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## Urbanisation and Access to Basic Amenities in India

R. B. Bhagat\*

### Abstract

The access to basic amenities like electricity, drinking water, toilet facility, wastewater outlet and clean fuel are critical determinants of quality of urbanisation. For example, about 13 per cent of the urban households have no access to electricity, 16 per cent have no access to safe drinking water and 27 per cent have no access to toilet facility as per 2001 census in India. This has significantly declined in 2005-06 as per National Family Health Survey-3, but still 7 per cent households have no access to electricity, 8 per cent have no access to safe drinking water and 17 per cent have no access to toilet facility in urban area. About one-fifth of urban households are also not covered by any sewer facility. This study analyses the access to basic amenities at both state and city/town levels covering 28 states, 7 union territories and about 5000 odd cities and towns. The regional disparity in the pattern of basic amenities closely follows the level of urbanisation at the state level. The states with low availability of basic amenities in urban areas are also the states with low level of urbanisation. On the other hand, access to basic amenities varies in accordance with the size categories of cities and towns except for toilet facility and sanitation.

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### Introduction

About 28 per cent of India's population live in urban areas as per 2001 Census (286 million). The urban population grew at the rate of 2.7 per cent per annum during the 1990s compared to 1.7 per cent per annum of rural population. The urban-rural growth differential was one per cent during the 1990s down from 1.3 per cent during the 1980s. This shows that the speed of urbanization has slowed down during the 1990s. In spite of deceleration in the speed of urbanization, the net addition of population in urban areas was nearly 70 million during 1991-2001.

At state level, the level of urbanization varies from nearly 50 per cent in Mizoram and Goa to nearly 10

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per cent in Himachal Pradesh and Sikkim. On the whole, it is higher in the states of Tamil Nadu (44 per cent) Maharashtra (42 per cent) and Gujarat (37 per cent), Karnataka (34 per cent) and Punjab (34 per cent), and in most of the other states the level of urbanization is either below the national average (27.8 per cent) or close to it.

The census of India classifies cities and towns into six-fold. Class I urban centres comprises of cities with 100 thousand and more population, and Class VI consists of tiny towns with population less than five thousand. The urban centres below 100 thousand are referred here as small urban centres. There were about 400 Class I cities out of 5000 odd cities and towns in 2001 which comprised 69 per cent of the total urban population of the country. The share of Class I cities in India's urban population is also increasing over the decades. It went up from 45 per cent in 1951 to 69 percent in 2001 (Census of India 1991). This is happening because of addition of new Class I cities from the lower size class over the decades. For example, from 1991 to 2001, nearly 100 towns acquired Class I status. At the state level, the increasing concentration of population in Class I cities goes as high as 83 per cent in West Bengal, 80 percent in Maharashtra and 76 per cent each in Gujarat and Andhra Pradesh. The distribution of Class I cities and its share in total urban population of the state shows the nature of hierarchy of urban places, and the extent of dominance of cities in their economies. Punjab, Orissa and several other smaller states show either balanced distribution of population across size class of cities and towns or less dominance of Class I cities in their regional economy. Further, within Class I cities, there were 35 metro cities with a population ranging from 16 million in Mumbai UA to 1 million in Rajkot. According to census 2001, these cities consist of 107.9 million urban residents and constitute nearly 39 per cent of urban population in the country. The high concentration of population in Class I cities reflects that cities are more attractive, have higher level of employment opportunities compared to the small urban centres.

Access to basic amenities is the most important aspect of the quality of urbanization. The amenities like electricity, water, sanitation and clean fuel are the critical determinants of living conditions and health of the urban people (Clegg and Garlick 1979; Ali and Rahman 2004). However, it is not always clear whether more urbanized states have better access to basic amenities or vice versa. Similarly it is also not clear whether the bigger cities are better off than small cities and towns. Although bigger cities are known for air pollution, slum and crowding, it would be interesting to know how cities and towns differ in terms of the provision of clean water, sanitation, electricity and clean fuel etc. The paper attempts to show how basic amenities like access to electricity, safe drinking water, toilet facility, and clean fuel like LPG vary across states with different levels of urbanization and also by the size class of cities and towns. An attempt is also made to present the situation in six mega cities namely Delhi, Mumbai, Kolkata, Chennai, Hyderabad and Bangalore, which not only have very high concentration of urban population, but are also the engines of economic growth in the country.

### Data on Basic Amenities

The 2001 census provides data on basic amenities at the household level by rural and urban areas at the state level, and at the town and cities level as well. The data are available for administrative towns and cities administered by municipality and Municipal Corporation as well as for other non-municipal towns. Several basic amenities like availability of electricity, safe drinking water, toilet facility, use of LPG, and drainage for the outlet of household wastewater are critical for a good living, health and well being of a household. In the census tables, the households were classified by access to electricity as a source of lighting as well as cooking. It is possible that many households in urban areas may get lighting through streetlights. Because of this reason, the households were also again classified by availability and not-availability of electricity in a separate table in the publication of 2001 census. The latter information on electricity has been taken as a measure of the access to electricity in this study. It is surprising to see that data on electricity and toilet facility is not provided for the state of Andhra Pradesh, although data on rest of the facilities are available. The sources of drinking water were provided based on tap, hand pump, tube-well, well, ponds, spring and rivers etc. The sources based on tap and hand pump may be considered as safe sources of drinking water. Similarly, the types of toilet facility includes households with pit latrine, water closet and other latrines, and wastewater outlets at household level is provided by drainage which includes both closed and open drainages. The LPG is considered as a clean fuel and information on it was provided by the census as one of the sources of fuel used for cooking. The similar information is also available from NFHS-3 (National Family Health Survey-3) for the latest year 2005-06 except for drainage facility by rural and urban areas but not at the city and town levels. Thus, the available information from NFHS-3 is incorporated only at the all India level and states.

### Access to Basic Amenities in Urban Areas: National and State level Patterns

Table 1 presents percentage of households with access to different basic services in rural and urban areas derived from 2001 census and for the year 2005-06 from NFHS-3. About 44 per cent households have access to electricity in rural areas compared to 88 per cent in urban areas at the national level in 2001, which increased to 56 per cent and 93 per cent respectively in 2005-06. So far toilet facility is concerned, it was abysmally low (22 percent in 2001 and 26 per cent in 2005-06) in rural areas. On the other hand, in urban areas, close to one-fifth do not have access to toilet facility. In terms of number, this means that a population of about 60 million has no access to toilet facility in urban areas that have no option but resort to open defecation. This has been recognized by the Central Government as one of the serious problems in the recent document of the Planning Commission (Planning Commission 2008). Another aspect of sanitation closely associated with toilet facility is the wastewater outlet through the provision of drainage. The proportion of households either with open or closed drainage was 78 per cent in urban areas in 2001. No such data were available from NFHS-3. Compared with toilet and drainage facility, access to safe drinking water provided either through tap or hand pumps

was reported to have 67 per cent households in rural and 85 percent households in urban areas in 2001. The NFHS-3 figures for the year 2005-06 also show significant improvement in drinking water supply in both rural and urban areas (see also Fig 1). Still one-fifth in rural areas and one-tenth in urban areas did not have access to safe drinking water in 2005-06. Use of clean fuel is very important from health point of view. In rural areas, even less than one-tenth of household were found using LPG in 2005-06 compared to three-fifths in the urban areas. This shows that a very high proportion (two-fifth) of households were using polluting fuels which are not only hazardous for health but also contributes to greenhouse gases and global warming. The rural-urban gap is glaring in each of the basic services and this is true at the state level as well. In the next section, we describe the situation

**Table 1: Percentage of households with selected basic amenities in rural and urban areas, India, 2001 and 2005-06**

Amenities In %	Total		Rural		Urban	
	2001	2005-06	2001	2005-06	2001	2005-06
Electricity	55.8	76.9	43.5	55.7	87.5	93.1
Toilet facility	36.4	44.5	21.9	25.9	73.7	83.1
Drinking Water*	72.3	84.8	67.4	81.1	84.9	92.4
LPG	16.1	24.7	5.1	8.2	44.7	58.7
Drainage	46.4	NA	34.1	NA	77.8	NA

\* Drinking water- piped supply plus hand pump

Source: Tables on Houses, Household Amenities and Assets, H series Tables, Census of India 2001, Compact Disk; National Family Health Survey-3, 2005-06; NA- not available.



only for urban areas because urban life without access to electricity, toilet facility, water, fuel and drainage is far more difficult in view of crowding, lack of open spaces and non-availability of water from natural sources like ponds, lakes, springs and rivers and forest resources for fuel.

In the urban areas of most of the states the situation with regard to the availability of electricity is better compared to sanitation facility like access to drinking water and toilet facility (See Table 2). Among states, the availability of electricity varies from 74 per cent in the urban areas of Bihar to 100 per cent in the urban areas of Sikkim and Mizoram. There is significant improvement in the electrification of the households from 2001 to 2005-06 in most of the states, and this is true for other amenities like toilet facility, drinking water and clean fuel. Table 2 also shows that one of the lowest percentage of households are covered by toilet facility in Orissa (59 per cent) followed by Chhattisgarh (65 per cent). On the other hand, virtually all households are found to have toilet facility in several of the North-eastern states like Tripura, Sikkim, Nagaland and Mizoram (see also Fig 2). The developed states like Punjab, Haryana and Maharashtra have almost all households covered with safe drinking water supply. Similarly, the states with good monsoon rains, e.g. Uttar Pradesh, Bihar and West Bengal are also showing good coverage of households with safe drinking water supply. The use of clean fuel like LPG varies from 36 per cent in the states of Jharkhand and Orissa to close to 90 per cent in the states of Himachal Pradesh, Sikkim and Mizoram.

The regional disparity in the pattern of basic amenities closely follows the level of urbanisation at the state level. The states with low availability of electricity in urban areas are also the states with low level of urbanisation. The correlation coefficient between proportion of households with electricity in urban areas and percentage of urban population as per 2001 Census shows a positive significant relationship ( $r = 0.403$  at 0.05 significant level). On the other hand, none of the other facility like availability of toilet, drinking water and drainage is significantly correlated with level of urbanisation at the state level. Apart from economic reasons, there are a variety of natural, social, cultural and behavioral factors that determine the access and use of basic services like toilet facility, drinking water and clean fuel. The access to toilet facility is the lowest in the urban areas Orissa and Chhattisgarh and highest in several North-eastern states. In the urban areas of most of the north-eastern states including Assam, the availability of toilet facility is much higher than the national average (83 per cent). The data on type of toilet shows that pit latrines are very prevalent in both rural and urban areas of north-eastern states. On the other hand, access to safe drinking water is low in most of the north-eastern states as a large number of households depends on streams and rivulets for water.

Similarly, Kerala also shows a very low percentage of households with safe drinking water (48 per cent) as people use well water for drinking purposes (Kundu 1999). In the states where use of clean fuel like LPG is higher, the availability of electricity is also found higher. On the other hand, toilet facility is not significantly related to the basic amenities like electricity, supply of drinking water, and use of LPG in the urban areas of states and UT. Earlier studies have also found that increasing level of

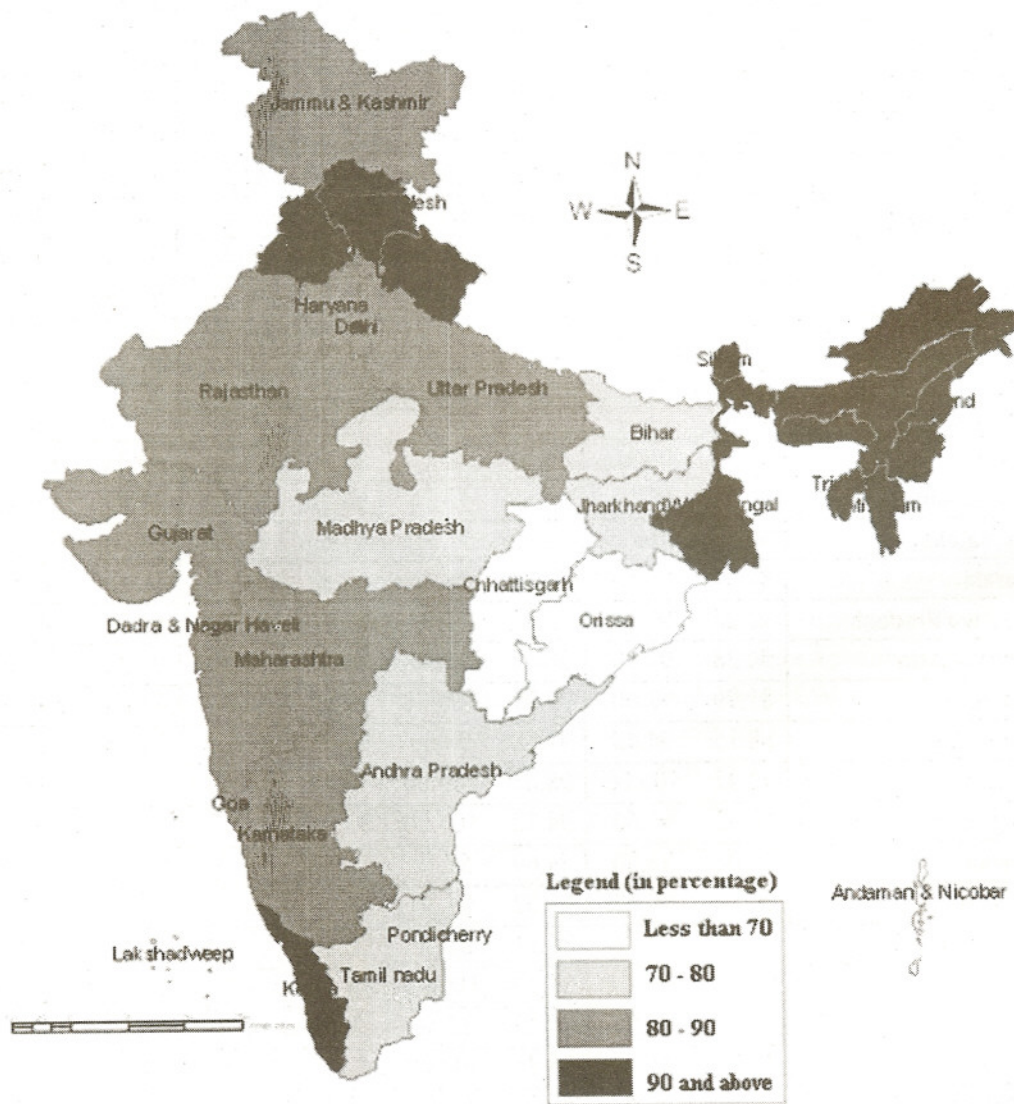
**Table 2: Percentage of Households With Basic Amenities, India,  
States 2001 & 2005-06 (Urban)**

	Electricity		Toilet		Drinking Water		LPG	
	2001	2005-06	2001	2005-06	2001	2005-06	2001	2005-06
India	87.59	93.1	73.72	83.2	84.90	92.4	44.74	58.7
Andhra Pradesh	0.00	95.00	0.00	75.60	83.61	96.40	46.10	59.10
Arunachal Pradesh	89.42	90.90	86.95	93.90	89.11	96.90	56.30	65.60
Assam	74.29	80.80	94.60	97.50	65.65	78.10	53.49	63.70
Bihar	59.28	74.20	69.69	73.00	84.30	96.00	32.01	46.60
Chhattisgarh	82.85	92.20	52.59	65.50	85.18	92.00	34.82	50.20
Delhi	93.38	99.40	79.03	94.10	94.64	90.60	68.78	80.00
Goa	94.73	97.90	69.23	86.30	81.70	90.60	65.91	75.80
Gujarat	93.39	97.60	80.55	88.30	90.11	95.80	58.70	68.30
Haryana	92.94	97.50	80.66	89.20	94.19	98.70	64.26	72.00
Himachal P	97.38	98.80	77.22	90.20	96.27	95.20	76.58	87.80
J & K	97.95	99.30	86.87	86.10	94.40	98.50	60.03	57.20
Jharkhand	75.61	90.90	66.68	73.70	64.38	83.90	28.09	36.20
Karnataka	90.53	96.60	75.23	82.90	84.62	85.60	44.04	57.80
Kerala	84.34	94.50	92.02	98.40	40.82	48.10	35.06	38.90
Madhya Pradesh	92.26	95.10	93.72	71.20	81.41	91.10	53.10	54.20
Maharashtra	94.28	97.40	58.08	87.90	93.67	98.50	57.02	71.90
Manipur	81.99	92.60	95.31	100.00	59.03	58.20	46.89	59.70
Meghalaya	88.15	94.40	91.58	98.60	72.25	79.20	31.05	45.10
Mizoram	94.42	100.00	98.03	100.00	46.53	82.00	66.46	90.00
Nagaland	90.33	95.60	94.12	100.00	38.92	46.70	34.17	57.80
Orissa	74.08	84.00	59.69	59.10	56.76	78.80	31.44	36.60
Punjab	96.49	98.40	86.52	93.70	96.26	99.60	62.72	72.60
Rajasthan	89.61	95.70	76.11	85.30	90.41	97.60	52.80	63.80
Sikkim	97.09	100.00	91.79	100.00	97.12	92.90	63.90	92.90
Tamil Nadu	88.00	93.80	64.33	73.50	79.79	88.20	36.78	50.90
Tripura	86.36	91.50	96.96	100.00	72.35	91.50	48.98	52.10
Uttar Pradesh	79.92	85.40	80.01	83.80	95.53	98.10	46.01	55.20
Uttaranchal	90.92	95.00	86.88	93.80	97.15	97.90	70.88	77.30
West Bengal	79.56	89.60	84.85	90.50	79.58	96.40	37.38	46.50

Source: Census of India 2001 and National Family Health Survey 2005-06



Fig 2: Access to Toilet Facility in Urban Areas among States, India, 2005-06



development does not reflect improvement in the provision of sanitation facility at the household level (Kundu 1991).

#### **Access to Basic Amenities by Size Class of Cities/Towns**

As mentioned earlier India's urban population is distributed across 5000 odd towns and cities with different size, economic base and ability to generate resources from tax and non-tax sources. Class I cities (100 thousand and more) have higher employment in organized sector compared to small urban centres. In many small urban centres, a sizeable proportion of workforce is also dependent on agriculture. Thus, size as a measure of urban centres not only reflects population concentration but their economic strength as well. It is expected that the provision of basic services is directly related to the size of urban centres. Table 3 which presents basic amenities by size class of urban centres confirms this conjecture except toilet facility. Toilet facility is not only low (close to 60 per cent) in small urban centres, but even in mega cities with more than 5 million population (58 per cent) that have high proportion of population living in slum areas that have either no access to toilet facility or except community toilets. But situation with respect to electricity and supply of drinking water is better in Class I cities where more than 80 per cent of households have access and goes as high as 98 per cent in mega cities with 5 million and more population. On the other hand, about one-fourth households are denied access to electricity and drinking water facility in small urban centres. So far the access of LPG is concerned, the highest use of 63 per cent is found in mega cities and as low as 26 per cent in the small urban centres. While it is obvious that Class I cities in general have advantage in the use of clean fuel as LPG, but a large proportion of residents (one fifth) of these cities also depend on kerosene, and the rest on other sources of fuel. The situation in the use of clean fuel is worse in small urban centres where not only use of LPG is low (not more than 35 per cent) including one-tenth using kerosene but are more dependent on coal, charcoal and wood as source of fuel which are sources of indoor pollution and ill health among a substantial urban population.

At the state level, the situation remains unchanged with regard to Class I cities, which show higher provision of the basic services compared to smaller urban centers. But, the Class I cities of poorer states like Bihar, Orissa, Jharkhand and Uttar Pradesh show much lower provision of basic services compared to Class I cities of Punjab, Maharashtra, Gujarat and Karnataka. Thus, within same size class inter-state disparities continue to manifest.

A further analysis of six-mega cities namely Delhi, Mumbai, Kolkata, Chennai, Hyderabad and Bangalore shows that the toilet facility is available up to a maximum of 95 per cent households in Kolkata to the least of 44 per cent in Mumbai (see Table 4). It is to be noted that nearly half of the Mumbai's population lives in slums, which are mostly served by community toilets. Community toilets are often not well maintained a large number of population resort to open defecation. About one-fourth of slum dwellers (about 1.5 million out of the six million slum population in the BMC area

**Table 3: Percentage of households with access to selected basic amenities by size class of urban centers, 2001**

India	Electricity	Toilet facility	Drinking water	LPG	Drainage
<b>Class-I</b>					
More than 5 million	97.21	57.67	97.52	63.02	82.80
5 million - 1 million	86.69	78.49	89.75	59.92	90.09
1 million - 100 thousand	80.99	72.93	85.06	50.50	78.43
<b>Class-II</b>					
(50-100 thousand)	77.70	66.40	81.82	43.71	73.31
<b>Class-III</b>					
(20-50 thousand)	76.56	62.49	78.25	35.55	67.31
<b>Class-IV</b>					
(10-20 thousand)	78.28	57.39	78.89	29.76	63.96
<b>Class-V</b>					
(5-10 thousand)	76.27	53.86	78.61	26.42	57.96
<b>Class-VI</b>					
(Less than 5 thousand)	77.93	62.53	71.29	26.59	50.82

Source: Census of India 2001

as per 2001 census) defecate in the open (see Times of India, March 5, Mumbai edition, p. 6). Providing toilet facility is a great challenge for Mumbai, which is rarely recognized in the government circle. The problem is also serious in Delhi where one-fourth households have no access to any type of toilets. About one-fifth of households have no access to drinking water in Chennai, while most of the households (99 per cent) have access to drinking water in Mumbai. Chennai and Kolkata are the two mega cities where one-tenth of households have no access to either closed or open drainage for the outlet of wastewater from the households. The use of LPG varies from nearly 70 per cent of households in Delhi to a low of 48 per cent in Hyderabad and Kolkata. In Hyderabad about 46 per cent of the households also use kerosene followed by nearly 40 per cent households in Mumbai, Hyderabad, Bangalore and Kolkata. It seems that LPG is more easily available in Delhi than other megacities cities. Except Delhi, nearly half of households not using LPG in other mega cities show that the demand may be higher in future if income of the poor rises. The access to electricity is found

**Table 4: Percentage of households by selected basic amenities among mega cities, 2001**

Mega city	Electricity	Toilet	Drinking water	LPG	Kerosene	Drainage
Delhi +New Delhi (M Corp.)	96.13	79.82	95.25	71.07	23.62	94.18
Mumbai (M Corp.)	97.89	43.57	98.98	57.73	39.80	96.31
Chennai (M Corp.)	94.03	89.78	78.10	59.44	33.88	88.67
Hyderabad (M Corp.)	NA	NA	95.68	48.36	45.55	95.63
Bangalore (M Corp.)	96.03	92.70	88.01	55.17	38.78	95.20
Kolkata (M Corp.)	94.01	95.59	83.36	47.62	38.72	89.22

Source: Census of India 2001; M. Corp- Municipal Corporation

high in all the mega city (more than 94 per cent) compared to the average of 88 per cent in the urban areas as a whole at the national level.

Mumbai is the largest mega city with a population of 16 million as per 2001 census. It is found that city of Mumbai is growing faster in its periphery, whereas population growth in the core of the city (i.e Brihan Mumbai Municipal Corporation area) has slowed down or even declined in absolute numbers in several parts of the Island city (i.e south of Sion) (Sita and Bhagat 2007). It would be interesting to see how basic amenities differ between core and periphery of the city. Table 5 presents access to basic amenities in Mumbai in its core and periphery. The areas served by Mumbai Municipal Corporation (BMC) is treated as core and the adjoining urban areas namely Thane, Mira-Bhayander, Kaylan-Dombivili, Ulhasnagar, and Navi Mumbai forming part of the Mumbai urban agglomeration as per census definition are treated as periphery. The level of basic amenities between the core and periphery show that there exists a large gap in toilet facility between the two areas. In the periphery nearly one-third of the households have no access to toilet facility compared to more than half in the core of Mumbai city. The same situation remains with respect to LPG also, but the difference between core and periphery is not as large as that of the toilet facility. The core of Mumbai has also a very high concentration of slum population (about 50 per cent of population of BMC area live in slums). On the other hand, the supply of electricity, drinking water and access to drainage facility are almost similar between the two parts of Mumbai urban agglomeration. The example of Mumbai shows that the slum population is greatly affected by the lack of proper access to sanitation facility compared to other basic amenities.

**Table 5: Distribution of household with access to selected basic amenities in Greater Mumbai UA and its Constituents, 2001**

Name	Electricity	Toilet	Drinking Water	LPG	Drainage
MUMBAI (Urban Agglomeration)	97.92	55.24	98.23	60.90	95.60
Mumbai Municipal Corporation Area ( BMC)	97.89	43.57	98.98	57.73	96.31
Mumbai Non-Municipal Corporation Area ( NON-BMC)	97.97	70.68	97.24	65.09	94.67

Source: Census of India 2001

### Conclusions

The access to basic amenities varies in accordance with level of urbanization and the size class of cities and towns. Big cities show better availability of basic services compared to small urban centres.

Also, variations in the availability of basic amenities like electricity, LPG and drinking water show a direct relationship with the size of cities and towns. However, this is not true for toilet facility as mega cities show lower access to it due to higher presence of slum households. In general, the emerging pattern in the distribution of basic amenities at the national level by size class of urban centres is also found true at the state level as well.

The 74<sup>th</sup> amendment to the constitution came into force in 1992, which mandates the urban local bodies to take up several areas of urban planning and development including public health, sanitation and solid waste management (Chakrabarti 2001). It is expected that urban local bodies would generate their own funds to meet their needs. This requires enormous investment in infrastructure projects on water, sanitation, recreation and transport. Many small urban centres have no financial capacity and lack technical capabilities to design projects and raise funds from the market. The state governments have not suitably empowered them to take up urban governance independently including the power to raise money through taxation and market. On the other hand, several state governments have abolished octroi- a major source of income to the urban local bodies (Bhagat 2005). On the other hand,

the central government's urban development policy through Jawaharlal Nehru National Urban Renewal Mission (JNNURM) is designed to serve a handful of large urban centres. This is likely to marginalize the small urban centres in the access to basic amenities.

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