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**Basic Amenities in Urban India: Analysis at State and Town Level\***

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## **Abstract**

In spite of a quickened rate of economic growth in the last twenty years, full coverage of the urban population in terms of access to safe water supply, toilet facilities, sewerage and electricity remains a major challenge in India. A lack of basic amenities has important implications for the quality of life of ordinary people and their health. It also has implications for achievement in other capabilities, for example, education. The objectives of this paper are the following: first, to examine the progress made in the supply of basic amenities to urban areas at the state level during 1991 and 2001 explaining the reasons for good and poor performance by the different states; secondly, to focus on two states and examine more local or town level data. Thirdly, the paper will examine the relationship between achievements in health and education, and the availability of urban basic amenities.

## **Introduction**

In spite of a quickened rate of economic growth in the last twenty years, full coverage of the urban population in terms of access to safe water supply, toilet facilities, sewerage and electricity remains a major challenge in India. In 2001, 90% of urban households had access to safe water supply, 74% had a latrine within the house, 77% had drainage connectivity and 87% had electricity. While these figures are an improvement over those of 1991, the rate of progress has varied across different parts of the country, and given the huge size of the urban population (284 million in 2001), in absolute numbers those not covered by even one of the basic facilities is still very large being around 14 million (NSS, 2002). The reasons for the lack of complete coverage are many and complex for they include not just the demand-supply gap due to rapid population growth and the financial weaknesses of urban local bodies but also political choices in the prioritizing of these facilities and institutional problems in their effective delivery (Chapman, 1999; Shaw, 2003). Since the economic reforms of 1991, several alternate arrangements for the creation and delivery of these services have been proposed but as yet we have no clear picture of their effectiveness across the country and their contribution to filling the demand-supply gap. One of the purposes of this paper is to systematically examine the issue of country wide performance in the provision of urban basic services by looking at the Indian states and how they have done between 1991 and 2001.

A second issue that this paper examines is the nature of the links between basic amenities, achievement in other capabilities such as health and education, and the role of public policy. A lack of basic amenities has important implications for the quality of life

and increasingly, it is being realized that key dependencies exist between water supply and sanitation and improvements in health, education, population stabilization and overall human development (Dreze and Murthi, 2001; Gupta and Mitra, 2002; Human Development Report, 2006). The dependencies are two-way. For instance, the adoption of household sanitation is facilitated by literacy (Shaw, 2003). At the same time, water and sanitation have an all pervasive developmental role contributing to the reducing of income poverty, reducing of child mortality, breaking of life cycle disadvantages such as premature mortality and higher morbidity, holding down wider health costs due to better overall health, improving girls' education, freeing girls' and women's time, and ensuring a sense of human dignity (Human Development Report, 2006). Though some of these dependencies are not directly observable, there are some empirical studies showing that access to basic services, particularly water and sanitation, can have a significant impact on school attendance and child mortality rates. In Bangladesh between 1990 and 2000, a UNICEF school sanitation program was instrumental in increasing the number of girls enrolling by 11% (Human Development Report, 2006, 47) while the presence of sewers in urban Nicaragua has reduced the probability of child mortality by 55% (Mavalankar and Shankar, 2004).

The positive effects of proper water supply and environmental hygiene on health and education have however, been under stressed in Indian government policy as seen, for instance, in its approach to public health services. From the early years after independence up till the middle of this decade, there was declining attention given to the public health sector, seen for instance in the merging of public health services with medical services in the 1950s, the atrophy of training facilities for personnel and much

greater importance given to curative health services with programs on public health being systematically reduced in size and spending (Das Gupta, 2005). Indian states that have persisted with a pro-active public health policy and provided better basic amenities have done better in education and infant mortality decline and their strategies can provide lessons for other states.

The objectives of this paper are the following: first, to examine the progress made in the supply of basic amenities to urban areas at the state level during 1991 and 2001 explaining the reasons for good and poor performance by the different states; secondly, to focus on two states, West Bengal and Andhra Pradesh, with similar sized urban populations and at similar per capita income levels and examine more local or town level data to better understand divergences in performance. Thirdly, the paper will examine the relationship between achievements in health and education, and the availability of urban basic amenities.

### **Methodology**

The paper is based on the Census of India 2001 and 1991 data on household amenities in urban areas as well as NSS publications, that is, Reports Number 429 and Number 488 on 'Housing conditions in India' during January-June 1993 and July-December 2002 respectively. The term 'basic amenities' as used in this paper refers to drinking water supply, sanitation and electricity. Census data, available at the state and city level, give the number of urban households covered by safe water, electricity, in-house-toilets and drainage from which percentages have been calculated and used in this study. Safe water refers to water supplied from covered sources such as through taps, tube wells and hand pumps. Water from uncovered or exposed sources such as wells,

springs, rivers, tanks and ponds are not considered safe.<sup>1</sup> Regarding sanitation, both the in-house toilet/latrines as well as the drainage facilities for wastewater located outside the home, are important for while the in-house toilet facility, mostly privately financed and installed, reveals people's efforts at sanitation, sanitation beyond the home as provided via proper drainage and sewerage facilities is mostly public and thus reflects the efforts of the state. The latter is still the least developed of all the basic amenities for as of 2002, out of 300 Class-I cities only 70 had partial sewerage systems and sewage treatment facilities and only 30% of the total wastewater generated in the metropolitan cities was treated before disposal (Planning Commission, 2002).

It is necessary to point out that using the data on coverage to understand access to basic facilities leaves out important aspects such as quantum and quality. This is particularly important in the case of water. Coverage may have increased but what about the quantum of water available per person per day and its quality? As these issues become important only after there is coverage, and as there is no comparable household level data available on quantum and quality, apart from a few reports based on small samples, they are not discussed in this paper. I have discussed them elsewhere (Shaw, 2003).

### **Basic amenities in India's urban areas: 1991 and 2001**

A good starting point in the analysis of the provision of basic amenities in India's urban areas is to consider the national averages for safe water supply, in-house toilet facility and electricity during the decades of 1981, 1991 and 2001 and then look at the changes between 1981-1991 and 1991-2001. What they indicate is that there has been steady improvement at the all-India level in the provision of these services with change in

the provision of safe water supply and toilets between 1991-2001 exceeding that between 1981 and 1991. For electricity, although change between 1991 and 2001 remains high at 11.81%, it is less than that between 1981 and 1991. Thus for two crucial basic services, safe water supply and toilets, the last decade has seen faster positive change in spite of urban population having increased from 217 million to 284 million. The NSS surveys on housing conditions in India in the first half of 1993 and the second half of 2002 corroborate the findings from the census noting that during this time period “the situation has changed rapidly” (NSS, 2002, 47). In 1993, 51% of dwelling units in urban areas had all the three facilities of drinking water, electricity and a latrine within the premises. By 2002, this had increased to 58% while dwelling units with none of these facilities had fallen to 5%. For dwelling units with drinking water from a tap available within the premises, the increase has been from 51% in 1993 to 70% in 2002. Toilet facilities have also improved with 63% of urban dwellings owning/sharing a septic tank or flush as compared to 58% in 1993. Access to a latrine has also improved although the measuring units between 1993 and 2002 are not the same. In 1993, 30% of urban households did not have a latrine facility (NSS, 1995). In 2002, only 18% of urban dwelling units were without a latrine facility. While these figures indicate an encouraging trend, they are aggregated national figures that conceal considerable differences between the states.

(Table 1 about here)

To better understand the differences in the performance of India’s 29 states in the provision of urban basic services, some of their demographic and economic characteristics must be kept in mind. The demand-supply mismatch in urban basic services is partly explained by demographic factors such as number of urban households

and their growth. The rate of growth of the urban population is important in the sense that complete coverage for a rapidly growing population is more challenging than coverage for a slowly expanding one. However, while states with a large and growing urban population have a much larger burden of coverage as compared to smaller states with less population, several of them are also economically better off as compared to the smaller ones and therefore have a stronger capacity to provide the financial means to extend coverage. The individual state's performance is thus better assessed keeping both demographic and economic factors in mind. The latter is indicated by state income as measured by the per capita net State Domestic Product (SDP) in current prices for 2001-2002.

Most of the states, 16 in all, have covered over 90% of their urban population in the provision of safe water supply by 2001 as compared to just 6 in 1991. Even the poor state of Bihar has managed this. Exceptions are Tamil Nadu with 85.91% coverage and Kerala with only 45.84% coverage. The smaller north eastern states of Manipur, Meghalaya and Mizoram are also lagging behind with only 73%, 47% and 42% coverage respectively.<sup>2</sup> Here some understanding of the socio-economic context is needed for proper interpretation of the data. Wells in the south and springs in the more mountainous north-east are a major source of water supply providing potable water but as per government definition, they do not come under the category 'safe' as they are not covered sources and hence the lower figures for these states.

Turning now to the change in coverage of safe water supply between 1991 and 2001, it was 8.63% for urban India but was much higher for Andhra Pradesh (16.34), Bihar (17.84%), Goa (20.36%), Mizoram (27.92%) and Tripura (14.72%). These states

present a mix of incomes with Goa having the highest per capita income in 2001, Bihar the lowest and the other three having middle-level incomes. Uttar Pradesh (11.38%), Tamil Nadu (11.74%) and Karnataka (10.74%) also made higher than average progress and also present a mix of incomes. Thus income does not explain the progress in extension of coverage of safe water supply. To some extent, growth in coverage has tended to be lower in states that have already achieved a high level of coverage.

While both the availability of safe water supply and its positive change between 1991 and 2001 look fairly well distributed, a more detailed breakdown into type of safe water outlet reveals that much of the increase in coverage has come through hand pumps and tube wells rather than from taps. In 1991, 65.06% of the urban population had access to water from taps. This has increased only slightly to 68.6% in 2001. Moreover, this average conceals the fact that in states such as Bihar, Assam and Orissa the coverage is much lower at 26%, 31% and 45% respectively. These are among the poorest states in the country. As in 1991, there is a positive and significant correlation between per capita net state domestic product and the percentage of urban households covered by tap water supply and this is shown in Table 2. The highest growth in tap water supply has come from the high income state of Goa and also from more middle income ones such as Andhra Pradesh and Mizoram. Clearly, just as in 1991, income has been a significant factor determining the extension of tap water supply to households (Shaw, 2003). In a few states such as Uttar Pradesh, Orissa, Meghalaya and Nagaland, change in coverage of tap water supply between 1991 and 2001 has been negative indicating that population expansion has exceeded the 1991 networked capacity.

The availability of electricity in urban households has improved between 1991 and 2001 and in fact, change in electricity coverage was greater than that for safe water. In general, the situation of the states in the eastern part of the country such as Bihar (59.27%), Orissa (74.08%) and Jharkhand (75.61%) is worse than that of the states in the southern and western part of the country. These are also the poorer states and thus there is a positive and strong correlation, significant at the 0.01 level, between per capita net state domestic product and urban electricity coverage for 2001. However, what is interesting is that regarding change in electricity coverage between 1991 and 2001 and state income, the correlation is negative but not significant. This is because several middle income states made rapid progress. For instance, the southern states of Andhra Pradesh, Karnataka and Kerala together with the central state of Madhya Pradesh made impressive gains in electricity coverage of their urban households in the last decade. While the first three are middle income states, Madhya Pradesh still considered a poor state had the highest growth of all at 19.74% during 1991-2001. Thus as in 1991, a straight forward relationship between income of the state and the spread of the electricity network cannot be made. As in the case of water supply, states with high achieved coverage tended to show a slower rate of growth during 1991-2001.

Regarding the availability of a toilet facility in the home, the improvement has been from 63.85% of the urban population in 1991 to 73.72% in 2001. While the rate of improvement between 1991 and 2001 has been greater than that noted for safe water supply, starting at a significantly lower base for toilet coverage, there is still a long way to go to achieve full coverage. The 2001 figures mean that 26.28% of urban households have to use a facility outside the home and this could involve the use of either public

toilets or community toilets and where these are not available or are difficult to access, the streets. An interesting feature that keeps showing up in the data for each decade is the relatively greater coverage for the smaller north-eastern states and this despite their low to middle level incomes. As in 1991, the north eastern states of Assam (94.6), Manipur (95.31), Meghalaya (91.58), Mizoram (98.04) Nagaland (94.12), Tripura (96.96) and Sikkim (91.79) rank among the top when it comes to the availability of a toilet in urban homes in 2001. Their higher rates of literacy could be an important explanatory factor. For India as a whole, the correlation between per capita net state domestic product and the percentage of urban population having an in-house toilet facility was negative but not significant. On the other hand, correlation between in-house toilet facility in 2001 and literacy rate in 1991 was positive and significant as shown in Table 3.

Regarding the north-east, it should be noted that while the in-house toilet facility exceeds 90% in contrast to the rest of urban India where it is still around 70%, a high proportion of these toilets are of the traditional type, that is, pit latrines and the proportion of water closets is low, ranging from a high of 47% for Meghalaya to a low of 21% for Nagaland, which is much below the national average for urban areas of 62%. A good question is whether the better off states had more water closets than the poorer ones. However, this does not seem to be the case as there was no significant correlation between per capita net state domestic product and the availability of a water closet in urban households. In fact some poorer states such as Bihar had a relatively high proportion of households with a water closet.

Interestingly, change in the in-house toilet facility between 1991 and 2001 also shows a trend that is not explained by income. The highest achievers have been Andhra

Pradesh (23.47%), Haryana (16.42%), Himachal Pradesh (17.44%), Kerala (19.36%), Manipur (25.15%) and Nagaland (19.02%). They being mostly low to middle income states, the correlation between per capita net state domestic product and change in coverage of in-house toilets was negative but insignificant. This is indicated in Table 3.

Turning now to sanitation beyond the home is the data on the percentage of urban households covered by drainage facilities. This is an important component of sanitation for it involves the removal of waste water and unless this is done properly, there can be contamination of drinking water sources and the spread of diseases while untreated waste water if used for agricultural purposes can cause diseases via the food chain. It is also a networked facility that is expensive to build and maintain. In 2001 77.87% of all urban households had drainage connectivity but of those with drainage facilities, only 44.3% had closed drains or underground sewerage. Assam ranked the lowest with only 52% of its urban households having drainage connectivity and of these only 18.7% had closed drains. Gujarat was one of the best performers with 78% coverage and 75.6% of those covered having closed drains. As shown in Table 2, there was a significant positive correlation between drainage coverage in 2001 and the state's per capita income in 1991 as well as a positive and significant correlation between the existence of closed drains and the state's per capita income. The poorer parts of the country, that is, most of the north-eastern, eastern and central states had less than 40% closed drainage coverage.

To summarize the findings at the state level:

- The existence of capital intensive networked facilities such as tap water supply, electricity and closed drainage systems in 2001 was strongly correlated with a state's per capita income.

- The existence of non-networked facilities such as water supplied through hand pumps and tube wells and a latrine in the home in 2001 was not correlated with a state's per capita income.
- Change in coverage for safe water, electricity and in-house toilets between 1991 and 2001 was not correlated with income. In fact for all of these three basic facilities, change in coverage was negatively correlated with state income for 1991-92.
- Change in tap water coverage was strongly correlated with income. For tap water supply and drainage, the gap between the better off states and the poor ones remains large.

What emerges clearly from the above is that the better off states have a significantly better provision of capital intensive and networked basic amenities for their urban population. But income is not correlated with the performance of the states when it comes to household sanitation and progress made in the extension of safe water supply and electricity between 1991 and 2001. Several middle income and some poor states showed a high rate of change in both of these.

Net worked facilities are largely public facilities created by the government and their progress depends on government expenditure. Non-networked facilities such as the in-house toilet facility and the extension of water supply through hand pumps and tube wells where the cost of installing the amenity is considerably lower are mainly private or community and improving urban incomes has led to their increase even in the poor states.

### **Town level analysis**

Since income is a significant factor when correlated with the existence of networked basic amenities in the states, it is difficult to upraise the performance of states having different levels of income. Moreover, state-level analysis does not tell us anything about conditions within individual towns, whether amenities vary by town size, administrative status, the effects of location and local political choices. Thus a disaggregated analysis is also needed and two states, Andhra Pradesh and West Bengal, with fairly similar urban population sizes, level of urbanization and per capita state income are now compared. Table 4 presents some comparative data.<sup>3</sup>

(Table 4 about here)

During 1991-2001 Andhra Pradesh experienced very high rates of positive change in the extension of safe water supply (16.34%), tap water supply (14.98%), electricity (16.68%) and the in-house toilet facility (23.47%). West Bengal, on the other hand, had rates of change that were lower than the national average for all of these services with the exception of tap water. While there could be several explanations for this, effective governance is clearly an important one. It can be measured through variables that indicate the priority given to the expansion of urban basic services at the official level, seen for instance, in the composition of public spending over the last two decades. It can also be measured through the financial performance of urban local bodies. Table 5 indicates that Andhra Pradesh has performed better both generally, in terms of a higher ratio of public spending to state GDP as well as specifically, in terms of expenditure on urban amenities. West Bengal's public expenditure ratio and amenities ratio have in fact fallen during the nineties, and while the revenue of its urban local bodies from own sources has

increased significantly in the late nineties, this has not translated into very high expenditure on core urban services.

(Table 5 about here)

There are three issues of interest in the town level analysis: first, what is the situation of basic services in non-metropolitan towns?; secondly, the relationship between town size and level of provision and thirdly, the relationship between town status and level of provision. In an earlier study with all-India data for 1981 and 1991, Kundu et al (1999) had observed that the percentage of households covered by electricity, drinking water and toilets, “increases systematically with the size class of urban centres except for class VI towns” (Kundu, 1991, 1895).<sup>4</sup> Does size class continue to be an important determinant of the availability of basic services in 2001? Does municipal status mean better amenities?

#### ***Analysis of Towns from four selected districts of West Bengal***

The four districts of West Bengal chosen for the town-level analysis were Jalpaiguri, Nadia, Birbhum and South 24-Parganas and they contained a total of 69 towns. The selected districts represent different geographical areas of the state, namely, the sub-montane terai, the western margins and the Bengal delta proper (Spate et al, 72, 571) and are, except for the southern fringes of Nadia and the northern fringes of South 24-Parganas, not a part of the urban agglomeration of Kolkata. This giant urban agglomeration has dominated the urban system of the state and because of its importance has received more attention than other regions within the state and so has higher standards of basic amenities. Focusing on urban areas outside of the metropolitan region

of Kolkata would highlight the extent and patterns of deprivation in basic amenities in the towns of more remote districts of the state.

Table 6 summarizes the findings based on data for all the towns in the four districts. Three points should be noted. First, the percentage of households covered by safe drinking water supply is high throughout the town size-class hierarchy. Thus even the smallest towns with less than 5000 people and those with between 5000 and 10,000 people have over 90% of their households covered. In fact, in the largest size class, Class 1 where population exceeds 100,000, the percentage of households covered by safe water supply is lower at 84%. The use of wells by a majority of the population in a large town such as Siliguri (Jalpaiguri district) has lowered this percentage. Secondly, there is not much difference between basic amenity levels in Class I and Class II (50,000-99,999) towns. In fact, in certain amenities, for example, safe water supply and drainage, the percentage of households covered in Class II towns is higher than that in the Class I towns. Class I and Class II towns are mostly municipal towns, or towns with some administrative status where there is a budget allocation and staff for the discharge of basic civic functions. In the more remote districts of West Bengal where there is no very large city, these two groups of towns can be taken as one category.

(Table 6 about here)

However, once one proceeds below the size category of Class II, other than for the availability of safe water, access to basic amenities shows a significant drop but with a bunching of size classes rather than a systematic drop in standards from one size class to the next lower size class. Thus, the Class III (20,000-49,999) and IV (10,000-19,999) towns show a similar level of basic amenity. Some Class IV towns, for instance, Banarhat

Tea Garden (14,473) and Alipur Duar Railway Junction (15,899), in Jalpaiguri district, are associated with a specific private industry/company and or public sector undertaking which accounts for their relatively better levels of basic amenities as compared to other towns in that size class or even the class preceding it.

Table 7 indicates the correlation between size class and the different basic amenities. Apart from safe drinking water, there is a significant and negative relationship between size class (given in descending order) and the other amenities.

(Table 7 about here)

Turning now to the issue of town status, being a municipal town or not is important when it comes to electricity and drainage and having a water closet type of latrine. The latter indicates that the more modern type of toilet facility is available in the larger and administratively important towns. Interestingly, tap water was not correlated with administrative status. This could be because while tap water supply is a major municipal function, in non-municipal or census towns, ground water privately pumped can be stored in overhead tanks and then used via taps for the individual building/house. Middle and upper income households in small towns avail of tap water supply in this way. The provision of electricity is a state government function and so its higher availability in municipal towns reflects the priorities of the state government. Drainage is a local government function and so towns with a municipal council are more likely to have a budget for the construction of a drainage network and its maintenance.

#### ***Analysis of towns from six selected districts of Andhra Pradesh***

As in the case of West Bengal, the selection of districts for the town level study was done keeping in mind the geographical diversity of the state and the need to

represent each of its three broad regions, namely, the coast, Telengana and the inland districts, south of the Krishna (Spate et al, 72, 732). The six districts are Adilabad, Mahbubnagar, Nalgonda, East Godavari, Guntur and Cuddapah and they had a total of 69 towns. As in the case of West Bengal, in the selection of districts the largest urban agglomeration, Hyderabad which extends across Rangareddy and Medak districts, was avoided.

Table 8 summarizes the findings for Andhra Pradesh. Like West Bengal, safe water coverage although highest for the Class I towns, is high throughout the urban hierarchy. The lowest percentage occurs in the Class IV (10,000- 19,999) towns which are not the smallest towns in the urban system. Regarding electricity, while Class I towns have the highest coverage, the decline down the urban hierarchy is not systematic with towns of smaller size as represented by Class III and Class IV having a higher coverage than the larger towns of Class II size. What is noticeable is the much higher coverage of electricity in the Andhra Pradesh sample as a whole compared to West Bengal. However, the gains made in the provision of electricity are not matched by the state's performance regarding the availability of in-house toilets. Here Class I towns do well with 83% coverage of households but there is a sharp drop down the urban hierarchy with Class II towns reporting only 64% coverage. Class III towns are similar to Class II towns but there is another sharp drop in Class IV towns and finally in the smallest or Class V towns only 36% of urban households had an in-house toilet facility. This is in sharp contrast to West Bengal where 71% of urban households in Class V towns had an in-house toilet. Regarding the provision of drainage, Andhra Pradesh does better than West

Bengal but there is a sharp decline in coverage as one leaves the large and medium sized towns.

(Table 8 about here)

Table 9 indicates the results of a correlation analysis of town size and the provision of basic amenities for the 69 towns in Andhra Pradesh. For two important basic amenities, namely, safe drinking water and electricity, there is no significant correlation between the percentages of households covered and size class of town. In fact, even tap water coverage did not show any significant correlation with town size. This implies that regardless of town size, safe water and specifically, tap water together with electricity will be available to most urban households. But the in-house toilet and drainage facilities are highly correlated with town size and the percentage of urban households having access to these facilities falls to low levels once town size drops below 20,000 and to very low levels below 10,000.

(Table 9 about here)

What about amenities and town status? As in the case of town size, the in-house toilet facility and drainage were both positively correlated with town status while safe water supply, tap water supply, electricity and proportion of water closets to total toilets were not correlated. What this means is that towns with municipal or other administrative status do better when it comes to in-house toilets and drainage. These are also the larger towns.

### ***West Bengal and Andhra Pradesh: Comparisons and Contrasts***

West Bengal and Andhra Pradesh present different patterns of availability of basic services in their urban areas. While in both states, safe water is now widely available

regardless of town size, Andhra Pradesh does better in the networked facilities such as tap water, electricity and drainage. These are also the facilities that tend to be publicly provided and so there is a clear link between the larger state investments in core urban services as shown in Table 5 and their availability. On the other hand, Andhra Pradesh does badly in the case of the availability of in-house latrine facilities. As mentioned earlier, the in-house latrine is largely a private investment which depends on personal choice, cultural attitudes and education. A stronger emphasis on school level education by the government can increase awareness for sanitation and encourage people to build toilets in their homes.

In the case of West Bengal, all the networked facilities, that is, tap water, electricity and drainage show a strong correlation with town size. Barring water supply, restricted government expenditure confined to large and medium towns (with administrative status) has meant low levels of basic amenities in census towns and small towns. However, unlike Andhra Pradesh, the state does relatively well when it comes to the in-house toilet facility. Higher rates of urban literacy, 81.63% in 2001 and urban female literacy, 76.14% in 2001, compared to Andhra Pradesh, 76.39% and 69.34% respectively in 2001, could be one explanatory factor. But clearly, the state needs to mobilize more resources to step up the level of investment in basic facilities in its smaller towns and census towns.

### **Interdependencies between Basic Amenities and Health and Education**

It is by now widely accepted that literacy helps in the dissemination of ideas of hygiene, health and sanitation thereby facilitating, for instance, family expenditure on a latrine/toilet in the house. Table 2 has clearly shown the significant and positive

correlation between urban literacy levels of Indian states in 1991 and the percentage of urban households having an in-house latrine facility in 2001. In this section, I turn to the other aspect of the relationship between basic amenities and health and education. Just as literacy helps in the dissemination of ideas of hygiene, health and sanitation, achievements in education and health can also be affected by the presence/absence of basic facilities such as sanitation and safe water supply. That the interdependencies between basic amenities and health and education can run both ways is broadly accepted, but is still difficult to establish with actual data. Table 10 presents some interesting correlations which indicate the existence of the influence of basic amenities on health and education.

(Table 10 about here)

Both urban infant mortality and urban literacy levels in 2001 are significantly correlated with the percentage of households with an in-house latrine facility in 1991. This indicates that pre-existing sanitation levels do influence achievements in the health and education sector. Urban female literacy in 2001 is, in particular, strongly correlated with the availability of an in-house latrine in 1991. The states with the highest levels of household sanitation in 1991 are the ones with the highest levels of female literacy in 2001. Likewise, states with high levels of female literacy in 1991 have high levels of household sanitation in 2001.

## **Conclusion**

This paper has attempted to highlight the continuing importance of focused attention on India's urban basic amenities and the way they are linked to the achievement of higher levels of human development. During the decade 1991-2001, at the national

level, although there was progress in the supply of safe water, electricity and access to toilets to urban households, there were large variations in the pace of achievement across states and these became significant in the case of capital intensive and networked facilities such as tap water supply, electricity and closed drainage systems. The existence of such networked facilities in 2001 and their extension between 1991-2001 was strongly correlated with a state's per capita income. However, non-networked facilities such as water supplied through hand pumps and tube wells and the availability of a latrine in the house, show an improvement across the board covering even the poorest states. Thus while there has been progress in the coverage of basic amenities across urban India, it has been of a qualitatively different order in the higher income states compared to the lower and middle income states. This has implications on the quality of life enjoyed by urban households with the gap between the better off states and the poorer ones increasing unless there is targeted government intervention. The poorer states will need continued assistance from the central government to catch up with their economically well off counterparts and this should be factored into the Eleventh Plan deliberations on 'inclusive growth.'

A state's income, however, is not the only criterion to be considered important in examining basic amenities for even when income is the same there could be differences in the availability of basic services. The priority given to investment by the state government in core urban services and their availability across towns of all sizes could vary resulting in differences as shown in the case of West Bengal and Andhra Pradesh. Urban literacy levels are also important in understanding the predisposition of households to invest in a toilet in the home.

The final section looked at the interrelationships between health and education and urban basic amenities. As causality could not be directly measured with the given data via regression analysis, lagged variables were used in simple bivariate correlation analysis to indicate the direction of influence. It was found that the state's level of literacy and infant mortality in 2001 was significantly correlated with household hygiene levels in 1991. Much more work is needed on the interrelationships and at more disaggregated levels.

Table 1: Urban basic services coverage in 1981, 1991 and 2001 and changes in coverage between two decades: All-India averages

	1981 % of households	1991 % of households	2001 % of households	1981-1991 change in %	1991-2001 change in %
Safe water	75.1	81.38	90.01	6.28	8.63
Toilet	58.2	63.85	73.72	5.65	9.87
Electricity	62.5	75.78	87.59	13.28	11.81



**Table 2: Correlation between achievement in providing basic facilities in urban areas and other variables, 2001**

	Safe water coverage	Tap water coverage	Electricity coverage	In-house Toilet coverage	Water closets	Drainage Coverage	Closed drains
2001-02 per capita net SDP N = 29	.104 .592	.371* .048	.541** .002	-.023 .905	.064 .724	.269 .159	.492** .007
1991-92 per capita NSDP N = 25	.323 .116	.492* .012	.543** .005	-.137 .514	.135 .518	.459* .021	.551** .004
1991 literacy N = 25	-.567** .003	-.099 .639	.317 .123	.401* .027	.139 .509	-.219 .294	.028 .896

\* Pearson's Correlation is significant at the 0.05 level (2-tailed)

\*\* Pearson's Correlation is significant at the 0.01 level (2-tailed)

**Table 3: Correlation between state income and change in coverage of basic facilities between 1991 and 2001.**

	Change in safe water 91-01	Change in tap water 91-01	Change in electricity 91-01	Change in in-house toilets 91-01
2001-02 per capita net SDP N = 29	.025 .906	.617** .001	-.114 .587	-.037 .859
1991-92 per capita net NSDP N = 24	-.125 .561	.617** .002	-.201 .346	-.076 .725

\*\* Pearson's Correlation is significant at the 0.01 level (2-tailed)

**Table 4: Comparative data on West Bengal and Andhra Pradesh**

State	Per capita net SDP 2001-02	2001 Urban population	2001 Urban households	2001 Level of urbanization	Number of districts	Number of towns	Statutory towns	Census towns
West Bengal	17,499	22,427,251	4,554,045	27.97	18	375	123	252
Andhra Pradesh	17,932	20,808,940	4,173,639	27.30	23	210	117	93

**Table 5: Some governance data for West Bengal and Andhra Pradesh**

States	Public expen ratio 90-91	Public expen ratio 1998-99	Amenities expen ratio 90-91	Amenities expen ratio 1998-99	Own rev/total rev 91	Own rev/total rev 97-98	CS exp/total exp 91	CS exp/total exp. 97-98
West Bengal	17.32	15.59	5.07	3.66	20.84	67.57	-----	25.72
Andhra Pradesh	19.74	19.23	3.29	5.48	40.15	52.86	21.46	34.60

Source: *National Human Development Report 2001*: Tables 7.6, 7.7 and 7.12

Public expenditure ratio is total public expenditure as a proportion of Gross State Domestic Product

Amenities expenditure ratio is expenditure on amenities as a ratio of total public expenditure.

rev = revenue

CS = Core Services which include water supply, street lighting, sanitation and roads

**Table 6:** Urban amenities by town size class in four districts (Jalpaiguri, Nadia, Birbhum, South-24 Parganas) of West Bengal, 2001.

town by size class	frequency	with admin. status	safe water* coverage	Electricity*	Toilets*	Drainage*
I -100,000 & >	8	8 (100%)	84.03	72.49	88.85	44.62
II-50,000-99,999	9	8 (88.9%)	92.82	70.03	83.15	48.77
III-20,000-49,999	15	9 (60%)	80.18	63.80	72.22	36.49
IV-10,000-19,999	15	1 (6.7%)	92.32	63.99	73.20	34.48
V-5000-9999	19	0 (0%)	96.43	48.42	70.79	24.31
VI- less than 5000	3	0 (0%)	99.56	62.09	64.72	32.14
Sample total	69	26 (37.7%)				
West Bengal urban	375	123 (32.8)	92.29	79.56	84.85	67.15
India urban	5161	3799 (73.61)	90.01	87.59	73.72	77.87

Source: \*Calculated from Tables H8, H9 and H10 of tables on Houses, Household Amenities and Assets, Census of India 2001.

**Table 7:** Correlation between town size and town status and achievement in providing basic facilities in four districts of West Bengal, 2001.

	Safe water coverage	Tap water coverage	Electricity coverage	In-house Toilet coverage	Water closets	Drainage coverage
Size class of town N = 69	.204 .093	-.312** .009	-.452** .000	-.345** .004	-.522** .000	-.398** .001
Town status n = 69	-.108 .378	.222 .067	.372** .002	.290* .016	.527** 000	.447** .000

\*Pearson's Correlation is significant at the 0.05 level (2-tailed)

\*\*Pearson's Correlation is significant at the 0.01 level (2-tailed)

**Table 8:** Urban amenities by town size class in six districts (Adilabad, Nalgonda, East Godavari, Guntur, Cuddapah, Mahbubnagar) of Andhra Pradesh, 2001.

town by size class	frequency	with admin. status	safe water* coverage	Electricity*	Toilets*	Drainage*
I -100,000 & >	6	6 (100%)	96.26	90.24	83.37	85.27
II-50,000-99,999	25	22 (88%)	88.91	83.83	64.01	75.16
III-20,000-49,999	21	9 (42.9%)	93.29	86.05	63.91	76.91
IV-10,000-19,999	12	0 (0%)	84.71	85.90	52.19	66.42
V-5000-9999	5	0 (0%)	89.95	81.51	35.98	55.12
VI- less than 5000	0	0 (0%)	-----	-----	-----	-----
Sample total	69	26 (37.7%)				
Andhra P. urban	210	123 (32.8)	90.16	89.99	78.07	82.29
India urban	5161	3799 (73.61)	90.01	87.59	73.72	77.87

Source: \*Calculated from Tables H8, H9 and H10 of tables on Houses, Household Amenities and Assets, Census of India 2001.

**Table 9:** Correlation between town size and achievement in providing basic facilities in six districts of Andhra Pradesh, 2001.

	Safe water coverage	Tap water coverage	Electricity coverage	In-house Toilet coverage	Water closet	Drainage Coverage
Size class of town n = 69	-.129 .292	-.057 .642	-.097 .429	-.510** .000	-.071 .561	-.429** .000
Town status n = 69	.123 .313	-.026 .835	-.157 .199	.404** .001	.192 .115	.268* .026

\*Pearson's Correlation is significant at the 0.05 level (2-tailed)

\*\*Pearson's Correlation is significant at the 0.01 level (2-tailed)

Table 10: Indian states: Correlation between health and education and basic amenities

	1991 urban in-house toilets N = 25	1991-92 per capita net SDP N = 25
2001 urban infant mortality N = 29	-.405* .044	-.337 .099
2001 urban literacy N = 29	.503* .010	.141 .502
2001 urban female literacy N = 29	.549** .004	.153 .465

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

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

## End Notes

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<sup>1</sup>The use of the term 'safe water' for water from taps, hand pumps and tube wells is now debatable. This is because, as sources of water, wells and springs can also be protected and so can rainwater collected from rooftops and channeled into a covered tank. But more importantly, since the safety of the sources of even covered water are not certain, following the WHO/UNICEF's Global Assessment 2000 Report, the UN does not report on 'safe' drinking water but refers to 'improved' water supply and sanitation (see preface of the report). Improved water supply according to the UN includes in addition to the household connection, public standpipe and borehole, the protected well, protected spring and rainwater collection. In India, the old terminology, 'safe' water continues to be used.

<sup>2</sup>These are also among the states with the highest literacy in the country. The net result of this is that coverage of the urban population with safe water supply and the urban literacy rate of the state are significantly and negatively correlated as is indicated in Table 4.

<sup>3</sup>One striking contrast between the two is the large number of census towns in West Bengal. These are towns that fulfill the census demographic criteria to be given town status but do not have any statutory or administrative status. Thus they are not generally provided with civic amenities by the state and have to make do with private arrangements.

<sup>4</sup>These small towns with less than 5000 people were created for special purposes by the government or the private sector and hence endowed with proper facilities. As per the Indian Census, towns are classified as follows:

Class 1	100, 000 population and above
Class 2	50,000 to 99,999
Class 3	20,000 to 49,999
Class 4	10,000 to 19,999
Class 5	5000 to 9,999
Class 6	less than 5000

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