

# **India: Towards the Millennium Development Goals**

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CGSD Working Paper No. 3  
January 2004

**Working Papers Series**  
Center on Globalization and  
Sustainable Development

The Earth Institute at Columbia University  
[www.earth.columbia.edu](http://www.earth.columbia.edu)

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India's performance vis-à-vis human development has been mixed in the last decade. A high and sustainable rate of economic growth in the post reform period has reduced the number of people below the poverty line. Literacy rates have not only continued their trend rise but there has been a decline in the absolute number of illiterates for the first time. Population health, however, remains an area of neglect. Health indicators, while recording improvements over time, point to alarmingly high rates of malnutrition and mortality, especially among women and children, and widespread lack of access to medical care. Literacy rates have shown remarkable improvement in India in the last decade, both for males and females. Total literacy rates increased from 52% in 1991 to 66% in 2001, with male literacy rates increasing from 64% to 76% and female literacy rates increasing from 39% to 54%. The most heartening aspect of India's educational stride forward is the improvements recorded by the educationally backward states, especially the state of Madhya Pradesh. While there has been secular improvement in most health indicators, India continues to perform inferiorly in terms of health. Infant mortality rates have fallen and life expectancy has been rising. Maternal and child health, on the other hand, remain areas of neglect and as a result maternal mortality rates remain high, there is pervasive under-nutrition among children and women, and conditions of safe child birth elude large proportions of pregnant women.

Kerala has stood apart from the Indian experience in both education and health, achieving social development levels that are close to those found in the rich developed countries. With vigorous public action accompanied by financial commitment determinedly focused on providing access to good education and health to every individual, Kerala boasts of high literacy rates of over 90% for both males and females, and the highest life expectancy and lowest infant mortality rates among all states of India. Moreover, the sex ratio in Kerala, unlike that for India as a whole and in sharp contrast to those of the rich states of Punjab and Haryana, is quite favorable for women. The state of Madhya Pradesh, historically one of the most socially backward states in India, has made rapid strides in education in the last decade. Between 1991 and 2001, literacy rates in Madhya Pradesh have jumped more than 20% points, increasing from 44.6% in 1991 to 64.11% in 2001, recording the highest decadal increase in literacy among Indian states. Moreover, female literacy rates in Madhya Pradesh improved more than male literacy rates, increasing from 39.29% in 1991 to 54.16% in 2001. To pursue the goal of mass literacy, Madhya Pradesh established 26,000 new primary schools within a year (1997-1998), achieving universal access. The unique feature of the state's remarkable achievement has been the use of organizational support provided by village councils (Panchayats) to spread education to rural areas and to its large population of scheduled castes and tribes.

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This paper was presented to the Prime Minister of India in New Delhi on December 25, 2003 and to the Chief Minister of Assam in Guwahati on December 23, 2003. Earlier on, this paper was presented to the Health and Finance Ministers of India in New Delhi on May 11, 2003.

## India: Towards the Millennium Development Goals

### 1. Introduction

India is home to more than a billion people, accounting for nearly a sixth of the world's population. Any progress made by India in reaching the Millennium Development Goals will take a large part of humanity closer to reaching them. India has made some progress in covering the distance, more in some areas than in others. A lot more, however, remains to be done.

India's better than average economic growth since 1991 has helped reduce extreme poverty. Enrolment in primary schools has increased for both girls and boys. Infant and child mortality have continued their secular decline. The historically backward states, especially the populous state of Madhya Pradesh in central India, has shown the greatest gains in education among all Indian states between 1991 and 2001. On the other hand, maternal health continues to be an area of persistent lack and neglect. Though there has been near universal reduction in infant mortality and child mortality rates, they remain at very high levels for large sections of the population. Child health remains precarious with very high levels of anemia found among children indicating pervasive under-nourishment. Gender bias continues to deprive millions of girls of higher education, proper nutrition and medical care. Caste too remains a salient social feature and people belonging to scheduled castes and tribes lag behind in terms of education and health. Endemic hunger and under-nutrition are still critical issues plagued by corruption and inertia, especially in a country where large areas are subject to frequent droughts. The burden of disease, to which HIV/AIDS has now been added, remains high creating excessive levels of mortality and morbidity.

India has a federal structure and political jurisdiction is shared by the national government and the political parties in power at the state level. The lowest (sub-state) administrative level, however, is the 'district'. All government programs and interventions are administered and implemented at the level of the district. Not only are there large variations in well-being outcomes across the states of India, but even within a single state, there are large variations in outcomes across districts. In this paper, we want to track India's progress in achieving the millennium development goals at the district level, data permitting. Where district level data is not available, state level data is used.

### 2. *Social Attainments and Changes*

Human Development in a society has come to mean how well a society is doing in raising per capita incomes, education and health levels. While, it is not necessary that there be a straightforward relationship between these different aspects of well being, in general we would expect them to be correlated. In India, states that do better along one dimension do not necessarily do so along others. For example, Kerala has achieved very

high levels of social development but has one of the lowest per capita incomes. Punjab, the state with the highest per capita income, on the other hand has, one of the worst sex ratios in the country. Human development at the state level in India depends not only on its level of resources but also on cultural norms, political willingness and support for human development.

The economic climate in India has changed a lot since 1991 when a program of economic policy reform was put in place as a result of a fiscal and balance of payments crisis. It moved towards economic liberalization and privatization and greater integration with the world economy. More economic openness, both domestic and international, has raised the average rate of economic growth from 5.8 % per year in the 1980s to 6.1 % per year in the 1990s (World Development Report, 2000/2001).<sup>1</sup> There has been some debate on how much economic growth post-liberalization has contributed to poverty alleviation. However, as per the statistics available from the National Sample Survey Organization (NSSO)<sup>2</sup> on consumer expenditure, the poverty ratio on a 30 day recall basis is estimated at 27.09% in rural areas, 23.62% in urban areas and 26.10% for the country as a whole in 1999/00. The number of people below the poverty line has declined from 55% in 1973/74 to 36% in 1993/94 to 26% in 1999/00. Though the poverty ratio declined, the absolute number of poor remained around 320 million for a fairly long period of two decades (1973 – 1993) due to a countervailing growth in population. The latest 1999/00 NSSO survey, however, shows a significant decline in this number to about 260 million out of a total population of 997 million.

We need to investigate not only how changes in the macro-economy affect growth, poverty and inequality, but also whether and how these pervasive changes have affected health and educational attainments. In what follows, social development attainments and changes are described and discussed at the district level where data is available and where district level data is not available, the discussion is based on the state as the unit of observation. Little work exists measuring such change in India before and after the widespread economic reforms of 1991.

### *2.1 Poverty*

Income poverty is an important component of economic and social deprivation. Income levels determine consumption levels as well as access to health and educational services. Poverty reduction has been an important goal of development policy in all poor countries and India is no exception. With one sixth of the world population living within its borders, any reduction in the number of poor people in India will make a vast difference to the extent of poverty in the world.

Reduction in poverty requires raising income levels of the poor and the best engine for doing that is broad-based economic growth. India's rate of economic growth has been higher than average in the post-reform period of the 1990s compared to the past.

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<sup>1</sup> The significant difference between the growth rates of the 1980s and the 1990s is not only that the latter is higher but it is also sustainable.

<sup>2</sup> NSSO 55<sup>th</sup> Round Survey Data July 1999 – June 2000.

The economic performance of different states, however, has been quite varied. According to calculations performed by Sachs, Bajpai and Ramiah (2002), the per capita state product in 1998-9 varied from Rs. 1010 per month in Bihar (population 82 million), the poorest state, to Rs. 4853 per month in Maharashtra (population 96 million), the richest state. The growth rate of income has been equally varied with Bihar registering a growth rate of -0.2% per year between 1992-98 and Gujarat 7.8% per year. Sachs et al hypothesize that the reason for such large differences in the economic performance of states is differences in the marginal productivity of investments by sub-sector, which depends on both the general business environment and specific geographical factors.

The poverty reduction performance of the states vis-à-vis the better economic growth in the post-reform period has also been varied. Moreover, there are heterogeneities within states (except Bihar which is uniformly poor). The large states of Andhra Pradesh, Karnataka and Maharashtra show stark contrasts and some intra-state variations also exist in the smaller and richer states of Haryana and Punjab. Very high poverty rates of more than 60% exist in Southern Bihar, Southern Orissa, Madhya Pradesh and Southern Uttar Pradesh. These regions are either mainly tribal or rocky and dry, yet densely populated because of their agro-climatic features. Similarly, high poverty of 41-60% exists in other areas of Bihar, parts of Madhya Pradesh, inland Maharashtra, northern Tamil Nadu, eastern and central Uttar Pradesh and parts of West Bengal. These are also tribal, semi-arid thickly populated areas, which have been historically neglected.

In the poorest states, especially the states of Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh which comprise what are known as the BIMARU ('sick') states and Orissa, very high rates of poverty incidence are human failures rather than lack of natural resources. Except parts of western Rajasthan, parts of western Madhya Pradesh and southern Uttar Pradesh, the agro-climatic features have the potential to yield very high returns in agriculture. According to Datt and Ravallion (2002), had the poorest states participated more in post-reform economic growth, the historical trend in poverty reduction could have doubled. The proximate reasons for the lower poverty reduction response to economic growth by the poorer states are their initial low levels of rural and human development and large disparities between rural and urban areas.

## *2.2 Education*

Literacy rates have been rising over time in India. For the country as a whole, literacy rates increased from 52% in 1991 to 66% in 2001. Improvements were made in both male and female literacy rates. In 1991, only 39% of females were literate compared to 64% of males. In 2001, these rates had increased to 54% and 76% respectively. Though there were significant differences in the performance of different states, the historically educationally backward states recorded higher than average increases – in Madhya Pradesh female literacy rates increased by almost 21% and in Rajasthan by 24% compared to the all-India decadal increase of 15%. In the ranking of states by education, Bihar continues to occupy the lowest rank in terms of both male and female and literacy rates while Kerala retains its position at the top.

Maps 1 and 2 in the Appendix provide a visual picture of literacy rates in India at the district level in 1991 and 2001. In 1991, higher literacy rates are concentrated among the southern states as depicted by the darker colored districts. There are pockets of high literacy in the North, mainly in the small hilly state of Himachal Pradesh and in districts belonging to the North Eastern states. Low levels of literacy, as depicted by the light yellow colored districts are concentrated in Rajasthan, Bihar, Uttar Pradesh, Bihar and Orissa. Of the twenty-five districts with the lowest literacy rates in 1991 (2001), 3 (2) were in Madhya Pradesh, 9 (12) in Bihar, 3 (4) in Rajasthan and 5 (5) in Uttar Pradesh, the BIMARU states. The remaining 5 (6) districts were in Orissa. The picture changes significantly in 2001, especially in Madhya Pradesh in central India. Very low levels of literacy rates are now concentrated in northern Uttar Pradesh, western Rajasthan, Orissa and Bihar, parts of Madhya Pradesh and Andhra Pradesh. In 1991 literacy rates ranged from a low of 18.62% in Nabarangapur in Orissa to a high of 95.72% in Kottayam in Kerala. In 2001, the district with the lowest literacy rate was Kishanganj in Bihar where it was 31.02%. Kottayam retained its position as the district with the highest literacy rate with 95.72% of its population literate. Map 3 shows absolute changes in literacy rates between 1991 and 2001. In absolute terms, the highest changes are concentrated in Rajasthan, Madhya Pradesh (including the new state of Chattisgarh) and northern Andhra Pradesh. As the baseline literacy rates are some of the lowest in the country, we have to be cautious in interpreting this map. However, it attaches a picture to the heartening fact that laggard districts and states in India are making progress in education. Uttar Pradesh too records absolute changes in literacy rates between 12-15% in many districts. Bihar, however, continues on its extremely slow road forward. Districts in Bihar continue to record the lowest literacy rates in the country and absolute improvement in the districts of Bihar over time continue to be small.

Maps 4, 5 and 6 depict female literacy rates at the district level for 1991, 2001 and change between 1991-2001. The pictures are similar to those for overall literacy rates. High female literacy rates in 1991 are concentrated in Kerala and along the western coast of India, in Maharashtra and Gujarat, in the hilly state of Himachal Pradesh, in southern West Bengal and the small north-eastern states with pockets of high literacy in central India.

Within the overall jumps in both male and female literacy rates between 1991-2001 are hidden disparities – between genders, between caste groups, between income classes and between rural and urban areas. As the Census 2001 data on these measures are yet to become available, a precise account of these disparities can be given only in the future. However, studies based on earlier data do find that where overall literacy rates are higher, in these regions literacy rates among the poor, females and caste groups also tend to be higher and disparities lower. For example, based on NCAER data, Shariff and Sudarshan (1996) show that in Rajasthan the overall literacy rates for males and females were 60% and 19% respectively whereas literacy rates were 39% and 7% for males and females for Scheduled Tribes and 52% and 9% for males and females for the Scheduled Castes. The literacy rates among landless wage earners were 44% and 5.6% for males and females respectively. Rajasthan ranks at the bottom in overall female literacy and this is

as true of females belonging to the higher castes as of those who are members of scheduled castes and tribes. In general, historically, educationally backward regions do particularly badly in terms of education attainment of the marginalized groups.

In what follows, we highlight some of the correlates of higher literacy: especially urbanization and provision of infrastructure. Higher literacy rates are associated with greater *urbanization*. As is well known, the rural-urban divide is much greater than differences based on caste, class and gender. Urban populations have greater access to schools and the quality of education is also better in urban areas. Moreover, the incentives to invest in education are higher in urban areas given the proximity to more and better paying jobs. Urban incomes are also higher compared to rural areas. As district-wise data on urban population is not yet available for 2001, Graph 1 in the Appendix shows a simple regression of literacy rates on percent of urban population at the district level for 1991. Without ascribing any causality to the association, according to the simple regression result, a 10% increase in the urban population at the district level is associated with a 2% increase in literacy rates.

Higher literacy rates are also associated with greater *infrastructure* availability as can be seen from Graph 2 in the Appendix, which shows the results of simple OLS regression of literacy rates on the infrastructure index at the district level. The data on literacy rates belong to the year 2001 and the data on the infrastructure index for 1999. Again, while correlation does not establish causality, the positive association of urbanization and infrastructure with education indicates the kind of environment conducive to the provision of, and demand for, education.

Regionally in India, southern states have historically done better in terms of educational outcomes and continue to do so as is evident from the district level maps of literacy rates. There is greater public awareness and collective action efforts on the part of the people in the South. Politics is populist in almost all states but the governments of the southern states have paid more attention to education compared to the northern states and there has been effective intervention in terms of public schemes, an example being the provision of mid-day meals in schools in Tamil Nadu. Kerala has been a model state for some time in terms of human development not only for India but for the developing world as a whole. Among the laggard states, Madhya Pradesh has shown commendable improvement in literacy rates for both males and females. As has been noted above, some districts in Madhya Pradesh have recorded the highest increase in literacy rates between 1991 and 2001.<sup>3</sup> In section 3, Kerala and Madhya Pradesh are presented as case studies to explore some of the reasons behind their attainments.

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<sup>3</sup> Here mention must also be made of the hilly state of Himachal Pradesh situated in the north of India in the foothills of the Himalayas. It is a small, sparsely populated state accounting for a little more than half a percent of India's population. Given the remoteness of its hilly topography and the fact that the state is situated in the Hindi belt, same as the BIMARU States with which it shares similar institutional and bureaucratic set-up, its achievements in education and health are remarkable. These achievements are ascribed to the greater level of 'social capital', the better status of women and greater parental demand and pressure for education for their children, in the state. For a more detailed description of Himachal Pradesh's achievements, see Dreze and Sen (2002).

### *2.3 Health*

Health is an important aspect of human development. One of the most important predictors of health status is income. However, health is a dimension of human capital and healthier people are more productive. The relationship between health and income is bi-directional: the health status of a person influences his or her income status as well. Given the prevalence of mass poverty in India, the question is not only how to raise the incomes of the poor that will be instrumental in improving their health status but also to identify policy interventions that can improve people's health status at existing income levels (and can be instrumental in raising incomes). Provision of public health services such as access to basic and preventive health care, sanitation, clean water and raising awareness about the causes of illness and their treatment are some of the ways in which the now industrialized countries improved the health of their citizenry at comparable levels of development and before the onset of the medical revolution.

Health indicators have continued to improve over time in India. Infant mortality rates have shown a steady and secular decline in India and life expectancy too has continued its upward climb. Yet, the state of affairs is far from satisfactory: health indicators in India are inferior not only compared to the rich countries of the West but also compared to the achievements of other developing countries like China and Brazil. For example, despite greater resources, life expectancy in some states of India is similar to those in some of the poorest sub-Saharan African countries. Only the state of Kerala records achievements in health that are better than not only the rest of India but also the rest of the developing world and often at par with the Western developed countries.

Infant mortality is a good indicator at how well nations are doing in protecting their most vulnerable members. Both infant and child mortality have continued their trend decline but remain at high levels in India. Table 1 in the Appendix lists infant and child mortality rates for 11 states in India for 1992-3 and 1997-8. Kerala stands out with its low infant and child mortality rates of 16.3 and 2.6 in 1997-8. In all the states, except Madhya Pradesh and Rajasthan, which actually register an increase in these two rates, infant mortality and child mortality rates have declined.

Sex ratio indicates both the absolute well being of women as well their relative well-being vis-à-vis men. Given adequate and equal nutrition and medical care, women live longer than men. In India, the overall sex ratio has always been unfavorable to women except in the states of the south. While, sex ratios improve with income in general, in India, the relatively richer states of Punjab and Haryana have historically recorded the worst sex ratios in the country as a whole. Between 1991 and 2001, improvements in the sex ratio have had mixed results. In the traditionally adverse to women states of Uttar Pradesh and Rajasthan sex ratios have improved and these increases are the highest overall, noting the fact that they start out at the lowest levels across districts. On the other hand, in many districts of Maharashtra and Gujarat sex ratios have actually declined. Punjab and Haryana, while recording some improvement, continue to have some of the lowest sex ratios. Maps 7 and 8 in the Appendix provide a



visual picture of sex ratios at the district level for the years 1991 and 2001. The pictures are not very different in the two years. The darker colors – russet and maroon –, which depict higher sex ratios, dominate in the southern states, parts of southern Gujarat, Himachal Pradesh and the small, hilly states of the northeast, in 1991. The picture remains much the same in 2001, with the darker colors dominating in the states of the South and their distribution in the rest of India follows a pattern similar to that in 1991.

#### *2.4. Socio-economic differentials across gender, caste and rural location*

There are wide disparities in poverty, health and education outcomes across different sections of the population and across different regions of the country as have been discussed to some extent in the section above. Rural and urban India record large differentials in all social development indicators. Apart from the rural-urban divide, gender, caste and class are also systematically associated with disparate well-being outcomes.

Data on sex ratio and male and female literacy rates discussed above provide some indication of discrepancies in social well being that systematically vary with gender. Table 2 in the Appendix shows rural and urban life expectancy and infant mortality rates for the 14 major states. Except Kerala, in all states there are large discrepancies in these two health outcomes across rural and urban populations. This is especially true of infant mortality rates. Post-independence, India has consciously pursued a policy of affirmative action whereby the historically socially and economically backward scheduled castes and tribes have been given preferential treatment. However, even after 50 years since independence, the caste divide in India continues to mark the social landscape, especially in the rural areas and the hinterlands. Membership of scheduled castes and tribes systematically predicts education and health outcomes for the population. As has been noted in section 2.1, poverty is concentrated in areas with a greater presence of backward castes and tribes. As noted in section 2.2, Shariff and Sudarshan (1996) found that female literacy rates among members of scheduled tribes in Rajasthan and Madhya Pradesh were as low as 7% and 9% respectively. In order to provide some idea of how members of scheduled castes and tribes fare vis-à-vis the rest of the population, Table 3 in the Appendix provides 1991 literacy data for the 14 major states, as 2001 Census data for Scheduled castes and tribes is not yet available. It can be seen from the table that Scheduled castes and tribes, while they have lower than average literacy rates in all states, fare particularly badly in the BIMARU states and in Haryana and Andhra Pradesh.

Even as impressive advances have been made in the spread of literacy with the number of non-literates actually falling as per the 2001 census, the gaps between the education of males and females remains a cause for concern. The difference between male and female literacy rates in 1991 was 25 percentage points. Even as both male and female literacy rates recorded jumps in 2001, female literacy rates trailed behind male literacy rates by 22 percentage points.

Education and health among Indian citizenry have been improving over time but the large disparities across sections of the population are worrisome. In terms of health and from the viewpoint of the framework of the epidemiological transition, different sections of Indian society seem to belong to different phases of the transition: the poor and vulnerable sections of the population suffer from diseases of poverty and under-nutrition, largely infectious and gastro-enterical diseases; among the rising urban middle class, the diseases of affluence such as heart and non-communicable chronic degenerative diseases are more prevalent. Similarly, large sections of the population, especially rural, tribal and female continue to be deprived of basic education and literacy.

### 3. *Case Studies*

Among the fourteen major states, Kerala has always stood out as a star in terms of social development, closely followed by Tamil Nadu and in some respects West Bengal. On the other hand, the BIMARU states have always ranked the lowest. However, in the last two decades, Madhya Pradesh has recorded impressive achievements in education as a result of greater and better public intervention. While there are lessons to be learnt from the success of Kerala, there are important lessons to be learnt from the improvements made by Madhya Pradesh. These lessons acquire great significance for the other BIMARU states which share cultural contiguity with Madhya Pradesh. In the following section, case studies for Kerala and Madhya Pradesh are presented to highlight the crucial role played by public action in achieving social development at low levels of per capita income.

#### Case Study: Kerala

Kerala's achievements in social development are legendary especially in a scenario of low levels of per capita income and low rates of income growth. The key to Kerala's success has been social intermediation and active public action and financial commitment over time to provide education and health to every individual in the state. In terms of both health and education, Kerala ranks the highest among all Indian states. In 1991, the human development index for Kerala was 0.775 compared to that of Punjab which had a human development index of 0.770. On the other hand, Kerala's per capita income was only half that of Punjab in 1991 (Mehrotra and Jolly, 2000).

The state of Kerala was formed by combining the provinces of Travancore, Cochin and Malabar. At the time of the formation of the state, Travancore and Cochin provinces had already achieved high rates of literacy and good health for their population. The statistics for Malabar, however, were not different from the average for India as a whole. However, by implementing policies and programs in Malabar that were already prevalent in the other two provinces and providing more budgetary assistance to it, within the span of a single generation, health and education in Malabar converged to those in Travancore and Cochin.

What distinguishes Kerala's achievements is the promotion of education and widespread and equitable provision of health care and other services from an early stage.

This has led to a snowball effect in social achievements over time. Helped by mass literacy, political activism in Kerala, especially the political organization of the deprived sections of society and the favorable position of women in society has played a crucial role in the reduction of social inequalities and in enabling the disadvantaged sections in participating in the economic and social development processes. Notwithstanding the unique cultural and historical characteristics that may have been conducive to the early social development achievements in Kerala, as the experience of Malabar in catching up with the other two regions shows, political participation and public action has played an important role in Kerala's social development successes and that its experiences can be emulated by the other states of the Indian Union.

### Case Study: Madhya Pradesh

Madhya Pradesh, situated in central India, is the largest state in the Indian Union geographically with a land area of 44,348 square kilometers. In 2001, it accounted for 5.8% of the Indian population, which meant that its population density was 196 persons per square kilometers, one of the lowest population densities among the 14 major states in India. Madhya Pradesh is a poor, tribal state and historically, it has been socially and economically backward, being one of the 'BIMARU' states. In 1991, Scheduled Tribes comprised 23.27% of the total population of Madhya Pradesh, while scheduled castes comprised of 14.54% of the total population. The headcount index of poverty for Madhya Pradesh in 1993-4 was 44%, the highest among the major states and it accounted for 9.2% of national poverty (Datt and Ravallion, 2002).

Between 1991 and 2001, however, Madhya Pradesh has made impressive gains in literacy rates, registering some of the largest increases in literacy rates for both males and females across all districts of India. In 1991, the average literacy rate across districts of Madhya Pradesh was 43% and the average for female literacy rates was only 27%. In 2001, the average literacy rates across had increased to 63% and for females to 49%. As can be seen from Maps 3 and 6 in the appendix, districts in Madhya Pradesh registered the largest increases in total and female literacy between 1991 and 2001.

The remarkable gains in literacy made by Madhya Pradesh can be explained by the twin-pronged strategy of the Madhya Pradesh Government: (a) provision of schools and guaranteeing access and (b) a model for spreading literacy that makes use of the synergies between the community, the local and the state governments<sup>4</sup>. Between 1997 and 1998, under the newly initiated Education Guarantee Scheme (EGS), Madhya Pradesh established 26,000 new schools, most of them in areas inhabited by Scheduled Castes and Scheduled Tribes. This made possible for Madhya Pradesh to declare universal access to education. In order to address the challenge of mass literacy, Madhya

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<sup>4</sup> The State government has empowered the Panchayats to set-up new schools in response to community demand, appoint teachers and locate land for schools. Importantly enough, the Panchayats also have the authority to dismiss teachers who are not performing. Education Committees comprising of Janpad Panchayat and District Panchayat members oversee all matters of school education like location of new schools, transfer of teachers within the District and staffing of District Institutes of Educational Training. The Gram Panchayats also manage all such schools that are set-up through the Education Guarantee Scheme.

Pradesh moved away from the Total Literacy Campaign (TLC) model at the national level and pioneered a new scheme, the 'Padhna Badhna Andolan' (PBA). The PBA uses the organizational support provided by the institution of the Panchayati Raj (village councils) to broker the spread of education at the level of the community. The key elements of the PBA process are as follows:

- Non-literates come together as Padhna Badhna Samitis.
- They choose an educated person from the locality to be their teacher or Guruji.
- They register at the nearest Panchayat (village council) or Jan Shiksha Kendra (Cluster Resource Center) with their names and that of their proposed teacher.
- After verification of their non-literate status, the government registers the teacher and provides him/her with training and teaching-learning material.
- The teaching-learning material consists of 4 primers – the first three on literacy and the fourth on rights (land, gender, forest, labor). The aim of the fourth primer is to reposition the Padhna Badhna Samiti as a self-help group.
- The government's role is only as an evaluator and for conducting examinations.
- There are monetary incentives for the teacher who receives an honorarium of Rupees 100 per learner (to which the community may add if it wishes).

The response to the scheme was overwhelming with 217,000 Samitis with a total enrolment of 5.18 million people being formed (Rajiv Gandhi Missions Occasional Papers, 2001). The success of the scheme has translated into remarkable literacy results for Madhya Pradesh, with every 6<sup>th</sup> person removed from the category of illiterates belonging to the state and every 5<sup>th</sup> woman removed from the category of illiterates belonging to the state. The strategies pursued by the state to spread education make use of conditions that also exist in other states and therefore provide a valuable way forward for similarly placed states.

#### *4. Public Provision and Infrastructure*

India is moving forward towards greater literacy and better health for its population. While, gains in literacy have been impressive, those in health have been lackluster. Moreover, average gains hide large differences across districts within the same state and across different socio-economic groups.

In India, provision of public goods in health and education has always been lackluster. One of the reasons why literacy rates displays a slow upward climb in the laggard states is the inability of public services to keep up with the increase in population size. Spread of education depends on the availability of, and access to, educational institutions. The issue of availability of, and access to schools, becomes even more

critical in the face of increasing population size. In most districts, the availability of primary schools per 100,000 of population has fallen between 1991 and 2001 indicating the inability of the education system to keep up with population change. On the other hand, as the success of Madhya Pradesh in spreading education shows, access to schools is a crucial component of any policy effort towards the goal of mass literacy. The education system in India has been criticized for its neglect of primary education and its lopsided attention to higher levels of schooling. In a country where only a little over 10% of the school going population can afford private schooling, it becomes imperative for the government to provide its growing population with an adequate number of schools. The quality of schooling in India is also suspect. Field studies find parents disenchanted with the quality of education their children get in school. Bad schools reduce parental motivation to send children to school and keep them there and increase their motivation to put their children to work, contributing to the phenomenon of child labor. According to Ramachandran and Saihjee (2002), aggregate data hides a social hierarchy of access at ground level.

India's performance in improving the health of its population has been much inferior compared to educational development. Infant, child and maternal mortality rates remain at very high levels. Among the proximate causes of infant and child mortality is inadequate nutrition, among pregnant mothers and among small children. Rates of anemia among children are very high in India as can be seen from Table 1. Barring Kerala, where the percentage of children with anemia is 44%, all other states have more than 65% of children suffering from anemia. In Bihar, Rajasthan, Maharashtra and Orissa more than 70% children are anemic. Another proximate reason for childhood mortality is the extent of protection from infections and diseases of childhood. Adequate and timely immunization goes a long way in providing protection from polio, measles and diphtheria. The prevalence of complete immunization among children is heterogeneous across states and districts of India. In 1999, West Champaran in Bihar registered the abysmally low figure of 14% for children with complete immunization, which was a quarter of the mean of 60% for all districts. On the other hand, Madurai in Tamil Nadu recorded near universal immunization with 99.5% of all children having received complete doses. District averages clustered around 45% in the other four poorly performing states of Uttar Pradesh, Madhya Pradesh, Rajasthan and Orissa. With less than half of all children immunized, high childhood casualties are not surprising, though unacceptable.

Maternal care, both pre-natal and post-natal is characterized by gross neglect in India, which has one of the highest levels of maternal mortality in the world. The average estimated maternal mortality rate between 1982-86 for the 14 major states was 580 per 100,000 births. In Rajasthan and Uttar Pradesh, the estimated maternal mortality rates were as high as 938 and 935 respectively in this period. The reasons for such high maternal mortality range from poverty, high fertility rates, gender bias, under-nutrition and high incidence of anemia among pregnant mothers to the lack of access to primary medical care, lack of access to family planning and reproductive health services and non-availability of trained medical personnel in rural areas. In Table 1, the percentage of anemic women in 11 major states is listed for the year 1997-8. The percentage of anemic

women range from more than 63% in Bihar and Orissa to 22% in Kerala with the other states clustering around 50%. Apart from lack of nourishment, many women lose their lives in childbirth due to poor availability of medical infrastructure and personnel. For the 188 districts in the 14 major states for which data are available in 1999, the percentage of pregnant mothers who delivered infants in hospitals or under the supervision of trained medical personnel at home was as low as 7.9% in Samastipur in Bihar, while 100% of mothers delivered their infants under proper supervision in Pathanamthitta in Kerala. The mean for all districts was 49% with a very high standard deviation of 25 percentage points. Districts with more than 50% of mothers who delivered babies with trained medical attendants present belonged to the southern states of Kerala, Karnataka, Andhra Pradesh and Tamil Nadu, the western state of Maharashtra and Gujarat, the northern states of Punjab and Haryana and West Bengal. Only two districts each belonging to Madhya Pradesh, Rajasthan and Orissa and three of Uttar Pradesh qualified in this area. In all districts of Bihar fewer than half the mothers delivered babies under safe conditions. Moreover, in these poorly performing states, the better statistics belonged to the relatively more urban districts and large cities. In Madhya Pradesh, the two large cities of Indore and Gwalior, 72% and 61% of mothers respectively delivered their babies in a safe environment.

It is now widely accepted that aspects of women's agency are instrumental in reducing infant mortality rates and raising child health levels. High fertility rates and high female illiteracy rates are generally associated with high infant and child mortality rates and inferior child health outcomes. In India, fertility rates have been declining over time with Kerala having achieved a below replacement fertility rate of 1.96. However, the decline in fertility rates has been varied across Indian states as is evident from Table 1. Although fertility rates have declined in all the states, in the BIMARU states, fertility rates are still very high ranging from 3.27 in Madhya Pradesh to 3.96 in Uttar Pradesh in 1997-8. Empirically, it has been proven that higher female literacy is associated with lower fertility. In a panel study for the districts in India, Dreze and Kingdon (2000) show that women's education is causal in lowering fertility. Moreover, more educated women are more likely to experience lower infant mortality and child mortality rates and are also more likely to invest more in their children's education. More educated mothers' process information more effectively and are more likely to make use of maternal and child care services. Large disparities exist between literate and illiterate mothers in the production of child and infant health. These disparities are further exacerbated by membership of scheduled and low castes and tribes. However, rural or urban residence cut across education, caste and class groups with greater differentials in health outcomes between rural and urban populations than across other socio-economic groupings. In order to improve the health of its population, India will have to redress existing inequalities that exist between rural and urban areas and across different socio-economic groups.

One of the most important reasons for high levels of mortality and morbidity in India is under-nutrition. Food security continues to elude many. One of the contradictory aspects of Indian development is the continuing lack of access to food by large sections of the population in a period when national availability of food stocks per capita is at historic high levels. Endemic under-nourishment claims many more lives than large-scale

famines. The former has less political visibility, which leads to its neglect in public discussion and the political agenda of political parties. As a result a huge proportion of the Indian population continues to suffer from chronic under-nutrition and the burden of avoidable illness and morbidity.

Success at eradicating illness also depends on information available to people about the causes of illness and their prevention and treatment. Such knowledge is abysmally low, especially among the most vulnerable sections of the population. Added to the existing bundle of diseases is the spread of HIV/AIDS, which also requires raising public awareness as a critical component towards combating it.

In India the approach to health planning at the national and state levels has been ad-hoc. Health policy has been pursued by way of multiple schemes, which are neither integrated with each other nor with development strategy in general. Such an approach further reduces the effectiveness of limited financial and human resources. Moreover, public services in India have historically been of low standards in both quantity and quality. The health infrastructure in India is either not in place, or is in place and non-functional. However, the quality of what is available is so low that people would rather see a private medical practitioner at great cost rather than make use of publicly provided health services.

Better infrastructure is one of the keys to economic development in general. India's infrastructure network is large, developed and reaches all parts of the country. Yet, it is not enough and it is rightly touted as one of the major constraints to the future of economic growth and attainment of social development goals in India. States and districts with better infrastructure also have higher rates of literacy and better population health. Better and modern infrastructure may not be directly causal towards better education and health as better infrastructure, literacy and health, all could be the result of a third factor such as greater governmental intermediation. Districts in the state of Punjab have the highest infrastructure index, yet Punjab has mixed results in social development terms. Nevertheless, better roads, electricity and telephones allow greater access to markets, schools and hospitals, and relevant and timely information. In general, better infrastructure leads to greater knowledge and participation by the masses in economic and social opportunities, especially for those who live in the hinterlands of the country. For 334 districts on which data is available in 1999, the mean of the infrastructure index across districts was 104, with Madras district in Tamil Nadu recording the highest with 472, followed by districts in Punjab and Mahbubnagar in Andhra Pradesh having a low of 65.

India has done reasonably well in providing electricity to most of its villages<sup>5</sup>. Only 17 districts out of the 285 had less than 60% villages without electricity. Of these 17 districts, 9 were in Uttar Pradesh. Jehanabad in Bihar had only 22% of its villages with electricity. The mean for all districts was 91%. In terms of availability of roads too, there

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<sup>5</sup> Of course, it should also be mentioned that almost all the State Electricity Boards (SEBs) are loss-making since they implement social subsidy policies of state governments leading to inefficient patterns of energy consumption, and even to non-recovery of their own costs.

is large variation across districts. Lack of roads contributes to rural poverty, making access to markets, health and educational facilities difficult. Due to lack of availability of data, a detailed discussion on the availability of roads in Indian districts cannot be provided but it can be surmised that districts with a higher infrastructure index also have more roads per 100,000 of population.<sup>6</sup>

*Towards the Millennium Development Goals:*

The following table shows where India should be in 2015 if it achieves the Millennium Development Goals and where it is located now<sup>7</sup> and the distance it needs to cover with respect to various indicators.

Indicators	2015	Present
Infant Mortality Rate	40	71
Under 5 Mortality Rate	55	96
Maternal Mortality Rate	142.5	440
Gross Enrolment Ratio in Primary Schools		
Boys	100	100.86
Girls	100	82.85
Total	100	92.14
Female Literacy Rate/Male Literacy Rate		
Literacy Rate	1	0.71
Poverty Rate (%)	16	35

For India to go further along the path of human development, it has to focus on providing better health services to its population and on eliminating existing disparities across caste, gender and rural-urban location. There is a great need for developing the health infrastructure and for providing better infrastructure in general. The backward states, especially Rajasthan, Uttar Pradesh and Bihar still lag behind the rest of India in human development. Madhya Pradesh has made some headway in education but does no better than the other BIMARU states in health. However, both Kerala and Madhya Pradesh provide proof that with effective social intermediation and public action, it is possible to achieve greater social development at low levels of income and in a relatively short time period. Moreover, social development is also the key for the backward states to reduce poverty and participate in the new economic growth. The role that Panchayats in Madhya Pradesh are playing may provide a strategy for all other states in India, especially with respect to their role in the area of primary education. Control and oversight of the schools and health centers at the local level is critical if they are to perform well. The prevailing system in India fails to perform as well since the control and oversight is presently with the state bureaucrats who are stationed in the state capitals.

<sup>6</sup> For the 47 districts on which data is available for 1999, a simple regression of road length per 100,000 population on the infrastructure index was run: a 10% increase in the infrastructure index was associated with an increase in 7 kilometers of road length.

<sup>7</sup> The indicators for India's present situation are based on the latest year for which information is available.



Additionally, from a budgetary point of view, government resources need to be shifted towards investments in human development, leaving the private sector with the major responsibilities for increased economic growth. The government at both center and state levels should commit much greater resources to public health and education. The major budgetary challenge, therefore, is to shift government spending away from low-priority areas (such as untargeted subsidies, excessive bureaucracy, and investments that can better be left to the private sector) towards high-priority areas such as health and education that can only be met by public spending.

India has a long way to go in order to meet the human development challenge. Adult illiteracy remains almost 50 percent, and up to 60 percent for women. Almost half of all children do not finish primary school. Only around 20 percent are in secondary school. Infant mortality rates are high by international standards, and life expectancy at around 63 years is much lower than in China, other countries in East Asia, and the advanced economies. Fertility rates are still very high, and the population continues to grow rapidly, pressing hard on India's fragile ecosystems and natural environment.

The shortfalls in health, education, and population control are of course mutually interactive. Illiterate mothers are much more likely than literate mothers to suffer the deaths of young children due to disease, since literate mothers are more effective at care giving and at seeking out medical help in emergencies. High infant mortality rates promote high fertility rates, since households have many children to compensate for the risks of childhood deaths. High fertility rates, in turn, promote a social bias against educating young girls, since parents lack the resources to provide a quality education for all of their children, and therefore invest scarce resources in boys, for whom the market returns to investment are higher.

India dramatically under-invests in both public health and education and so do many other developing countries<sup>8</sup>. In the area of health, the Indian government (center and states) spends less than 1 percent of GNP for health, compared to an average of around 3 percent for all developing countries, and more than 5 percent for high-income countries. The public health services are broken down, especially at the primary level. Study after study shows that the primary health centers fail to provide an adequate set of services for the population. The poor in India are left with almost no health services, besides the very meager services that they can pay for out of pocket. The situation in health will get worse, not better, if there is no increase in public investment in health. The AIDS epidemic threatens to rise dramatically in the coming years. Malaria is resurgent, as is tuberculosis linked especially to AIDS.

India needs a similarly bold strategy for universal education, at least through age 14. Special attention is needed to ensure the education of girls on the same basis as boys, and to ensure the continuation of children in school through the ninth year. Public

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<sup>8</sup> Brazil's President Fernando Henrique Cardoso has launched an offensive on poverty, pledging \$6 billion for health and education programs to address what he said was 500 years of scant attention to the grinding plight of the poor.

spending in education should rise from the current level of around 3 percent of GNP to at least 5 percent of GNP (and probably more) to meet these goals. This money should be spent mainly by state budgets, but with local responsibility for overseeing the effective operation of schools as discussed in an earlier section using the successful example of Madhya Pradesh where panchayats are given responsibility for ensuring school performance at the local level, including the right to withhold teachers' salaries in the event of poor teacher performance.

Studies have shown that more parents would like to send their children to school, but are dissuaded from doing so because of school fees, the poor quality of education in many schools, and great distances from home to school in rural areas. The large distances to schools especially hinder the attendance of girls. Part of the budgetary increase at the state level should therefore be to ensure the availability of schools within close proximity to every village. One of the most effective ways to increase student enrolments is through the provision of free school meals (e.g. school breakfasts or mid-day meals, or both). Tamil Nadu has been very successful in implementing a school meals program, and this example should be generalized throughout the country. School meals not only improve school enrolments and attendance, but also childhood nutrition.

The social agenda should focus most urgently on health and education, but it should also include other social initiatives, such as increased political participation at the village level (through village councils or panchayats), and greater social and political equality for girls and women.

## References

Datt, G and M. Ravallion, (2002), "Is India's Economic Growth Leaving the Poor Behind?" Manuscript.

Dreze, J. and G. Kingdon, (2000), Fertility, Education and Development: Further Evidence from India, Development Economics Discussion Paper Series, STICERD, London School of Economics.

Dreze, J. and A. Sen, (2002), India Development and Participation, Oxford University Press, New Delhi.

Mehrotra, S. and R. Jolly (eds) (2000), Development With a Human Face: Experiences in Social Achievement and Economic Growth, Oxford University Press, Oxford.

Ramachandran, V and A. Saihjee, (2002), "The New Segregation: Reflections on Gender and Equity in Primary Education", *Economic and Political Weekly*, April 27.

Sachs, J, N. Bajpai and A. Ramiah (2002), Understanding Regional Economic Growth in India, Asian Economic Papers, MIT Press, Volume 1, Number 3.

Rededicating to the Continuing Challenge, Rajiv Gandhi Missions, Government of Madhya Pradesh, Occasional Papers, Document 9, June 2001.

World Development Report 2000/2001, The World Bank, Washington D.C.

**APPENDIX**

Data Sources:

Data for district level total literacy rates, female literacy rates, male literacy rates 1991 and 2001 from Census India 1991 and 2001.

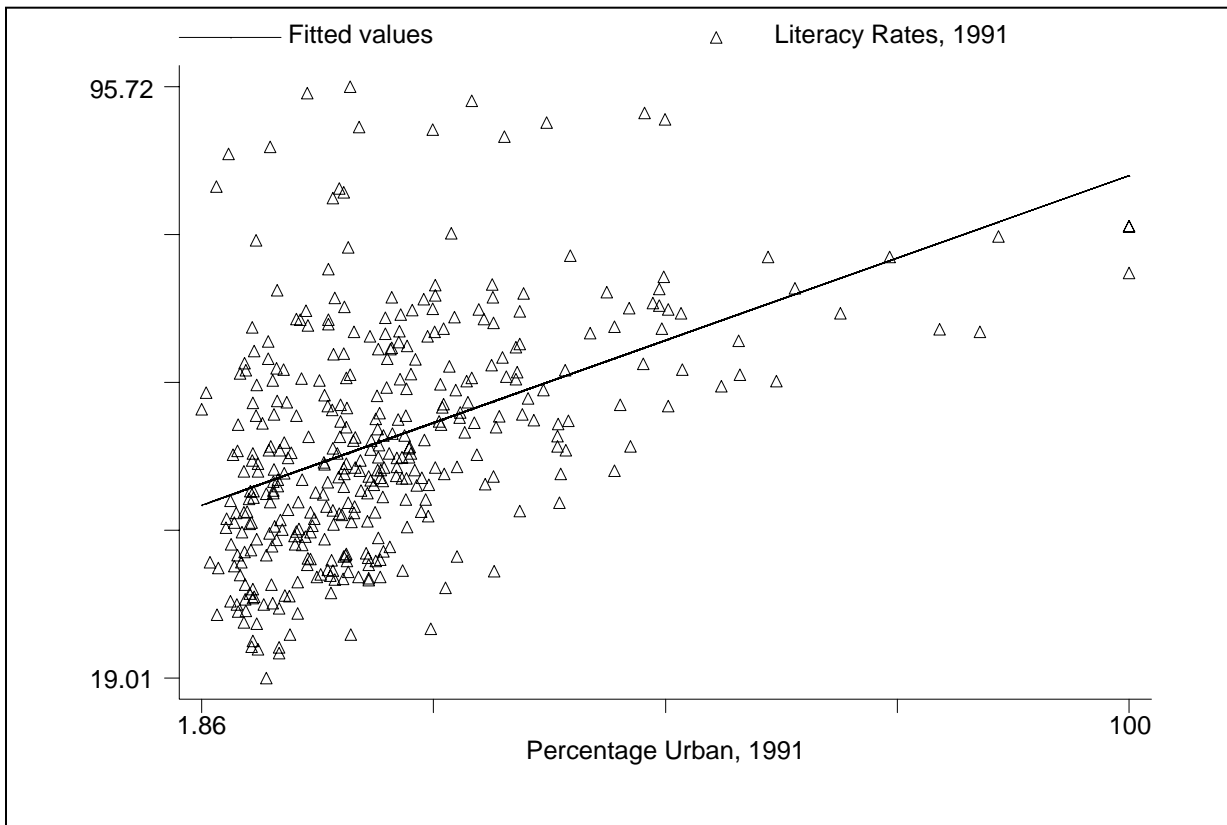
Data for district level sex ratios for 1991 and 2001 from Census India 1991 and 2001.

District level data for urbanization, infrastructure index, percentage children covered by complete immunization, percentage children with anemia, percentage of pregnant mothers who gave birth under safe conditions, percentage of villages with electricity, road length per 100,000 of population from Center for Monitoring the Indian Economy (CMIE) Database *Profiles of Districts 2000*.

**Graph 1: Regression of Literacy Rates 1991 on percentage urban population 1991**

$$\hat{y} = 0.436^* x + 40.60; R^2 = 0.21;$$

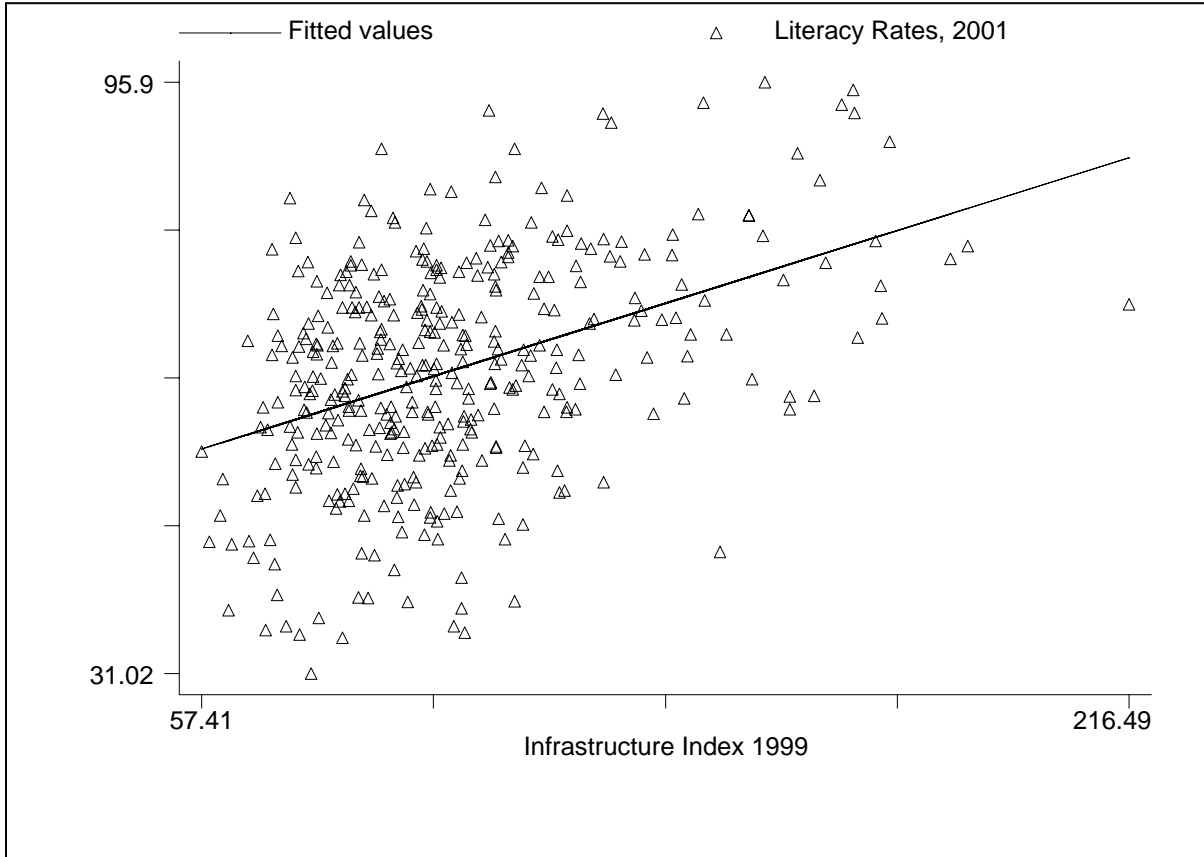
\*significant at the 5% level; No. of observations = 375



**Graph 2: Regression of Literacy Rates 2001 on Infrastructure Index 1999**

$$\hat{y} = 0.20^* x + 44.09; R^2 = 0.17;$$

\*significant at the 5% level; No. of observations = 375



**Table 1: Health Indicators for Selected States**

States	Infant Mortality Rate		Child Mortality Rate		Total Fertility Rate		% of Children with Anemia		% of Women with Anemia	
	1992-3	1997-8	1992-3	1997-8	1992-3	1997-8	1992-3	1997-8	1992-3	1997-8
Andhra Pradesh	70.4	65	22.4	21	2.59	2.25	NA	68	NA	50
Tamil Nadu	67.7	48.2	20.1	15.9	2.48	2.18	NA	66.1	NA	56.5
Bihar	89.2	73	42	34.6	3.98	3.47	NA	79.1	NA	63.6
Uttar Pradesh	99.9	86.7	46	39.2	4.75	3.96	NA	70.8	NA	48.7
Madhya Pradesh	85.2	86.1	49.3	56.4	3.85	3.27	NA	71.5	NA	54.4
Rajasthan	76.3	80.4	33.8	37.6	3.58	3.73	NA	76.4	NA	48.7
Karnataka	65.4	51.5	23.5	18.9	2.83	2.13	NA	65.8	NA	42.4
Kerala	23.8	16.3	8.4	2.6	2	1.96	NA	44.2	NA	22.6
Gujarat	73.5	62.2	32.7	24	2.97	2.7	NA	70	NA	46
Maharashtra	50.5	43.7	20.9	15	2.86	2.52	NA	72.2	NA	48.6
Orissa	112.1	82	21.3	25.5	2.92	2.45	NA	71.3	NA	63.1

*Source: National Family Health Surveys Phases I and II*

**Table 2: Life Expectancy and Infant Mortality Rate, Rural versus Urban**

State	Life Expectancy at Birth 1989-93		Infant Mortality Rate 1995		
	Rural	Urban	Rural	Urban	Total
Andhra Pradesh	59.7	64.2	74	43	67
Bihar	57.7	65.2	74	57	73
Gujarat	59.1	62	68	47	62
Haryana	62.1	67	70	65	69
Karnataka	60.1	66.1	69	43	62
Kerala	71.8	72.8	16	13	15
Madhya Pradesh	52.3	61.9	104	61	99
Maharashtra	61.3	62	66	34	55
Orissa	54.9	63.6	107	65	103
Punjab	65.5	69.8	58	39	54
Rajasthan	55.6	63.2	90	62	86
Tamil Nadu	60.5	66.3	61	39	54
Uttar Pradesh	55	60.4	89	66	86
West Bengal	60	66.8	61	45	58

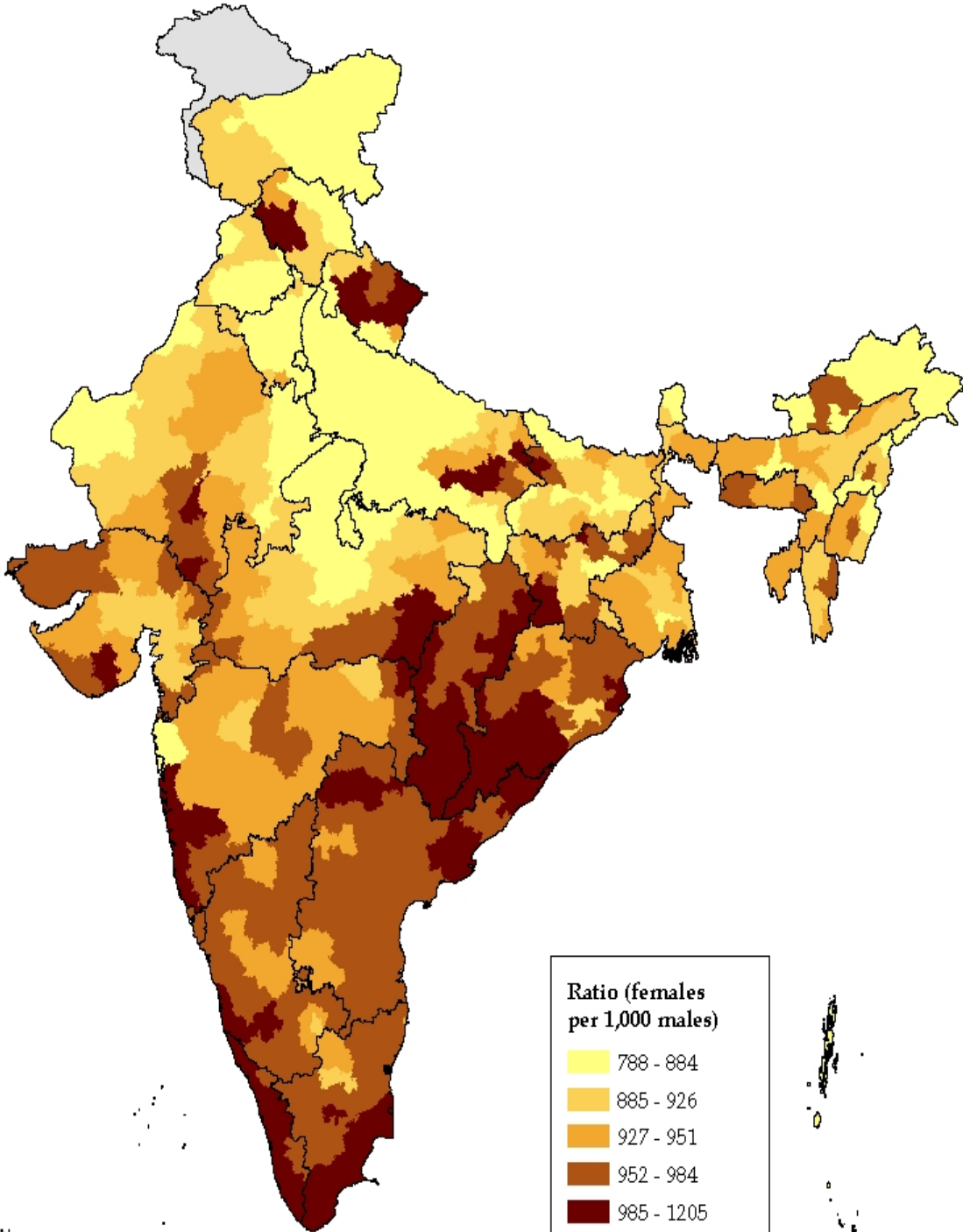
**Table 3: Literacy Rates, Scheduled Castes and Tribes, 1991**

State	% of Population SC 1991	% of Population ST 1991	Literacy Rates 7+ 1991	Literacy Rates 7+ SC 1991	Literacy Rates 7+ ST 1991
Andhra Pradesh	15.93	6.31	44.09	32	17
Bihar	14.56	7.66	38.48	20	27
Gujarat	7.41	14.92	61.29	61	36
Haryana	19.75	...	55.58	39	0
Karnataka	16.38	4.26	56.04	38	36
Kerala	9.92	1.1	89.81	80	57
Madhya Pradesh	14.54	23.27	44.2	35	22
Maharashtra	11.1	9.27	64.87	56	37
Orissa	16.2	22.21	49.09	37	22
Punjab	28.31	...	58.51	41	0
Rajasthan	17.29	12.44	38.55	26	19
Tamil Nadu	19.18	1.03	62.66	47	28
Uttar Pradesh	21.04	0.21	41.6	27	36
West Bengal	23.62	5.6	67.7	42	28

Source: Census of India, 1991

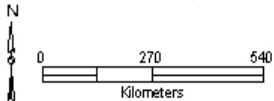


# Sex Ratio 1991



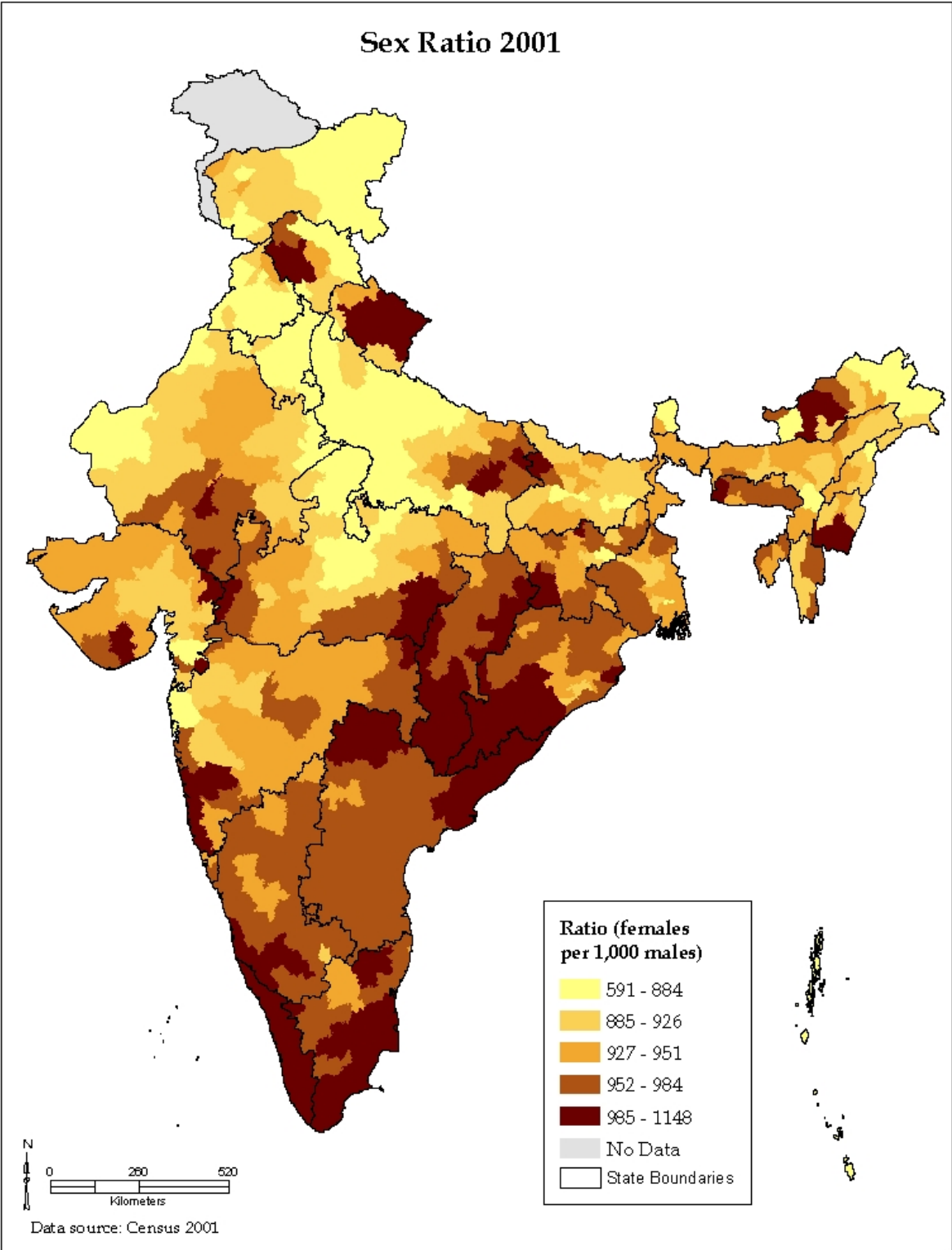
**Ratio (females per 1,000 males)**

- 788 - 884
- 885 - 926
- 927 - 951
- 952 - 984
- 985 - 1205
- No Data
- State Boundaries

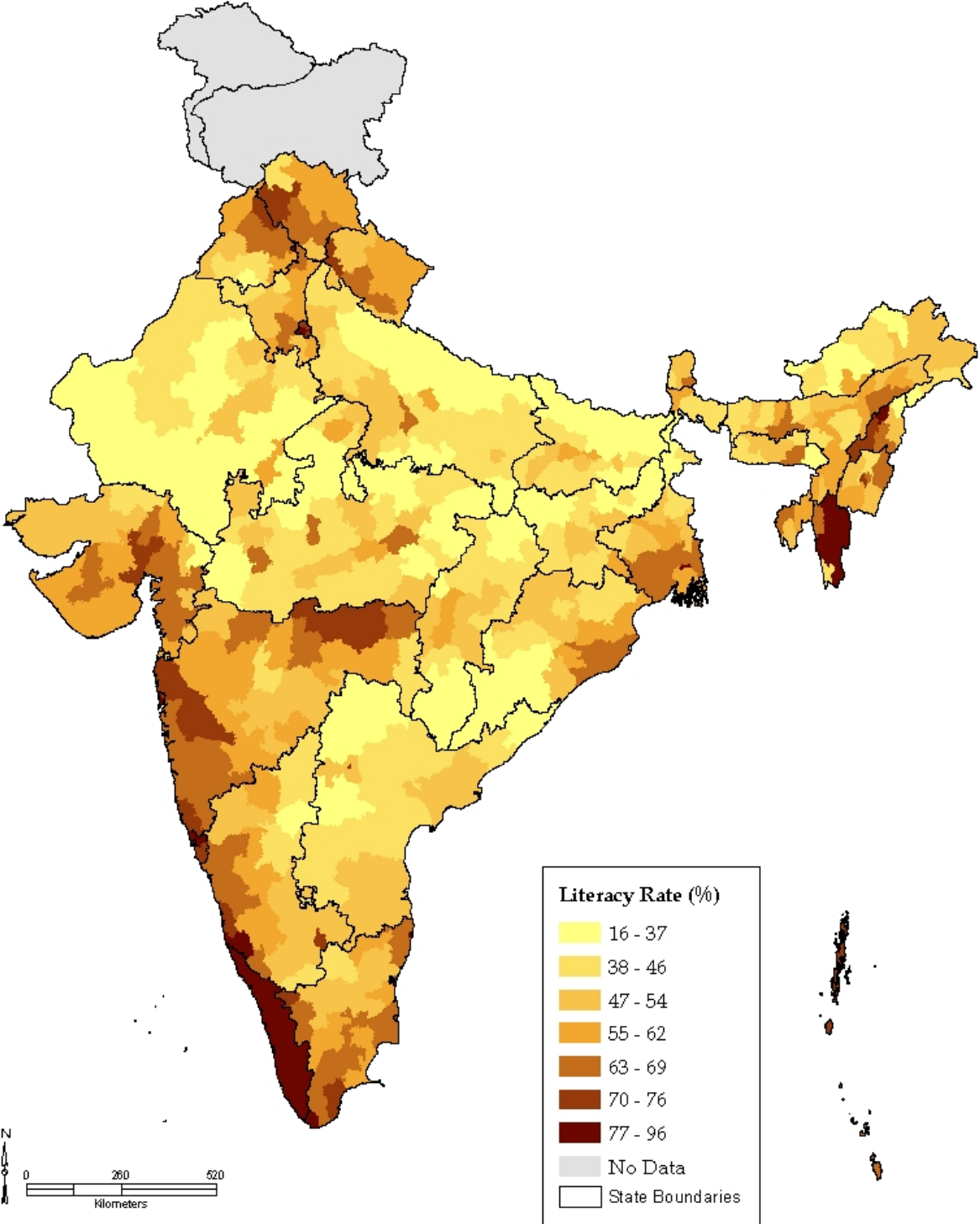


Data source: Census 2001

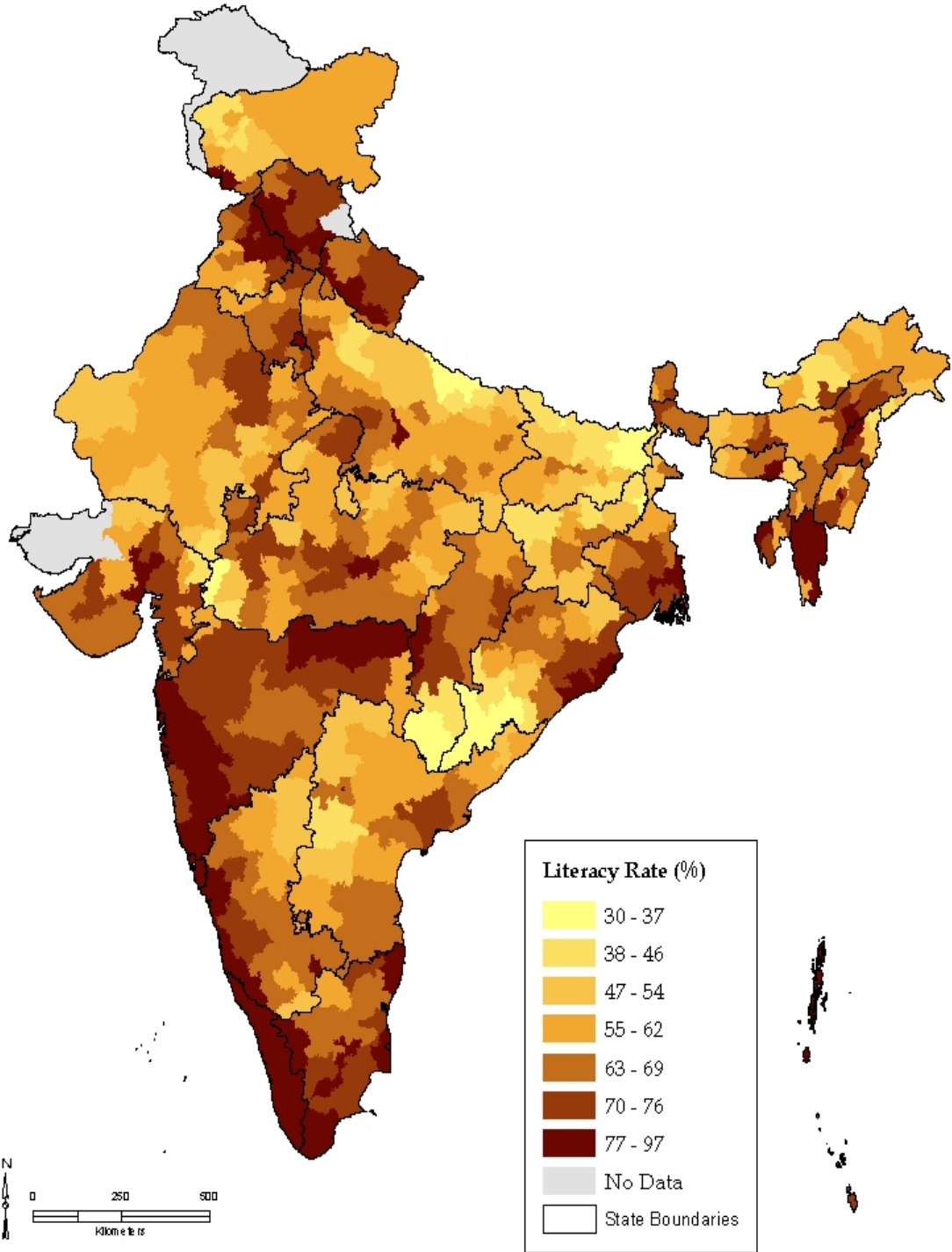
# Sex Ratio 2001



# Literacy Rates 1991

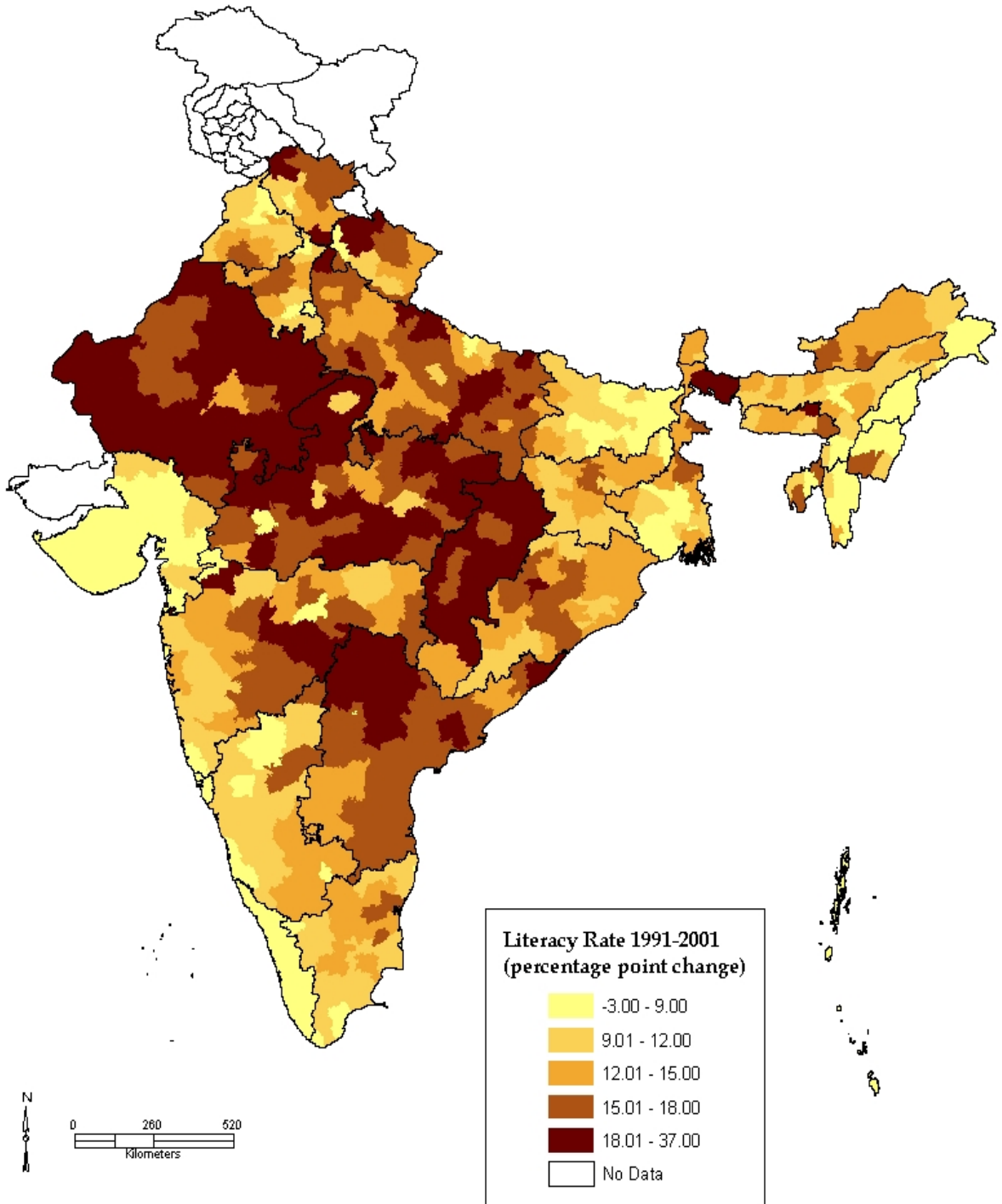


# Literacy Rates 2001

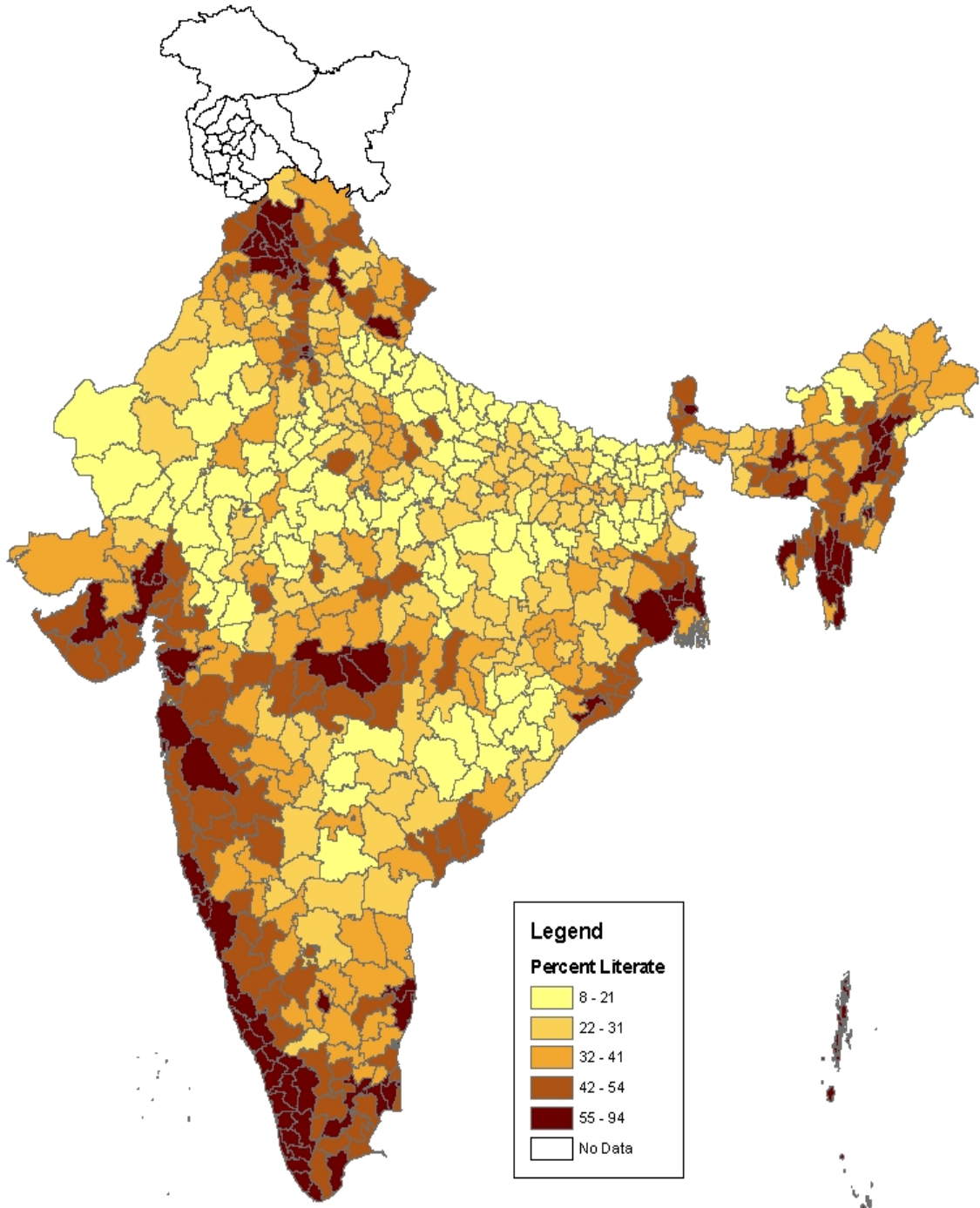


Data source: Census 2001

## Change in Literacy Rates 1991-2001



# Female Literacy Rates (%), 1991; Taken from 2001 Census - India



**Legend**  
**Percent Literate**

Light Yellow	8 - 21
Yellow-Orange	22 - 31
Orange	32 - 41
Brown	42 - 54
Dark Brown	55 - 94
White	No Data

