



Infrastructure and Human development in India: An Inter-state comparison

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1.1 Introduction

Economic development of a country depends very much on the availability of its infrastructural facilities particularly the development of sectors such as Agriculture, Industry and Service Sectors. An economy's infrastructure is more conveniently divided into two parts Physical Infrastructure and Social Infrastructure. Physical Infrastructure is directly concerned with the needs of such production sectors as agriculture, industry & trade. The physical infrastructure, include such services such as power, irrigation, transport telecommunication. On the other hand, social infrastructure comprising education, health and medical care, nutrition, housing and water supply which is instrumental in contributing to substantial improvements in human development, which in turn, initiate and accelerate economic development.

Human Development is the process of widening people's choices and their level of well-being. The choices change over time and differ among societies according to their stage of development. The three essential choices for people are - to lead a long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living. If these choices are not available, many other opportunities remain inaccessible. Other choices, highly valued by many people include political, economic and social freedom, access to opportunities for being creative and productive and enjoying self-respect and guaranteed human rights. (UNDP, 1994, 1995).

The paper is organized into four sections – the **first section** discusses the conceptual clarification of infrastructure and economic development. **Second section** explains the relationship between social infrastructure and Human development. The

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third section focused on human development in India, by focusing on inter – state disparities in human development and the **final section** seeks to draw some conclusion and pullout the policy implication.

1.2 Objectives of the paper

1. To examine relationship between infrastructure and economic development.
2. To analyzing inter state disparities in Human Development in India
3. To examine the role of state in human development and to draw the policy implications.

1.3 Data sources and methodology

The information for the study has been collected mainly from secondary sources. The study is descriptive and analytical in nature. Data was collected from various published sources such as UNDP, Human Development Reports, various issues of Economic Survey and National Human Development Report 2001. The data are also analysed with the help of simple statistical tools such as percentage method & co-efficient of variation to identifying either convergence or divergence trends with respect to HDI and GDI.

Human development situation in India classified into four groups – high, medium and low Human Development Index of the Indian states according to their levels of human development for 1981, 1991 and 2001. No state was in the high human development position while except Kerala (medium human development index) while rest of the 14 states were in the low human development in 1981 and 1991. (*See in the appendix 1.1 www.rcssindia.org*)

Section II

2.1 Conceptual Clarification: Infrastructure and Economic growth

Economic development and prosperity of an economy depends on the availability of infrastructural facilities. Infrastructure has the power to increase the productive capacity of the factors of production. The structure of an economy can be changed only by the infrastructure. The infrastructure facilitates all the sectors of the economy to speed up their growth rate. It lubricates and strengthens the engine of economic development.

The world Development Report (1994) of the World Bank, which focused on infrastructure for development, brought out cross-section country studies, a strong positive and complementary relationship between the level of GDP and infrastructure stock per capita. The positive and complementary link between infrastructure and development is, however, not a once for all cause and effect relation. It is a continuous and reinforcing process. To achieve an accelerated development process, growth in development has to be preceded, accompanied and followed by progress in

infrastructure. Infrastructure development is thus clearly a critical element in the process of economic development and cannot be ignored.

Recognizing the critical importance of infrastructure development, the Government of India accord high priority for infrastructure development right from the First Five Year Plan itself. Though, a remarkable progress was made during the last sixty years, the developmental impact was, however, only marginal. Most of the people especially the urban and rural poor do not yet have access to even minimal infrastructure services. India is now, in fact, faced with the problem of infrastructure deficiencies, poor quality, efficiency in delivery of services and widening demand – supply gap.

India has now targeted to achieve an annual economic growth of 10% with a view to become a developed nation by next two decades. Acceleration to higher growth will generate a massive demand for infrastructure services such as power, roads, ports, railways and telecommunications. Furthermore, with globalization, if India has to be competitive in global market, the quantity and quality of infrastructure services will have to improve by international standards.

Infrastructure in economics is essentially a flow of services over a life period of a infrastructure stock created. Depending on nature services, infrastructure can be broadly divided into two types – physical and social. The former consists of power, transport (roads, railways, aviation, waterways and ports), telecommunications, housing, irrigation and water supply. They are also known as economic infrastructure as they directly or indirectly contribute to productivity. Social infrastructure, on the other hand, includes education, health, nutrition, sanitation, child-care, recreation and banking and other financial facilities.

Good infrastructure helps to raise productivity and lower costs in the directly productive activities of the economy, but it has to be expanded fast enough to meet the demand for infrastructure in the early stage of development. Construction expense for infrastructure such as energy and transportation sector is enormous and construction period is also long. Prediction of demand pattern and investment allocation, which are the key factors of infrastructure development planning, must be based on a long term economic development trend and use planning, which predicts the country's temporal and spatial demographics and economic structure.

The adequate supply of infrastructure helps determine a country's success and failure. Infrastructure promotes development by diversifying production, expanding trade, coping with population growth, reducing poverty or improving environment conditions. Good infrastructure raises productivity and lower production costs, but it has to expand enough to accommodate growth. An important ingredient in China's success has considerably been achieved by uplifting rural activities through the provision of a minimum package of transport, telecommunications and power at the

village level. The poor in the urban areas too benefit from infrastructural facilities which provide to them clean water, satisfactory sanitary conditions, risk free roads etc.

Infrastructure is essential for household, firms and governments to function. The social overhead capital has a pervasive impact on economic development and human welfare. The adequate or otherwise of infrastructure largely determines an economy's success or failure in diversifying production, expanding fast enough to accommodate growth. Infrastructure supports the economic growth of a particular region or country and through the redistribution of wealth, helps sustain the continued improvement of the quality of life, roads and ports contribute to the expansion of the market, and irrigation facilities raise agricultural productivity.

2.2 Empirical studies on infrastructure and economic growth.

Ruttan (1989) discussed the reason why advanced countries provide ODA to developing countries. He asserted that there are two arguments one is based on the economic and strategic self-interest of the donor country. The second one is based on the ethical or moral responsibility of the residents of wealthy countries toward the residents of poor countries. Many studies provide surveys of why infrastructure is important in economic development and evaluate recent empirical results estimating the contribution of public capital and infrastructure to economic growth. They suggest that the impact of infrastructure investment on economic growth represents high rate of return.

Easterly and Rebelo (1993) verified whether or not changes in the level of various policy variables permanently increased the economic growth rate, and clarified whether or not investments related to information and telecommunications raised the economic growth rate. They found that public infrastructure investment is a large fraction of both total and public investment, and infrastructure in transportation and communication is consistently correlated with economic growth. The rate of return in these sectors is 63% and elasticity of change in output with respect to a 1% change in the level of infrastructure is 0.16.

World Bank (1994) emphasized that there is a close relationship between infrastructure and economic growth. This is seen in the lack of infrastructure development hindering the economic growth in China and in many case studies, such as those on the direct and indirect economic impact of infrastructure in farming sector in India. In the case of China, the coverage of intercity transport networks is one of the thinnest in the world. China's transportation investments amounted to only 1.3% of GNP annually during 1981-90, a period of rapid growth in transportation demand. Since the onset of China's open door policy in 1979, economic growth averaging 9% a year has resulted in an unprecedented expansion in intercity traffic with growth averaging 8% a year for freight and 12% a year for passengers.

This traffic growth has imposed tremendous strains on the transportation infrastructure, manifested by the growth of bottlenecks in the railway network, the severe rationing of transportation capacity on railway lines, and the poor quality of service experienced by shippers and passengers. A conservative estimate is that the annual economic costs of not having adequate transportation infrastructure in China during the past several years amount to about 1% of China's GNP. This relationship is also shown in cross section data analyses that indicate positive relationship between the levels of infrastructure, such as the development of electricity, telecommunications, roads and other facilities and that of economy.

Yoshida (2000) presented a positive analysis from various angles of the correlations between economic growth and the infrastructure in Japan, such as the energy, electricity, and transportation sectors over the last century in order to derive lessons that can be useful to developing countries. He divided Japan's economic development phase into five with major characteristics, and discussed the patterns of demand and investment in infrastructure over one century. He found that the growth rate of demand in infrastructure was big. And he also found that infrastructure investment in rural area had a trend to correct the regional income disparities. He insisted that the lessons learned from Japan's development experience are a major intellectual asset for developing countries. And he emphasized that developing countries expect Japan and Korea, former developing countries, to take reasonable leadership in international aid.

2.3 Social Infrastructure in human development

Social infrastructure has received increasing attention of the planners and policy makers when basic needs appeared in the measurement of development. The need to provide basic amenities of life has now become essential to improve 'Human Development Index'. For the masses development means, knowledge, health, clean drinking water, sanitation and shelter. Social infrastructure is critical for human development as physical infrastructure (IGIDR 2002). The term 'Social infrastructure' or human development is used to include those facilities, which tend to improve the quality of human life. It is therefore, an umbrella term that covers all basic investment in health, education, drinking water supply disease eradication, public hygiene, nutrition etc.

There is a positive relationship between human development and infrastructural development and economic development. Infact, Kerala in India afforded an excellent example of this relationship. The state has the highest HDI rank in India. Its health indicators are similar to those of high human development countries. Although not self-sufficient in food, it has the best public food distribution system in India. Kerala's human development indicators do not show great disparities between urban and rural areas. A good part of Kerala's human development achievements must be

attributed to well – developed road and transport links throughout the state, transforming the urban – rural divide into a continues.

World Bank Study (1994) points out that, on an average, a percentage point increase in infrastructure stocks results in proportionate increase in GDP. Physical capital is the main component a country's productive wealth. But more surprisingly a country's physical capital, and Natural capital accounted 20 and 16 per cent respectively. On the other hand, the most important component turns out to be human capital accounting for 64 per cent. It is clearly evidenced that the real wealth of a nation is its people. *IMF & World Bank* – are also advising to their member developing countries to devote greater attention to investment in education, health, sanitation, nutritional and science and technology to promote human capital for development.

Thus social infrastructure is Infact, essential to promote better utilisation of economic infrastructure, therefore expenditure on social infrastructure should be regarded as a investment rather than social consumption. The concept of human development has come to the fore in the last few decades because of the fact that the benefits of economic growth do not necessarily occur to all sections of the community automatically.

Section III

3. 1 Infrastructure and Human Development

The positive relationship between infrastructure and economic growth is well-known, the requires little further elaboration. Ironically, however, the links between infrastructure and human development often less recognized and are not enunciated in terms relevant to policy. The concept of human development was originally advanced to move beyond the relatively restrictive economic analyses based on growth of income alone, and to incorporate both human capabilities and empowerment, which relied much more on social and distributive variables. Nevertheless, it is obvious to anyone that infrastructure contributes directly to conditions of life not only by increasing labor productivity, but also through the provision of a range of amenities that are either necessary or desirable for human existence.

The crucial role played by infrastructure development in creating better conditions of life has been highlighted again and again. Transport and communications infrastructure is important in terms of providing access to basic health services and thereby improving conditions of health and life, particularly of women and girl children. Basic infrastructure such as electrification plays a similar role, apart from changing the quality of life in general. It is now well known that basic road connectivity to a school, minimum facilities like separate toilets for boys and girls in school buildings are crucial determinants for the enrolment and attendance of girl children, and so on. Of course, the effects of such investments need to be assessed in

terms of how the additional infrastructure changes the lives of people in any given area, and what changes would make it more effective and useful. The gender and class dimensions of the linkage effects also need to be examined, not just in terms of the direct effects, but also in terms of the secondary employment and opportunities created by such infrastructure building, for example, shops and new services that emerge with the construction of a new road.

3. 2 Status of Human Development in India

The Global Human Development Report, 2010 of UNDP, ranked India at 119th place out of 169 countries with HDI value of 0.519, India's human development position is lower than that of many of newly industrialised countries of South East Asia like Indonesia and Malaysia and also that of South Asian countries like China, Srilanka and Maldives. The low per-capita income of a country does not mean low level of human development. Even with limited funds and their proper allocation, substantial improvement in human capital can be secured. Even Srilanka and China with low per capita incomes have secured higher levels of human development whose development efforts were initiated at about the same time as of India (Griffin, 1992, Tan and Mingal, 1992).

The countries have been classified into four groups based on HDI – Very High, High, Medium and Low human development countries (*see appendix No. 2*) The countries having HDI range from 0.938 to 0.788 are called as very high human development countries, which include Norway, Australia, New Zealand, Canada, USA, Japan, U.K, & Korea Republic. High human development countries range from 0.784 to 0.677 includes Bahamas, Lithuania, Chile & Argentina. Medium Human Development Countries have HDI ranges between 0.669 to 0.488, which includes China, Srilanka, India, Pakistan, Bangladesh & Nepal. While, Low Human Development Countries have less than 0.500 value of HDI – Zimbabwe, Sierra Leone, Burkina Faso & Niger. Norway occupied top position while Niger and Sierra Leone are in the bottom place. (UNDP, 2010).

The table 3.1 depicts the various human development indicators for selected countries in 2005. It also infers India's relative human development position with other countries in comparison. India accounted for GDP per capita income (PPP Us \$) 3,452 life expectancy at birth 63.7 years, adult literacy rate is 61.0 percent and 63.8 percent of combined gross enrolment ratio. Many countries such as Island, Norway, Canada, U.S.A. and many East Asian countries are above the India's relative position. On the other hand, Pakistan, Bangladesh, Nepal, Niger, Burkina Fasco and Sierra Leone are lower than India. While almost all Asian countries except Pakistan are well above India's relative position in all respects. Even Srilanka and China are also well ahead of India. This shows that India is not only showing poor performance in terms of human development indicators, but also lower than many East Asian and South Asian countries such as Srilanka and Maldives.

The table and figure 3.2 depicts India's human development position in the global context, human development indices such as Life Expectancy Index, Educational Index, GDP Index and Human Development Index of Indian position were 0.639, 0.643, 0.553 and 0.612 respectively, where as OECD and the World position were well over India's position. This indicates that the relative position of India's human development indices were not only lower than so-called OECD but also lower than South Asia and World as well.

3.3 Progress of Human Development in India

The basic concept of human development in India has come into force since the inception of first Five Year Plan. However, from the past two decades, human development began to receive utmost importance because of the fact that the benefits of economic growth did not necessarily accrue to all sections of the community. Apart from the basic necessities such as food, clothing and shelter, other human choices including long life, good health, adequate education and participatory decision-making remained unattainable for majority of the population.

Table No. 3.1 Human Development Indicators for Selected Countries 2010

HDI Rank	Name of the Countries	GNI Per capita (PPP US \$)	Life expectancy at birth (in year)	Adult literacy rate (%)	Combined gross enrolment ratio	HDI index
<i>Very High Human Development (0.938 to 0.788)</i>						
1	Norway	58,810	81.0	-	95.6	0.938
2	Australia	38,692	81.9	-	109.2	0.937
3	New Zealand	25,438	80.6	-	100.2	0.907
4	United States	47,094	76.0	-	91.3	0.902
42	Barbados	21,673	77.7	-	-	0.788
<i>High Human Development (0.784 to 0.677)</i>						
43	Bahamas	25,201	74.4	-	90.4	0.784
44	Lithuania	14,824	72.1	99.7	90.3	0.783
45	Chile	13,561	78.8	98.6	82.7	0.783
84	Algeria	8,320	72.9	72.6	71.5	0.677

85	Tonga	4,038	72.1	99.0	73.6	0.677
Medium Human Development (0.669 to 0.488)						
89	China	7,258	73.5	93.7	69.4	0.663
91	Srilanka	4,886	74.4	90.6	71.8	0.658
107	Maldives	5,408	72.3	98.4	71.2	0.602
119	India	3,337	64.4	62.8	61.2	0.519
125	Pakistan	2,678	67.2	53.7	40.9	0.490
Low Human Development (0.470 to 0.140)						
128	Kenya	1,628	55.6	86.5	62.0	0.470
129	Bangladesh	1,587	66.9	55.0	48.3	0.469
180	Ghana	1,385	57.1	65.8	54.0	0.467
167	Niger	675	52.5	28.7	24.9	0.261
169	Zimbabwe	176	47.0	91.4	49.4	0.140
World		10,637	69.3	-	66.3	0.624

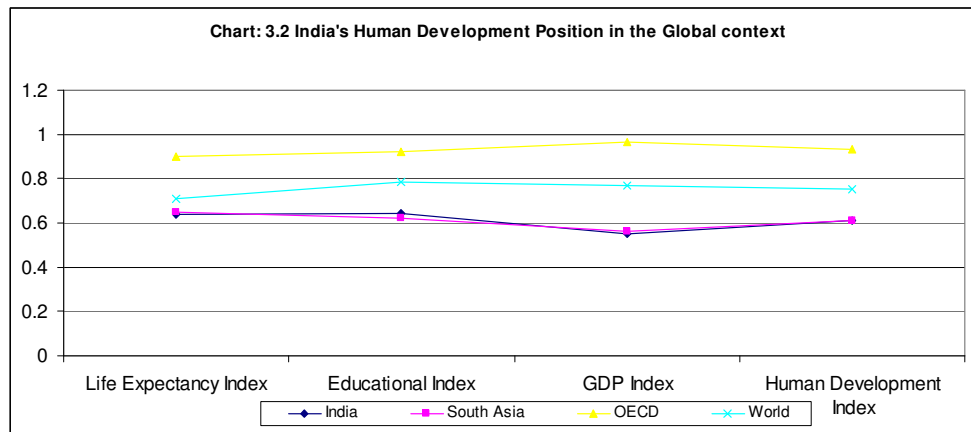
Source: UNDP, Human Development Report 2010.

During sixties and seventies India remained in the group of ‘weak link’ countries characterised by slow progress of human development, constrained by low level of economic growth. The problem was different during eighties onwards as the country has been suffering from lopsided development with rapid economic growth and slow human development (Naseem A, Zaidi & Abdul Salam, 2005).

Table. 3. 2 India’s Human Development position in the global context in 2007

Human Development Indicators	India	South Asia	OECD	World
Life Expectancy Index	0.639	0.651	0.900	0.708
Educational Index	0.643	0.621	0.920	0.784
GDP Index	0.553	0.562	0.966	0.768
Human Development Index	0.612	0.612	0.932	0.753

Source: Global HDR 2008/9, Oxford University Press New York.



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Table: 3.1 Human Development Index of India from 1990-2010

Years	Human Development Index (HDI)	India's Rank	Number of Countries Covered
1990	0.297	121	173
1991	0.308	123	160
1992	0.382	134	173
1993	0.436	134	173
1994	0.446	135	173
1995	0.451	134	173
1996	0.436	135	174
1997	0.545	138	175

1998	0.563	128	174
1999	0.571	115	162
2000	0.577	124	173
2001	0.590	127	175
2002	0.595	127	177
2003	0.602	127	177
2004	0.611	126	177
2005	0.619	128	177
2006	0.619	128	177
2007	0.619	134	182
2010	0.519	119	169

Source: Compiled from Human Development Reports, UNDP, (1990-2007).

The Human Development Index (HDI) is a simple composite measure that measures the overall achievements of a region in terms of three basic dimensions of human development – a long and healthy life, knowledge, as well as a decent standard of living health status (measured by longevity), knowledge (measured by literacy and enrolments) and a decent standard of living (measured by per capita income). These three dimensions are measured by life expectancy at birth, educational attainment (adult literacy and the combined gross primary, secondary and tertiary enrolment ratio) a proxy for a decent standard of living and as a surrogate for all human choices not reflected in the other two dimensions.

India has done well in human development indicators over the past six and half decades. Life expectancy was just 32.0 years in 1951 increased to 64.4 years in 2010, Infant Mortality Rate was 146 per thousand in 1951 and decreased to 52 in 2008. Under Five Mortality Rate has come down from 202 in 1970 to 69 in 2008 (per 1,000). The Literacy Rate has gone up from 16.7 per cent in 1951 to 65.49 in 2001. India has been categorized by the various global human development reports as a medium human development country. *(See in the Appendix No. 3)*

The human development index has rose gradually from 0.297 in 1990 to 0.577 in 2000 and stood at 0.519 in 2010. However India takes a long time to cross the mark of 0.800 in HDI to join the rank of high human development index countries.

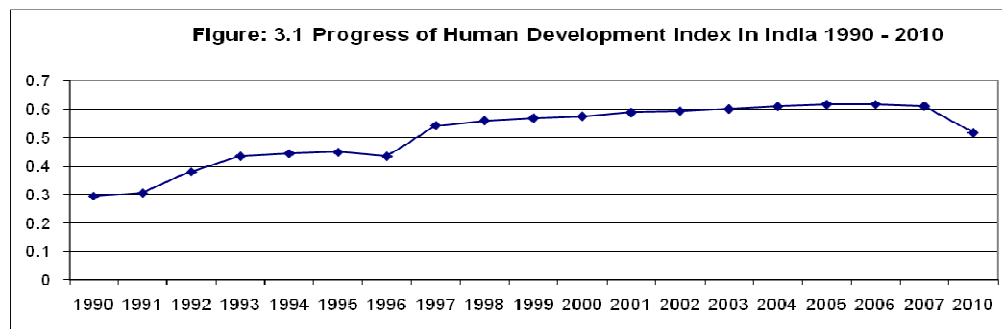


Table 3. 1 & figure depicts the progress of Human Development Index of India from 1990 to 2010 with its ranks and number of countries covered at the global level. The HDI value for India was 0.297 and its rank was 121 out of 173 countries in 1990. It means that 120 countries were above India and 53 countries were below them in the descending order of HDI obtained by the various countries. In 1995 the HDI value has increased to 0.451 and its rank decreased to 139 out of 173. Thus, while 138 countries were above India and 35 countries were below, in the context of human development index. In 2000 HDI value has increased to 0.577 and its rank was 124 out of 177 countries, 123 countries were above India and 54 countries were below India. Even in 2010 the HDI value was 0.519 and its rank was 119 out of 169. And 118 countries were above and 51 countries were below India.

3.4 Inter-State Disparities in Human Development

The various empirical studies have shown inter-state disparities in human development which have followed more or less UNDP methodology to construct human development index based on three important indicators and try to identify inter-state and inter regional comparisons within the Indian States - Shivakumar, 1991, NPC Research Foundation 1992, Dutt et al 1997, Ram and Mohanti 1999, Sarma 1999, Deshpande et al 2002, Pradhan and Bhattacharya 2005 have observed inter-state disparities in human development in India. The Planning Commission, Government of India took the lead in the preparation of the NHDR 2001 for the first time in the country.

At the state level there are wide disparities in the level of human development. In the early eighties, states like Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan and Orissa have HDI close to just half of that of Kerala's. The situation has drastically changed. While Kerala rapidly increased its HDI values, the above-mentioned states could not maintain the pace and have trailed behind considerably. Punjab, Tamil Nadu, Maharashtra and Haryana have also done well on the HDI. Thus some of the Indian states are in a virtuous cycle of achievement, with growth of resources supporting improvement in human development, which, in turn, reinforced economic

growth. Conversely, a majority of the Indian states, especially those having larger populations, appear to be in a vicious cycle, with failures in both human development and economic growth.

There has been a wide inter-state variation in the performance of HDI. The estimated value of HDI varies from 0.237 to 0.500 in 1981, 0.308 to 0.591 in 1991 and 0.367 to 0.638 in 2001. Among the better off states – Kerala, Punjab, Tamil Nadu, Maharashtra and Haryana had a HDI above 0.500 and the worst-off states like Bihar, Assam, Uttar Pradesh and Madhya Pradesh had a HDI less than 0.400 in 2001. Although, seven states – Bihar, Haryana, Kerala, Orissa, Punjab, Uttar Pradesh and West Bengal could manage to maintain their relative position. The three states Andhra Pradesh, Assam, Gujarat, Karnataka and Maharashtra experienced deterioration in 2001 relative to 1981.

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This indicates that the backward states improved more in human development than the relatively better developed states in the country. Therefore, there is some convergence of states in terms of HDI. **The co-efficient of variation (i.e., measure of inequality) shows that it declined from 22.56 percent in 1981 to 19.01 in 1991 and 16.30 percent in 2001.** This is exactly in tune with global trend.

Table: 3.2 Human Development Index (HDI) Across States in India 1981-2001

Name of the States	1981		1991		2001		2005	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank

Kerala	0.500	1	0.591	1	0.638	1	0.814	1
Punjab	0.411	2	0.475	2	0.537	2	0.679	3
Tamil Nadu	0.343	7	0.466	3	0.531	3	0.608	5
Maharashtra	0.363	3	0.452	4	0.523	4	0.689	2
Haryana	0.360	5	0.443	5	0.509	5	0.644	4
Gujarat	0.361	4	0.431	6	0.479	6	0.621	7
Karnataka	0.346	6	0.412	7	0.478	7	0.600	8
West Bengal	0.305	8	0.404	8	0.472	8	0.625	6
Rajasthan	0.256	11	0.347	10	0.424	9	0.537	10
Andhra Pradesh	0.298	9	0.377	9	0.416	10	0.572	9
Orissa	0.267	10	0.345	11	0.404	11	0.452	13
Madhya Pradesh	0.245	13	0.328	12	0.394	12	0.488	12
Uttar Pradesh	0.255	12	0.314	13	0.388	13	0.490	11
Bihar	0.237	14	0.308	14	0.367	14	0.449	14
All India	0.302	-	0.381	-	0.472	-	0.575	
CV	22.56		19.01		16.30		14.56	

Note: Rural and Urban Combined.

Source: National Human Development Report 2001.

Gender Development Index in India

The Gender development index measures the attainments in human development indicators for females as a proportion of that of males. At the national level Gender Equality Index (GEI) increased from 62 percent in the early eighties to 67.6 percent in the early nineties. This implies that on an average the attainments of women on human development indicators were only two-thirds of those of men. At the State level, gender equality was the highest for Kerala followed by Manipur, Meghalaya, Himachal Pradesh and Nagaland in the eighties. Goa and the Union Territories, except for Delhi, have gender equality higher than the national level. In the nineties, Himachal Pradesh had the highest equality, where as, Bihar was at the bottom and witnessed a decline in absolute terms over the earlier period.

The table 4.3.4 depicts the Gender Related Development Index across the Indian States from 1981 to 2001, the GDI value at the national level was 0.620 and 0.676 in the early eighties and nineties. At the state level, GDI was the highest in Kerala followed by Andhra Pradesh, Maharashtra, Gujarat, Tamil Nadu and Karnataka were above the national average and Uttar Pradesh, Assam, Bihar, Haryana and Orissa has lowest achievement in the countries during 1980s. In the nineties Kerala occupied top position followed by Tamil Nadu, Andhra Pradesh, Maharashtra and Karnataka were above the average and Bihar, Uttar Pradesh, Assam, West Bengal and Orissa were

below the average. (NHDR, 2001). **The co-efficient variations of GDI values of 15 Indian states have been substantially declined from 18.98 to 15.00 and 11.11 percent between 1981, 1991 and 2001.**

Table 3.3 Gender Related Development Index across States in India 1981-2001

States	GDI 1981	Rank	GDI 1991	Rank	% change (1981-1991)	GDI 2001	Rank
Kerala	0.872	1	0.825	1	-5.38	0.724	1
Punjab	0.688	7	0.710	8	3.19	0.676	3
Tamil Nadu	0.710	5	0.813	2	14.50	0.675	4
Maharashtra	0.740	3	0.793	4	7.16	0.693	2
Haryana	0.536	12	0.714	7	33.20	0.636	7
Gujarat	0.723	4	0.714	6	-1.24	0.642	5
Karnataka	0.707	6	0.753	5	6.50	0.637	6
West Bengal	0.556	10	0.631	12	13.48	0.631	8
Rajasthan	0.650	9	0.692	9	6.46	0.573	10
Andhra Pradesh	0.744	2	0.801	3	7.66	0.595	9
Orissa	0.547	11	0.639	11	16.81	0.555	11
Madhya Pradesh	0.664	8	0.662	10	-0.30	0.548	13
Uttar Pradesh	0.447	15	0.520	14	16.33	0.520	14
Assam	0.462	14	0.575	13	24.45	0.554	12
Bihar	0.471	13	0.469	15	-0.42	0.477	15
All India	0.620	-	0.676	-	9.03	0.690	-
CV	18.98		15.00		11.11		

Source: 1. The technical group of Registrar General of India, GOI and KHDR 2005.

2. GOI (2002) National Human Development Report 2001, Planning Commission, New Delhi.

Notes: 1. Ranks have been estimated by GDI values of the State.

1981 and 1991 data was computed by NHDR 2001 and 2001 data by UNDP

The other seven Indian states like Maharashtra (0.693), Punjab (0.676), Tamil Nadu (0.675), Gujarat (0.642), Karnataka (0.637), Haryana (0.636) and West Bengal has (0.631) were well beyond the all India level and remained six more states such as Bihar (0.477), Uttar Pradesh (0.520), Madhya Pradesh (0.548), Assam (0.554), Orissa (0.555), Rajasthan (0.573) and Andhra Pradesh has (0.595) were below the national average. One of the most significant changes in GDI values of backward states such as Orissa and Uttar Pradesh have shown highest percentage change than developed states like Kerala (-5.38), Madhya Pradesh (0.30), Gujarat (- 24) respectively from 1991 to 2001 (NHDR, 2001). In general, women were better off in the South Indian states

such as Kerala, Andhra Pradesh, Tamil Nadu and Karnataka than in the indo-gangetic plains comprising states like Bihar and Uttar Pradesh. The states which have done well on improving their female literacy have also substantially improved gender equity and gender disparities have declined over the three points of time.

Section IV

4.1 Public Expenditure on Human Development

Public action is an important component of any strategy to achieving higher levels of human development. Its nature and extent is determined by the size and composition of public expenditure, particularly the expenditure on social sector. The proportion of a state's public expenditure allocated to social sectors indicates the importance of the social sector in the state or the state's commitment to these sectors. This commitment is very important, especially during times when the state governments are spending an increasing proportion of their income on debt servicing.

Public expenditure is likely to influence the status of human development in several ways. In the areas of health, nutrition, education, public distribution system, social welfare and other social services, public expenditure can directly contribute to human development if appropriate public policies or programmes are designed and adequate funds allocated. Indirectly, public expenditure influences the pace and course of economic growth that determines, to a considerable extent, the sustainability of development on the one hand and funds available for spending on social sectors on the other. For example, sustainable agricultural growth will improve the livelihoods of a large portion of the state's population and therefore their well-being and human development.

Government can greatly influence the status of human development by channeling a high proportion of public spending into priority social spending particularly through universal provision of basic social services. In general governments in wealthier countries could give more support to human development, since the greater the GNP, the more funds available for government spending on human development. But it is not possible always. Therefore, 1991 Human Development Report introduced some government expenditure ratio such as public expenditure ratio (PER), Social Allocation Ratio (SAR), Social Priority Ratio (SPR) and Human Expenditure Ratio (HER).

Human Development Report 1991, suggested that HER of 5 percent is essential, if a country has to do well on the human development front. This may be achieved in an efficient manner by keeping the PER moderate (around 25 percent), allocating much of this to social sector (more than 40 percent), and focusing on social priority areas (giving them more than 50 percent). HER is a powerful operational tool. It allows policy makers to restructure their budget, address any existing imbalances and avail of the most appropriate options. States with HER over 5 percent are supposed to indicate

a good political commitment from the government to human priority or social priority concerns. Those states for which HER lies between three to five percent have moderate human priority concerns. The HER below 2 percent suggests that lack of political commitment for human priorities. In the post reforms periods, these ratios do not show any radical improvement.

The table 4.1 indicates the comparison of PER, SAR, SPR and HER for different states and shows the relative position of Indian states during 1990-91 to 2001-02. It is clearly indicated that low human development states such as Orissa, Bihar, Rajasthan, Uttar Pradesh allocated more public expenditure on these areas compared to high human development states in the country. Infact, Kerala allocated reasonably well compared to other well-developed states despite having highest human development index in the country.

Bihar and Orissa ranks high in PER and HER, the calculation of PER and HER (Prabhu, 1991) showed that in the 1990-91 Bihar and Orissa ranked at 14th and 13th respectively in both PER and HER among the 14 major states of India. The reason for the low human development ranking of the states despite a high PER and HER is due to low per capita GSDP in terms of per capita public expenditure, their ranking is low.

The table 4.2 indicates the terms of per capita public expenditure, social sector expenditure and human priority expenditure in different states during 1990-91 to 2001-02. In the case of public expenditure Punjab, Gujarat, Haryana, Karnataka and Maharashtra show highest real per capita expenditure in the country while, Bihar, Uttar Pradesh, Madhya Pradesh, Orissa and West Bengal recorded lowest in the country. As for as the social sector expenditure is concerned Gujarat, Maharashtra, Tamil Nadu, Karnataka and Rajasthan recorded highest and lowest recorded by Bihar, Uttar Pradesh, Orissa, Madhya Pradesh and West Bengal. When come to Human Priority Expenditure - Rajasthan, Maharashtra, Tamil Nadu, Karnataka recorded highest and lowest recorded by Bihar, Uttar Pradesh, Punjab, West Bengal and Orissa. Interestingly, human priority expenditure is more important than public expenditure and social sector expenditure in order to enhancing human development especially for low human development states.

Table 4.1 Human development expenditure in major States of India: 1990-91 and 2001-02

(in per cent)

States	PER		SAR		SPR		HER	
	1990-91	2001-02	1990-91	2001-02	1990-91	2001-02	1990-91	2001-02
Andhra Pradesh	17.83 (6)	18.86 (7)	43.12 (6)	36.43 (7)	48.88 (10)	54.14 (7)	3.76 (9)	3.72 (6)
Bihar	20.97 (2)	24.47 (2)	43.79 (5)	35.47 (9)	66.35 (1)	69.12 (1)	6.09 (1)	6.00 (1)
Gujarat	17.52 (8)	17.69 (8)	37.01 (11)	39.80 (2)	56.36 (6)	35.46 (14)	3.66 (10)	2.50 (13)
Haryana	15.63 (12)	17.17 (10)	32.75 (13)	29.55 (13)	44.73 (13)	49.38 (11)	2.29 (13)	3.51 (12)
Karnataka	17.78 (7)	20.06 (3)	41.22 (8)	34.96 (10)	55.45 (7)	52.29 (8)	4.06 (7)	3.67 (7)
Kerala	19.42 (3)	16.18 (12)	45.57 (3)	39.33 (4)	54.86 (8)	50.88 (10)	4.86 (5)	3.24 (8)
Madhya Pradesh	15.64 (11)	17.66 (9)	43.03 (7)	39.49 (3)	59.02 (4)	55.76 (4)	3.97 (8)	3.89 (5)
Maharashtra	15.51 (13)	15.43 (14)	33.27 (12)	36.46 (6)	47.19 (12)	54.42 (6)	2.43 (12)	3.06 (10)
Orissa	24.46 (1)	25.45 (1)	39.12 (10)	34.96 (11)	54.28 (9)	55.59 (5)	5.19 (2)	4.94 (3)
Punjab	17.49 (10)	19.63 (5)	29.07 (14)	23.25 (14)	39.52 (14)	38.27 (13)	2.01 (14)	1.75 (14)
Rajasthan	17.52 (9)	19.95 (4)	44.25 (4)	42.73 (1)	63.60 (14)	61.58 (3)	4.93 (3)	5.25 (2)
Tamil Nadu	17.88 (5)	15.85 (13)	46.88 (2)	38.19 (5)	58.68 (5)	52.14 (9)	4.92 (4)	3.16 (9)
Uttar Pradesh	18.61 (4)	18.97 (6)	39.82 (9)	31.97 (12)	65.13 (2)	65.09 (2)	4.83 (6)	3.95 (4)
West Bengal	15.30 (14)	16.83 (11)	47.94 (1)	35.72 (8)	47.86 (11)	44.24 (12)	3.51 (11)	2.66 (11)

Notes: 1. Figures in brackets indicate the rank of the state with respect to the indicators

2. Expenditure under different heads has been estimated as the sum of revenue expenditure and capital expenditure (Including loans and advances net of repayments)

Source: Government of Karnataka (2006) Karnataka Human Development Report 2005, pp. 43

Table 4.2 Real per capita public expenditure, social sector expenditure and human priority expenditure in 14

Major states of India during 1990-91 and 2001-02

States	Per capita public expenditure			Per capita social sector expenditure			Per capita human priority expenditure		
	1990-91	2001-02	% change	1990-91	2001-02	% change	1990-91	2001-02	% change
Andhra Pradesh	1361 (7)	2198 (7)	61.50	587 (6)	801 (7)	36.46	287 (8)	434 (5)	51.22
Bihar	1026 (13)	915 (14)	-10.82	449 (13)	325 (14)	-27.62	298 (6)	224 (14)	-24.83
Gujarat	1775 (3)	3048 (2)	71.72	657 (4)	1213 (1)	84.63	370 (3)	430 (6)	16.22
Haryana	1962 (2)	2814 (3)	43.43	642 (5)	832 (6)	29.60	287 (7)	411 (7)	42.86
Karnataka	1313 (9)	2574 (4)	96.04	541 (9)	900 (4)	66.36	300 (5)	471 (4)	57.00
Kerala	1481 (6)	1996 (9)	34.77	675 (2)	785 (8)	16.30	370 (2)	400 (8)	8.11
Madhya Pradesh	1111 (11)	1590 (12)	43.11	478 (11)	628 (11)	31.38	282 (10)	350 (9)	24.11
Maharashtra	1758 (4)	2572 (5)	46.30	585 (7)	938 (2)	60.34	276 (11)	510 (2)	84.78
Orissa	1206 (10)	1791 (11)	48.51	472 (12)	626 (12)	32.63	256 (13)	348 (10)	35.94
Punjab	2278 (1)	3246 (1)	42.49	662 (3)	755 (9)	14.05	262 (12)	289 (12)	10.31
Rajasthan	1315 (8)	1997 (8)	51.86	582 (8)	853 (5)	46.56	370 (4)	525 (1)	41.89
Tamil Nadu	1561 (5)	2364 (6)	51.44	732 (1)	903 (3)	23.36	429 (1)	471 (3)	9.79
Uttar Pradesh	1098 (12)	1295 (13)	17.94	437 (14)	414 (13)	-5.26	285 (9)	269 (13)	-5.61
West Bengal	1011 (14)	1922 (10)	90.11	484 (10)	687 (10)	41.94	232 (14)	304 (11)	31.03

Note: 1. Figures in brackets indicate the rank of the state with respect to that indicator.

2. Differences in the figures on Karnataka for the year 2001-02 are on account of use of differences in provisional population figures.

Conclusion

What we have seen till now is a clear linkage between infrastructure and human development. This linkage has some very direct evidence and then many indirect ways in which infrastructure creation and maintenance at certain standards promotes and sustains human development growth, without roads, without basic power, without basic schools and health centers and without access to credit the poor are the most affected, as their areas are most infrastructure poor, their dependency on public provision of infrastructure is the highest and thus they are the most direct beneficiaries of public investment.

Infrastructure directly and most efficiently impacts poverty reduction and human development is that which is located where the poor live.

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