 24 Parganas (N),	Malda, Darjeeling
			Murshidabad, Bankura	24-Parganas (S), Cooch Behar,
				Uttar Dinajpur, Dakshin Dinajpur,
				Purulia, Jalpaiguri, Kolkata
4	No. of tractors per ten thousand hectare of net sown area	3.00	Burdwan, Hooghly, 24 Parganas (N), Howrah	Nadia, Birbhum, 24 Parganas (S), Midnapore,
				Uttar Dinajpur, Malda,
				Murshidabad, Bankura, Purulia,
				Dakshin Dinajpur, Cooch Behar,
				Kolkata, Jalpaiguri, Darjeeling
5	No. of Bank offices per 100 Sq. Kms. of area	22.93	Kolkata	Howrah, Hooghly, 24 Parganas (N), Burdwan, Nadia, Birbhum,
				Darjeeling, Malda,
				Murshidabad, 24 Parganas (S), Cooch Behar, Midnapore,
				Purulia, Jalpaiguri, Bankura,
				Dakshin Dinajpur, Uttar Dinajpur
6	No. of Bank Offices per lakh of population	4.07	Kolkata, Darjeeling, Birbhum, Howrah	Hooghly, Burdwan, Purulia, 24 Parganas (N), Malda, Nadia, Bankura, Jalpaiguri,
				Midnapore, 24 Parganas (S), Cooch Behar, Murshidabad,
				Dakshin Dinajpur, Uttar Dinajpur
7	No. of veterinary institutions per lakh of livestock population	6.49	Kolkata, Darjeeling, Dakshin Dinajpur	Howrah, Purulia, Cooch Behar, Burdwan, Birbhum, Murshidabad, Hooghly, Midnapore, Nadia, Jalpaiguri, 24 Parganas (N),

				Malda, Bankura, Uttar Dinajpur, 24 Parganas (S)
8	No. of post offices Per 100 Sq. Kms. of area	15.83	Kolkata, Howrah	Hooghly, 24 Parganas (N), Nadia, Burdwan, Birbhum, Murshidabad, Midnapore, Cooch Behar, Malda, 24 Parganas (S), Bankura, Purulia, Dakshin Dinajpur, Uttar Dinajpur, Darjeeling, Jalpaiguri
9	No. of post offices per lakh of population	14.25	Purulia, Birbhum, Midnapore, Bankura, Darjeeling, Cooch Behar	Dakshin Dinajpur, Nadia, Hooghly, Murshidabad, Malda, 24 Parganas (S), Jalpaiguri, Uttar Dinajpur, Howrah, 24 Parganas (N), Kolkata
10	Villages electrified (% of Villages)	37.38	Nadia, Hooghly, Howrah, Burdwan, Malda, Murshidabad, Jalpaiguri, Birbhum	Cooch Behar, Darjeeling, 24 Parganas (S), Bankura, Midnapore, Purulia, Uttar Dinajpur, 24 Parganas (N), Dakshin Dinajpur, Kolkata

Table 1: Distribution of Districts by Relative Levels of Economic Infrastructural Development in West Bengal in 1980-81

Sl. No.	Indicator	State Average	Developed Districts	Developing Districts
1	Length of roads per 100 Sq. Kms. of area	20.67	Howrah, Hooghly, Cooch Behar, Darjeeling, Burdwan, Nadia, Murshidabad, Jalpaiguri	Brigham, Uttar Dinajpur, Dakshin Dinajpur, Bankura, Malda, 24 Parganas (S), 24 Parganas (N), Midnapore, Purulia, Kolkata
2	Length of roads per lakh of population	29.91	Darjeeling, Cooch Behar, Jalpaiguri, Bankura, Purulia, Birbhum, Dakshin Dinajpur	Uttar Dinajpur, Burdwan, 24 Parganas (S), Midnapore, Hooghly, Murshidabad, Nadia, Malda, Howrah, 24 Parganas (N), Kolkata

3	Gross Irrigated Area (% of GCA)	18.51	Burdwan, Brigham, Hooghly, 24 Parganas (N), Bankura, Murshidabad, Nadia, Howrah	Midnapore, Malda, Darjeeling, 24 Parganas (S), Cooch Behar, Uttar Dinajpur, Purulia, Dakshin Dinajpur, Jalpaiguri, Kolkata
4	No. of tractors per ten thousand hectare of net sown area	20.93	Hooghly, Burdwan, Howrah, 24 Parganas (N), Nadia	Bankura, Brigham, Murshidabad, Malda, 24 Parganas (S), Uttar Dinajpur, Midnapore, Cooch Behar, Dakshin Dinajpur, Darjeeling, Jalpaiguri, Purulia, Kolkata
5	No. of Bank offices per 100 Sq. Kms. of area	31.40	Kolkata	Howrah, 24 Parganas (N), Hooghly, Burdwan, Nadia, Murshidabad, Brigham, Malda, Midnapore, Cooch Behar, Darjeeling, Dakshin Dinajpur, Uttar Dinajpur, Bankura, 24 Parganas (S), Jalpaiguri, Purulia
6	No. of Bank Offices per lakh of population	6.14	Kolkata, Darjeeling, Birbhum	Burdwan, Bankura, Midnapore, Howrah, Hooghly, Malda, Dakshin Dinajpur, Purulia, Cooch Behar, Jalpaiguri, Nadia, Murshidabad, 24 Parganas (N), Uttar Dinajpur, 24 Parganas (S)
7	No. of veterinary institutions per lakh of livestock population	4.89	Darjeeling, Kolkata, Howrah	Purulia, Jalpaiguri, Burdwan, Midnapore, Dakshin Dinajpur, 24 Parganas (N), Hooghly, Uttar Dinajpur, Brigham, 24

				Parganas (S), Cooch Behar, Murshidabad, Bankura, Nadia, Malda
8	No. of post offices Per 100 Sq. Kms. of area	17.03	Kolkata, Howrah	Hooghly, 24 Parganas (N), Nadia, Burdwan, Murshidabad, Brigham, Cooch Behar, Midnapore, Malda, 24 Parganas (S), Dakshin Dinajpur, Bankura, Purulia, Uttar Dinajpur, Darjeeling, Jalpaiguri
9	No. of post offices per lakh of population	12.57	Purulia, Brigham, Bankura, Midnapore, Cooch Behar, Darjeeling, Dakshin Dinajpur, 24 Parganas (S)	Burdwan, Malda, Nadia, Hooghly, Murshidabad, Jalpaiguri, Uttar Dinajpur, Howrah, 24 Parganas (N), Kolkata
10	Villages electrified (% of Villages)	72.33	Nadia, Brigham, Howrah, Malda, Jalpaiguri, Hooghly, Cooch Behar, Burdwan, Murshidabad, 24 Parganas (S), Darjeeling	Bankura, Purulia, Uttar Dinajpur, Midnapore, 24 Parganas (N), Dakshin Dinajpur, Kolkata

Table 2: Distribution of Districts by Relative Levels of Economic Infrastructural Development in West Bengal in 1990-91

Sl. No.	Indicator	State Average	Developed Districts	Developing Districts
1	Length of roads per 100 Sq. Kms. of area	20.04	Howrah, Hooghly, Cooch Behar, Burdwan, Nadia, Murshidabad, Brigham, Jalpaiguri	24 Parganas (S), 24 Parganas (N), Uttar Dinajpur, Malda, Bankura, Darjeeling, Midnapore, Dakshin Dinajpur, Purulia, Kolkata
2	Length of roads per lakh of population	23.77	Cooch Behar, Jalpaiguri, Bankura, Brigham, Purulia, Darjeeling	Hooghly, Uttar Dinajpur, Nadia, Midnapore, Dakshin Dinajpur, Murshidabad,

			Burdwan, 24 Parganas (S)	Malda, Howrah, 24 Parganas (N), Kolkata
3	Gross Irrigated Area (% of GCA)	12.57	Burdwan, Brigham, Hooghly, 24 Parganas (N), Murshidabad, Nadia, Bankura	Midnapore, Howrah, Malda, Darjeeling, 24 Parganas (S), Uttar Dinajpur, Cooch Behar, Dakshin Dinajpur, Purulia, Jalpaiguri, Kolkata
4	No. of tractors per ten thousand hectare of net sown area	57.35	Hooghly, Howrah, Burdwan, 24 Parganas (N), Nadia	Bankura, 24 Parganas (S), Murshidabad, Malda, Brigham, Uttar Dinajpur, Cooch Behar, Dakshin Dinajpur, Midnapore, Purulia, Jalpaiguri, Darjeeling, Kolkata
5	No. of Bank offices per 100 Sq. Kms. of area	34.02	Kolkata	Howrah, 24 Parganas (N), Hooghly, Burdwan, Nadia, Murshidabad, Malda, Birbhum, Darjeeling, Midnapore, Cooch Behar, Dakshin Dinajpur, Uttar Dinajpur, Bankura, 24 Parganas (S), Jalpaiguri, Purulia
6	No. of Bank Offices per lakh of population	5.56	Kolkata, Darjeeling, Birbhum	Burdwan, Bankura, Howrah, Hooghly, Midnapore, Malda, Cooch Behar, Purulia, Dakshin Dinajpur, 24 Parganas (N), Jalpaiguri, Nadia, Murshidabad, 24 Parganas (S), Uttar Dinajpur
7	No. of veterinary institutions per lakh of livestock population	21.99	Howrah, Hooghly, 24 Parganas (N), Darjeeling, Nadia, 24 Parganas (S)	Jalpaiguri, Malda, Midnapore, Murshidabad, Cooch Behar, Burdwan, Purulia

				Brigham, Bankura, Dakshin Dinajpur, Uttar Dinajpur, Kolkata
8	No. of post offices Per 100 Sq. Kms. of area	17.84	Kolkata, Howrah	Hooghly, 24 Parganas (N), Nadia, Burdwan, Cooch Behar, Murshidabad, Brigham, Midnapore, Malda, 24 Parganas (S), Dakshin Dinajpur, Purulia, Bankura, Darjeeling, Uttar Dinajpur, Jalpaiguri
9	No. of post offices per lakh of population	11.29	Purulia, Brigham, Bankura, Midnapore, Cooch Behar, Darjeeling, Nadia, 24 Parganas (S)	Burdwan, Dakshin Dinajpur, Hooghly, Malda, Murshidabad, Jalpaiguri, Uttar Dinajpur, Howrah, 24 Parganas (N), Kolkata
10	Villages electrified (% of Villages)	78.01	Howrah, Hooghly, Nadia, Brigham, Jalpaiguri, Cooch Behar, Burdwan, Malda, 24 Parganas (N), Murshidabad, Darjeeling, 24 Parganas (S)	Bankura, Purulia, Midnapore, Uttar Dinajpur, Dakshin Dinajpur, Kolkata

Table 3: Distribution of Districts by Relative Levels of Economic Infrastructural Development in West Bengal in 2000-01

Sl. No.	Indicators	1980-81	1990-91	2000-01
1	Length of roads per 100 S.q. kms. of area	48.01	39.80	43.08
2	Length of roads per lakh of population	54.32	46.41	42.61
3	Gross irrigated area as percentage of gross cropped area	147.65	91.31	100.33
4	Number of tractors per ten thousand hectare of net sown area	170.74	125.55	107.86
5	Number of bank offices per hundred Sq. kms. of area	373.19	354.58	356.59
6	Number of bank offices per lakh of population	104.19	58.68	71.54
7	Number of Veterinary institutions per lakh of livestock population	141.38	59.94	43.78

8	Number of post offices per hundred Sq. kms. of area	178.13	174.01	172.97
9	Number post offices per lakh of population	24.87	26.35	27.67
10	Percentage of villages electrified	57.67	41.01	36.06
Mean		130.02	101.76	100.23

Source: Author's Calculation

Table 4: Indicator-wise Co-efficient of Variation (in Percentage)

Indicator-wise inter-district variations have been noted with the help of coefficient of variation which are presented in Table-4. It is evident from the above table that inter-district disparities in case of length of roads per lakh of population, number of tractors per ten thousand hectare of net sown area, number of veterinary institutions per lakh of livestock population, number of post offices per hundred Sq. kms. of area and villages electrified percentages of villages of economic infrastructural facilities have come down considerably during 1980-81 to 2000-01 due to intensive planned efforts. Nevertheless, highest inter-district disparity has been observed in case of number of bank offices relative to area followed by number of post offices in relative to area.

V. SUMMARY OF FINDINGS & CONCLUSIONS

- ✓ Inter-district disparities in the indicators of economic infrastructure development revealed that high inter-district disparities were found in the case of bank offices and post offices in relative to area, and population. On the other hand, disparities have slightly been reduced in case of remaining 8 indicators during 1980-81 periods. However, backward districts of Cooch Behar, Jalpaiguri, Uttar Dinajpur, Dakshin Dinajpur, Malda, Bankura, Purulia, Midnapore and Birbhum were rapidly developed in terms of majority of indicators of economic infrastructure sector due to implementation of various 'Area Development' and 'Target Group' programmes of economic planning.
- ✓ Economic infrastructural development is a 'sine-qua-non' of rapid and sustainable economic development. Development of agriculture and industry generally depends on adequacy and efficiency of infrastructural facilities. The most important and complex is to provide efficient, cheap and basic infrastructural facilities.
- ✓ It may be observed from Tables-1, 2 and 3 that there has been increasing trend in the values of state average in respect of majority of indicators of economic infrastructure during the twenty years period from 1981 to 2001. It is important to mention that from Table-4 indicator-wise Co-efficient of Variation's average values are decreasing trend can be translated as increasing of infrastructural development.

VI. CONCLUSIONS

The problem of regional imbalances, at both inter-state and intra-state levels has persisted in India even during the

post-plan era. Although concern was voiced about regional disparities in India right from the beginning of the planning era, yet a more concerted effort to address this problem was made only in the Third Five-Year Plan. In the subsequent plans also this problem was taken up seriously and as a consequence, several area development programmes were started to mitigate the extent of disparities in the socio-economic development. West Bengal is one of the recipients of funds under various Area Development Programmes initiated by the Central Government, under full or partial sponsorship. The above analysis based on various indicators of agricultural development has made it clear that some districts are relatively backward in West Bengal. Therefore, any plan or programme for improving the level of development of these backward regions should go together. It is heartening to note that efforts have been made at the level of the State Government to build up growth centres in West Bengal through the establishment of Uttarbanga Unnayan Parishad, Darjeeling Gorkha Hill Council, Paschimanchal Unnayan Parishad, Sunderbans Development Board and the most significant fact is that there has been a commencement to address the problem of the region. Such a regional development agency must be strengthened, since it can play a coordinating role for greater convergence of agricultural development efforts to prepare a blueprint for regional development involving local Panchayats of the region. These efforts are to be combined with the provision of adequate resources for the Development Council to perform developmental activities properly and to attract outside investments, so that the developing districts comprising the region may possibly catch up with the other relatively developed districts of West Bengal State.

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