

CHAPTER SEVEN

Human Settlements



7.1 Introduction

7.1.1 The rapid population growth and economic development in country are degrading the environment through the uncontrolled growth of urbanization and industrialization, expansion and intensification of agriculture, and the destruction of natural habitats. One of the major causes of environmental degradation in India could be attributed to rapid growth of population, which is adversely affecting the natural resources and environment. The growing population and the environmental deterioration face the challenge of sustained development without environmental damage. The existence or the absence of favorable natural resources can facilitate or retard the process of economic development. The three fundamental demographic factors of births, deaths and migration produce changes in population size; composition, distribution and these changes raise a number of important questions of cause and effect. India has approximately 18 per cent of the world population but only 2 per cent of the geographical area.

The Country's population growth can be assessed from the table 7.1.1 .

7.1.2 Human development is also adversely affected by the environmental degradation. Two of the environmental indicators, viz. access to the safe drinking water and the sanitation are closely linked with two of the very important human development indicators, viz. an infant mortality rate and the life expectancy. Polluted air and poor and unhygienic conditions in settlements contribute to reduction in life expectancy and increase in infant mortality.

7.1.3 Life expectancy at birth in India since 1901 is given in table 7.1.2 . In India, the expectation of life at birth of female which was lower than that of male till 1980 and has shown a reverse trend thereafter (table 7.1.2)

Table 7.1.1: Population Totals - India and States

(Numbers)

Sl. No.	States/U.Ts.	1981		1991		2001		2011	
		Male	Female	Male	Female	Male	Female	Male	Female
1	2	3	4	5	6	7	8	9	10
1	Andhra Pradesh	27,109,616	26,441,410	33,724,581	32,783,427	38,527,413	37,682,594	42442146	42138631
2	Arunachal Pradesh	339,322	292,517	465,004	399,554	579,941	518,027	713912	669815
3	Assam	9,444,037	8,597,211	11,657,989	10,756,333	13,777,037	12,878,491	15939443	15266133
4	Bihar	35,930,560	33,984,174	33,838,238	30,692,316	43,243,795	39,754,714	54278157	49821295
5	Chhattisgarh++	..	..	8,872,620	8,742,308	10,474,218	10,359,585	12832895	12712303
6	Goa	510,152	497,597	594,790	575,003	687,248	660,420	739140	719405
7	Gujarat	17,552,640	16,533,159	21,355,209	19,954,373	26,385,577	24,285,440	31491260	28948432
8	Haryana	6,909,679	6,012,440	8,827,474	7,636,174	11,363,953	9,780,611	13494734	11856728
9	Himachal Pradesh	2,169,931	2,110,887	2,617,467	2,553,410	3,087,940	2,989,960	3481873	3382729
10	Jammu & Kashmir+	3,164,660	2,822,729	4,142,082	3,694,969	5,360,926	4,782,774	6640662	5900640
11	Jharkhand++	..	..	11,363,853	10,480,058	13,885,037	13,060,792	16930315	16057819
12	Karnataka	18,922,627	18,213,087	22,951,917	22,025,284	26,898,918	25,951,644	30966657	30128640
13	Kerala	12,527,767	12,925,913	14,288,995	14,809,523	15,468,614	16,372,760	16027412	17378649
14	Madhya Pradesh	26,886,305	25,292,539	25,394,673	23,171,569	31,443,652	28,904,371	37612306	35014503
15	Maharashtra	32,414,432	30,368,386	40,825,618	38,111,569	50,400,596	46,478,031	58243056	54131277
16	Manipur ¹	721,006	699,947	938,359	898,790	1,161,952	1,131,944	1290171	1280219
17	Meghalaya	683,710	652,109	907,687	867,091	1,176,087	1,142,735	1491832	1475057
18	Mizoram	257,239	236,518	358,978	330,778	459,109	429,464	555339	541867
19	Nagaland	415,910	359,020	641,282	568,264	1,047,141	942,895	1024649	953853
20	Odisha	13,309,786	13,060,485	16,064,146	15,595,590	18,660,570	18,144,090	21212136	20762082
21	Punjab	8,937,210	7,851,705	10,778,034	9,503,935	12,985,045	11,373,954	14639465	13103873
22	Rajasthan	17,854,154	16,407,708	23,042,780	20,963,210	29,420,011	27,087,177	35550997	32997440
23	Sikkim	172,440	143,945	216,427	190,030	288,484	252,367	323070	323070
24	Tamil Nadu	24,487,624	23,920,453	28,298,975	27,559,971	31,400,909	31,004,770	36137975	36009055
25	Tripura	1,054,846	998,212	1,417,930	1,339,275	1,642,225	1,556,978	1874376	1799541
26	Uttarakhand++	..	..	3,674,540	3,438,943	4,325,924	4,163,425	5137773	4948519
27	Uttar Pradesh	58,819,535	52,042,977	70,362,417	61,636,387	87,565,369	78,632,552	104480510	95331831
28	West Bengal	28,560,901	26,019,746	35,510,633	32,567,332	41,465,985	38,710,212	46809027	44467088
Union Territories									
1	A&N Islands	107,261	81,480	154,369	126,292	192,972	163,180	202871	177710
2	Chandigarh	255,278	196,332	358,614	283,401	506,938	393,697	580663	474787
3	D&N Haveli	52,515	51,161	70,953	67,524	121,666	98,824	193760	149949
4	Daman & Diu	38,298	40,683	51,595	49,991	92,512	65,692	150301	92946
5	Delhi	3,440,081	2,780,325	5,155,512	4,265,132	7,607,234	6,243,273	8987326	7800615
6	Lakshadweep	20,377	19,872	26,618	25,089	31,131	29,519	33123	31350
7	Puducherry	304,561	299,910	408,081	399,704	486,961	487,384	612511	635442
All India* & 1		353,374,460	329,954,637	439,358,440	407,062,599	532,223,090	496,514,346	623121843	587447730

Source : Office of the Registrar General, India

+ : The 1991 Census was not held in Jammu & Kashmir. 1991 Census figures include interpolated Population of Jammu & Kashmir.

++ : The States of Uttarakhand, Jharkhand and Chhattisgarh are carved out from Uttar Pradesh, Bihar, and Madhya Pradesh respectively, in 2001 Census. In 1991 the recasted figures for these States are given as per jurisdiction of 2001 Census.

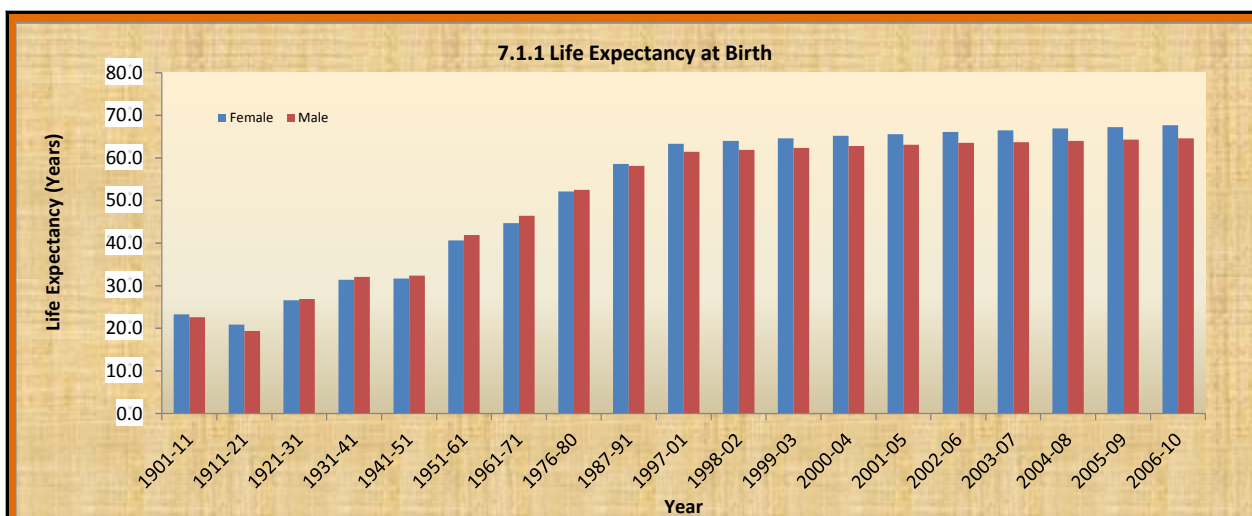
1 - : India and Manipur figures include estimated figures for those of the three sub-divisions viz. Mao Maram, Paomata and Purul of Senapati district of Manipur as population Census 2001 in these three sub-divisions were cancelled due to technical and administrative reasons.

. * : The figures for India and Manipur, exclude the population of Mao Maram, Paomata and Purul sub-divisions of Senapati district of Manipur for Census 2011 due to administrative reasons.

Table 7.1.2 : Life Expectancy at birth (all State/Uts)*(In Years)*

Sl. No.	Year	Female	Male	Combined
1	2	3	4	5
1	1901-11	23.3	22.6	22.9
2	1911-21	20.9	19.4	20.1
3	1921-31	26.6	26.9	26.8
4	1931-41	31.4	32.1	31.8
5	1941-51	31.7	32.4	32.1
6	1951-61	40.6	41.9	41.3
7	1961-71	44.7	46.4	45.6
8	1970-75	49.0	50.5	49.7
9	1976-80	52.1	52.5	52.3
10	1981-85	55.7	55.4	55.4
11	1986-90	58.1	57.7	57.7
12	1987-91	58.6	58.1	58.3
13	1988-92	59.0	58.6	58.7
14	1989-93	59.7	59.0	59.4
15	1990-94	60.4	59.4	60.0
16	1991-95	60.9	59.7	60.3
17	1992-96	61.4	60.1	60.7
18	1993-97	61.8	60.4	61.1
19	1994-98	62.2	60.6	61.4
20	1995-99	62.3	60.8	61.5
21	1996-00	62.7	61.2	61.9
22	1997-01	63.3	61.4	62.3
23	1998-02	64.0	61.9	62.9
24	1999-03	64.6	62.3	63.4
25	2000-04	65.2	62.8	63.9
26	2001-05	65.6	63.1	64.3
27	2002-06	66.1	63.5	64.7
28	2003-07	66.5	63.7	65.0
29	2004-08	66.9	64.0	65.4
30	2005-09	67.2	64.3	65.7
31	2006-10	67.7	64.6	66.1

Source : Office of the Registrar General, Government of India



7.1.4 Infant mortality rate is high in rural India compared to the Urban Sector.(Table 7.1.3)

Table 7.1.3 : Infant mortality rate

(Per Thousand Live Births)

Sl. No.	Year	Sex		Sector		Overall
		Female	Male	Rural	Urban	
1	2	3	4	5	6	7
1	1985	98	96	107	59	97
2	1990	81	78	86	50	80
3	1995*	76	73	80	48	74
4	1996*	73	71	77	46	72
5	1997*	72	70	77	45	71
6	1998*	74	70	77	45	72
7	1999	70	71	75	44	70
8	2000	69	67	74	44	68
9	2001	68	64	72	42	66
10	2002**	62	62	69	40	63
11	2003*	64	57	66	38	60
12	2004	58	58	64	40	58
13	2005	61	56	64	40	58
14	2006	59	56	62	39	57
15	2007	56	55	61	37	55
16	2008	55	52	58	36	53
17	2009	52	49	55	34	50
18	2010	49	46	51	31	47
19	2011	46	43	48	29	44
20	2012	44	41	46	28	42

Source : Office of the Registrar General, India, Sample Registration System

* : Excludes Jammu and Kashmir due to non-receipt of returns.

** : Excludes Nagaland (Rural) due to part-receipt of returns.

7.1.6 Poverty indicates a condition in which a person fails to maintain a living standard adequate for a comfortable lifestyle. In rural India, nearly 25.7%, and in urban India 13.7% population (2011-12 estimates) are below the poverty line. The details are depicted in **Tables 7.1.4 a, 7.1.4 b & 7.1.4 c.**

Table 7.1.4 (a): State-wise percentage of population below the poverty line -Rural (1973-74 to 2011-12)

(in % of person)											
Sl. No.	States/ Union Territories	1973-74	1977-78	1983	1987-88	1993-94	1999-2000	2004-05 (URP)*	2004-05 (MRP)*	2009-10	2011-12
1	2	3	4	5	6	7	8	9	10	11	12
States											
1	Andhra Pradesh	48.41	38.11	26.53	20.92	48.10	11.05	32.30	7.50	22.80	11.00
2	Arunachal Pradesh	52.67	59.82	42.60	39.35	60.00	40.04	33.60	17.00	26.20	38.90
3	Assam	52.67	59.82	42.60	39.35	54.90	40.04	36.40	17.00	39.90	33.90
4	Bihar	62.99	63.25	64.37	52.63	62.30	44.30	55.70	32.90	55.30	34.10
5	Chattisgarh	-	-	-	-	55.90	-	55.10	31.20	56.10	44.60
6	Goa	46.85	37.64	14.81	17.64	25.50	1.35	28.10	1.90	11.50	6.80
7	Gujarat	46.35	41.76	29.80	28.67	43.10	13.17	39.10	13.90	26.70	21.50
8	Haryana	34.23	27.73	20.56	16.22	40.00	8.27	24.80	9.20	18.60	11.60
9	Himachal Pradesh	27.42	33.49	17.00	16.28	36.70	7.94	25.00	7.20	9.10	8.50
10	Jammu & Kashmir	45.51	42.86	26.04	25.70	32.50	3.97	14.10	2.70	8.10	11.50
11	Jharkhand	-	-	-	-	65.90	-	51.60	40.20	41.60	40.80
12	Karnataka	55.14	48.18	36.33	32.82	56.60	17.38	37.50	12.00	26.10	24.50
13	Kerala	59.19	51.48	39.03	29.10	33.90	9.38	20.20	9.60	12.00	9.10
14	Madhya Pradesh	62.66	62.52	48.90	41.92	49.00	37.06	53.60	29.80	42.00	35.70
15	Maharashtra	57.71	63.97	45.23	40.78	59.30	23.72	47.90	22.20	29.50	24.20
16	Manipur	52.67	59.82	42.60	39.35	64.40	40.04	39.30	17.00	47.40	38.80
17	Meghalaya	52.67	59.82	42.60	39.35	38.00	40.04	14.00	17.00	15.30	12.50
18	Mizoram	52.67	59.82	42.60	39.35	16.60	40.04	23.00	17.00	31.10	35.40
19	Nagaland	52.67	59.82	42.60	39.35	20.10	40.04	10.00	17.00	19.30	19.90
20	Odisha	67.28	72.38	67.53	57.64	63.00	48.01	60.80	39.80	39.20	35.70
21	Punjab	28.21	16.37	13.20	12.60	20.30	6.35	22.10	5.90	14.60	7.70
22	Rajasthan	44.76	35.89	33.50	33.21	40.80	13.74	35.80	14.30	26.40	16.10
23	Sikkim	52.67	59.82	42.60	39.35	33.00	40.04	31.80	17.00	15.50	9.90
24	Tamil Nadu	57.43	57.68	53.99	45.80	51.00	20.55	37.50	16.90	21.20	15.80
25	Tripura	52.67	59.82	42.60	39.35	34.20	40.04	44.50	17.00	19.80	16.50
26	Uttar Pradesh	56.53	47.60	46.45	41.10	50.90	31.22	42.70	25.30	39.40	30.40
27	Uttarkhand	-	-	-	-	36.70	-	35.10	31.70	14.90	11.60
28	West Bengal	73.16	68.34	63.05	48.30	42.50	31.85	38.20	24.20	28.80	22.50
Union Territories											
1	Andman& Nicobar Islands	57.43	57.68	53.99	45.80	-	20.55	-	16.90	0.40	-
2	Chandigarh	27.96	27.32	23.79	14.67	-	5.75	-	3.80	10.30	-
3	Dadra & Nagar Haveli	46.85	37.64	14.81	67.11	-	17.57	-	36.00	55.90	-
4	Daman & Diu	NA	NA	NA	NA	-	1.35	-	1.90	34.20	-
5	Delhi	24.44	30.19	7.66	1.29	16.20	0.40	15.60	0.10	7.70	12.90
6	Lakshadweep	59.19	51.48	39.03	29.10	-	9.38	-	9.60	22.20	-
7	Puduchery	57.43	57.68	53.99	45.80	28.10	20.55	22.90	16.90	0.02	17.10
All India		56.44	53.07	45.65	39.09	50.10	27.09	42.00	21.80	33.80	25.70

* URP- Unifrom Reference Period : MRP- Mixed Reference Period

Source : Planning Commission & NSSO (Tendulkar Methodology)

Notes : 1.The estimates for Chhatisgarh, Madhya Pradesh, Bihar, Jharkhand, UttarPradesh and Uttaranchal are for states as they exist after bifurcation in 2001. The estimates for 1993-94 have been calculated from the unit data using district and state boundaries of the divided states in 1993-94.

2 Population as on 1st March 2010 has been used for estimating number of persons below poverty line. (interpolated between 2001 and 2011 population census)

3 Poverty line of Tamil Nadu is used for Andaman and Nicobar Island.

4 Urban Poverty Line of Punjab used for both rural and urban Poverty of Chandigarh.

5 Poverty line of Maharashtra is used for Dadra & Nagar Haveli.

6 Poverty Ratio of Goa is used for Daman & Diu.

7 Poverty ratio of Kerala is used for Lakshadweep.

Table 7.1.4 (b): State-wise percentage of population below the poverty line -Urban (1973-74 to 2011-12)

(in % of person)											
Sl. No.	States/ Union Territories	1973-74	1977-78	1983	1987-88	1993-94	1999-2000	2004-05 (URP)*	2004-05 (MRP)*	2009-10	2011-12
1	2	3	4	5	6	7	8	9	10	11	12
States											
1	Andhra Pradesh	50.61	43.55	36.30	40.11	35.20	26.63	23.40	20.70	17.70	5.80
2	Arunachal Pradesh	36.92	32.71	21.73	9.94	22.60	7.47	23.50	2.40	24.90	20.30
3	Assam	36.92	32.71	21.73	9.94	27.70	7.47	21.80	2.40	26.10	20.50
4	Bihar	52.96	48.76	47.33	48.73	44.70	32.91	43.70	28.90	39.40	31.20
	Chattisgarh	-	-	-	-	28.10	-	28.40	34.70	23.80	24.80
5	Goa	37.69	36.31	27.00	35.48	14.60	7.52	22.20	20.90	6.90	4.10
6	Gujarat	52.57	40.02	39.14	37.26	28.00	15.59	20.10	10.10	17.90	10.10
7	Haryana	40.18	36.57	24.15	17.99	24.20	9.99	22.40	11.30	213.00	10.30
8	Himachal Pradesh	13.17	19.44	9.43	6.29	13.60	4.63	4.60	2.60	12.60	4.30
9	Jammu & Kashmir	21.32	23.71	17.76	17.47	6.90	1.98	10.40	8.50	12.80	7.20
	Jharkhand	-	-	-	-	41.80	-	23.80	16.30	31.10	24.80
10	Karnataka	52.53	50.36	42.82	48.42	34.20	25.25	25.90	27.20	19.60	15.30
11	Kerala	62.74	55.62	45.68	40.33	23.90	20.27	18.40	16.40	12.10	5.00
12	Madhya Pradesh	57.65	58.66	53.06	47.09	31.80	38.44	35.10	39.30	22.90	21.00
13	Maharashtra	43.87	40.09	40.26	39.78	30.30	26.81	25.60	29.00	18.30	9.10
14	Manipur	36.92	32.71	21.73	9.94	67.20	7.47	34.50	2.40	46.40	32.60
15	Meghalaya	36.92	32.71	21.73	9.94	23.00	7.47	24.70	2.40	24.10	9.30
16	Mizoram	36.92	32.71	21.73	9.94	6.30	7.47	7.90	2.40	11.50	6.40
17	Nagaland	36.92	32.71	21.73	9.94	21.80	7.47	4.30	2.40	25.00	16.50
18	Odisha	55.62	50.92	49.15	41.63	34.50	42.83	37.60	40.30	25.90	17.30
19	Punjab	27.96	27.32	23.79	14.67	27.20	5.75	18.70	3.80	18.10	9.20
20	Rajasthan	52.13	43.53	37.94	41.92	29.90	19.85	29.70	28.10	19.90	10.70
21	Sikkim	36.92	32.71	21.73	9.94	20.40	7.47	25.90	2.40	5.00	3.70
22	Tamil Nadu	49.40	48.69	46.96	38.64	33.70	22.11	19.70	18.80	12.80	6.50
23	Tripura	36.92	32.71	21.73	9.94	25.40	7.47	22.50	2.40	10.00	7.40
24	Uttar Pradesh	60.09	56.23	49.82	42.96	38.30	30.89	34.10	26.30	31.70	26.10
	Uttarkhand	-	-	-	-	18.70	-	26.50	32.00	25.20	10.50
25	West Bengal	34.67	38.20	32.32	35.08	31.20	14.86	24.40	11.20	22.00	14.70
Union Territories											
1	Andman& Nicobar Islands	49.40	48.69	46.96	38.64	-	22.11	-	18.80	0.30	
2	Chandigarh	27.96	27.32	23.79	14.67	-	5.75	-	3.80	9.20	
3	Dadra & Nagar Haveli	37.69	36.31	27.00	-	-	13.52	-	19.20	17.70	
4	Daman & Diu	NA	NA	NA	NA	-	7.52	-	20.80	33.00	
5	Delhi	52.23	33.51	27.89	13.56	15.70	9.42	12.90	10.80	14.40	9.80
6	Lakshadweep	62.74	55.62	45.68	40.33	-	20.27	-	16.40	1.70	
7	Puducherry	49.40	48.69	46.96	38.64	32.40	22.11	9.90	18.80	1.60	6.30
All India		49.01	45.24	40.79	38.20	31.8	23.62	25.70	21.70	20.90	13.70

* URP- Uniform Reference Period : MRP- Mixed Reference Period

Source : Planning Commission & NSSO (Tendulkar Methodology)

Notes : 1. The estimates for Chhatisgarh, Madhya Pradesh, Bihar, Jharkhand, Uttar Pradesh and Uttaranchal are for states as they exist after bifurcation in 2001. The estimates for 1993-94 have been calculated from the unit data using district and state boundaries of the divided states in 1993-94.

2 Population as on 1st March 2010 has been used for estimating number of persons below poverty line. (interpolated between 2001 and 2011 population census)

3 Poverty line of Tamil Nadu is used for Andaman and Nicobar Island.

4 Urban Poverty Line of Punjab used for both rural and urban Poverty of Chandigarh.

5 Poverty line of Maharashtra is used for Dadra & Nagar Haveli.

6 Poverty Ratio of Goa is used for Daman & Diu.

7 Poverty ratio of Kerala is used for Lakshadweep.

Table 7.1.4 (c): State-wise percentage of population below the poverty line - Rural + Urban (1973-74 to 2011-12)

(in % of person)											
Sl. No.	States/ Union Territories	1973-74	1977-78	1983	1987-88	1993-94	1999-2000	2004-05 (URP)*	2004-05 (MRP)*	2009-10	2011-12
1	2	3	4	5	6	7	8	9	10	11	12
States											
1	Andhra Pradesh	48.86	39.31	28.91	25.86	44.60	15.77	29.90	11.10	21.10	9.20
2	Arunachal Pradesh	51.93	58.32	40.88	36.22	54.50	33.47	31.10	13.40	25.90	34.70
3	Assam	51.21	57.15	40.47	36.21	51.80	36.09	34.40	15.00	37.90	32.00
4	Bihar	61.91	61.55	62.22	52.13	60.50	42.60	54.40	32.50	53.50	33.70
5	Chattisgarh	-	-	-	-	50.90	-	49.40	32.00	48.70	39.90
6	Goa	44.26	37.23	18.90	24.52	20.80	4.40	25.00	10.20	8.70	5.10
7	Gujarat	48.15	41.23	32.79	31.54	37.80	14.07	31.80	12.00	23.00	16.60
8	Haryana	35.36	29.55	21.37	16.64	35.90	8.74	24.10	12.50	20.10	11.20
9	Himachal Pradesh	26.39	32.45	16.40	15.45	34.60	7.63	22.90	9.90	9.50	8.10
10	Jammu & Kashmir	40.83	38.97	24.24	23.82	26.30	3.48	13.20	6.70	9.40	10.40
11	Jharkhand	-	-	-	-	60.70	-	45.30	4.20	39.10	37.00
12	Karnataka	54.47	48.78	38.24	37.53	49.50	20.04	33.40	34.80	23.60	20.90
13	Kerala	59.79	52.22	40.42	31.79	31.30	12.72	19.70	17.40	12.00	7.10
14	Madhya Pradesh	61.78	61.78	49.78	43.07	44.60	37.43	48.60	11.40	36.70	31.70
15	Maharashtra	53.24	55.88	43.44	40.41	47.80	25.02	38.10	32.40	24.50	17.40
16	Manipur	49.96	53.72	37.02	31.35	65.10	28.54	38.00	25.20	47.10	36.90
17	Meghalaya	50.20	55.19	38.81	33.92	35.20	33.87	16.10	13.20	17.10	11.90
18	Mizoram	50.32	54.38	36.00	27.52	11.80	19.47	15.30	14.10	21.10	20.40
19	Nagaland	50.81	56.04	39.25	34.43	20.40	32.67	9.00	9.50	20.90	18.90
20	Odisha	66.18	70.07	65.29	55.58	59.10	47.15	57.20	14.50	37.00	32.60
21	Punjab	28.15	19.27	16.18	13.20	22.40	6.16	20.90	39.90	15.90	8.30
22	Rajasthan	46.14	37.42	34.46	35.15	38.30	15.28	34.40	5.20	24.80	14.70
23	Sikkim	50.86	55.89	39.71	36.06	31.80	36.55	31.10	17.50	13.10	8.20
24	Tamil Nadu	54.94	54.79	51.66	43.39	44.60	21.12	28.90	15.20	17.10	11.30
25	Tripura	51.00	56.88	40.03	35.23	32.90	34.44	40.60	17.80	17.40	14.10
26	Uttar Pradesh	57.07	49.05	47.07	41.46	48.40	31.15	40.90	14.40	37.70	29.40
27	Uttarakhand	-	-	-	-	32.00	-	32.73	25.50	18.00	11.30
28	West Bengal	63.43	60.52	54.85	44.72	39.40	27.02	34.30	31.80	26.70	20.00
Union Territories											
1	Andman & Nicobar Islands	55.56	55.42	52.13	43.89	-	20.99	-	20.60	0.40	-
2	Chandigarh	27.96	27.32	23.79	14.67	-	5.75	-	17.60	9.20	-
3	Dadra & Nagar Haveli	46.55	37.20	15.67	67.11	-	17.14	-	3.80	39.10	-
4	Daman & Diu	NA	NA	NA	NA	-	4.44	-	30.60	33.30	-
5	Delhi	49.61	33.23	26.22	12.41	15.70	8.23	13.10	8.00	14.20	9.90
6	Lakshadweep	59.68	52.79	42.36	34.95	-	15.60	-	12.30	6.80	-
7	Puducherry	53.82	53.25	50.06	41.46	30.90	21.67	14.10	18.20	1.20	9.70
All India		54.88	51.32	44.48	38.86	45.30	26.10	37.20	21.80	29.80	21.90

* URP- Uniform Reference Period : MRP- Mixed Reference Period

Source : Planning Commission & NSSO (Tendulkar Methodology)

Notes : 1. The estimates for Chhatisgarh, Madhya Pradesh, Bihar, Jharkhand, Uttar Pradesh and Uttaranchal are for states as they exist after bifurcation in 2001. The estimates for 1993-94 have been calculated from the unit data using district and state boundaries of the divided states in 1993-94.

2 Population as on 1st March 2010 has been used for estimating number of persons below poverty line.

(interpolated between 2001 and 2011 population census)

3 Poverty line of Tamil Nadu is used for Andaman and Nicobar Island.

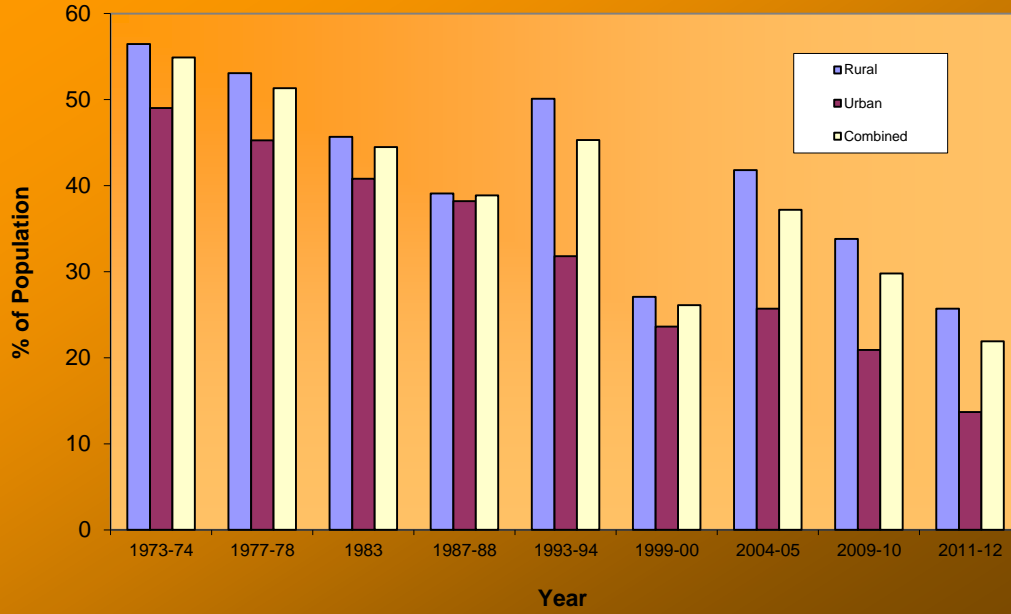
4 Urban Poverty Line of Punjab used for both rural and urban Poverty of Chandigarh.

5 Poverty line of Maharashtra is used for Dadra & Nagar Haveli.

6 Poverty Ratio of Goa is used for Daman & Diu.

7 Poverty ratio of Kerala is used for Lakshadweep.

Chart 7.1.4: Percentage of Population Below Poverty Line



7.2 HOUSING AND BASIC FACILITIES

7.2.1 The Housing facility available to Indian population can be assessed from the following table 7.2.1.

Table 7.2.1 : Urban-rural breakup of total population, number of households, houses and average size of housefolds, average no of households and persons per house

Sl. No.	Year	Total Population	No. of Households	No. of Houses	Av. Size of Households	Av. No of Household Per House	Av. No. of Persons Per House
1	2	3	4	5	6	7	8
1	1981*						
	Total	665,287,849	119,772,545	121,782,109**	5.6	1.0	5.5
	Urban	157,680,171	28,905,949	29,897,491	5.5	1.0	5.3
	Rural	507,607,678	90,866,596	91,884,618	5.6	1.0	5.5
2	1991+						
	Total	838,583,988	152,009,467	159,425,666**	5.5	1.0	5.3
	Urban	215,771,612	40,418,141	43,518,317	5.3	0.9	5.0
	Rural	622,812,376	111,591,326	115,907,349	5.6	1.0	5.4
3	2001++						
	Total	1,028,610,328	193,579,954	202,973,364#	5.3	1.0	5.1
	Urban	286,119,689	55,832,570	58,514,738	5.1	1.0	4.9
	Rural	742,490,639	137,747,384	144,458,626	5.4	1.0	5.1
4	2011^						
	Total	1,210,193,422	246,692,667	330,835,767	4.9	0.7	3.7
	Urban	377,105,760	78,865,937	110,139,853	4.8	0.8	3.4
	Rural	833,087,662	167,826,730	220,695,914	3.8	0.8	3.8

Source : Office of Registrar General of India

* : Excluding Assam

+ : Excluding J & K

** : No. of Occupied residential houses + No. of Census houses vacant at the time of house listing.

++ India figures are final and exclude those of the three sub-divisions viz. Mao Maram, Paomata and Purul of Senapati district of Manipur as population Census 2001 in these three sub-divisions were cancelled due to technical and administrative reasons although a population census was carried out in these sub-divisions as per schedule.

The occupied residential houses and vacant houses are based on Census 2001 Houselisting data.

^ Provisional Population totals, paper 2, volume 1 of 2011, Rural-Urban distribution, INDIA series 1. Tables on houses, household Amenities and Assets, India series-1, Census of India-2011.

7.2.2 The Urban –Rural wise break up of number of households, occupied residential and vacant houses along with population as per Census is presented in table 7.2.2 and the dwelling room facilities in Indian households is depicted in table 7.2.3. The details of homeless households and population in India is in table 7.2.4.

Table 7.2.2 : Number of households, population and occupied residential and vacant houses with rural/urban break up

Sl. No.	Total/Urban/Rural		Number of Households	Population			No. of Houses at the time of Houselisting			
				Total	Male	Female	Total #	Occupied residential	Vacant	
1	2	3	4	5	6	7	8	9	10	
1	1981*	Total	Total	119,772,545	665,287,849	343,930,423	321,357,426	121,782,109	113,735,542	8,046,567
			Institutional	247,457	3,790,700	3,116,289	674,411			
	Urban	Total	Total	28,905,949	157,680,171	83,876,403	73,803,768	29,897,491	27,604,947	2,292,544
			Institutional	143,015	2,377,559	1,956,711	420,848			
	Rural	Total	Total	90,866,596	507,607,678	260,054,020	247,553,658	91,884,618	86,130,595	5,754,023
			Institutional	104,442	1,413,141	1,159,578	253,563			
2	1991+	Total	Total	152,009,467	838,583,988	435,216,358	403,367,630	159,425,666	147,013,766	12,411,900
			Institutional	244,881	4,252,976	3,351,584	901,392			
	Urban	Total	Total	40,418,141	215,771,612	113,936,953	101,834,659	43,518,317	39,073,337	4,444,980
			Institutional	140,702	2,406,841	1,893,949	512,892			
	Rural	Total	Total	111,591,326	622,812,376	321,279,405	301,532,971	115,907,349	107,940,429	7,966,920
			Institutional	104,179	1,846,135	1,457,635	388,500			
3	2001++	Total	Total	193,579,954	1,028,610,328	532,156,772	496,453,556	202,973,364	187,162,172	15,811,192
			Institutional	460,717	7,802,866	5,460,238	2,342,628			
	Urban	Total	Total	55,832,570	286,119,689	150,554,098	135,565,591	58,514,738	52,062,718	6,452,020
			Institutional	208,470	3,758,714	2,717,220	1,041,494			
	Rural	Total	Total	137,747,384	742,490,639	381,602,674	360,887,965	144,458,626	135,099,454	9,359,172
			Institutional	252,247	4,044,152	2,743,018	1,301,134			
4	2011^	Total	Total	246,692,667	1,210,193,422	623,724,248	586,469,174	269,314,550	244,641,582	24,672,968
		Urban	Total	78,865,937	377,105,760	195,807,196	181,298,564	89,578,609	78,484,979	11,093,630
		Rural	Total	167,826,730	833,087,662	427,917,052	405,170,160	179,735,941	166,156,603	13,579,338

Source : Office of Registrar General of India

Note :

: No. of census houses (occupied residential + vacant)

* : Excluding Assam

+ : Excluding Jammu & Kashmir

++ India figures are final and exclude those of the three sub-divisions viz. Mao Maram, Paomata and Purul of Senapati district of Manipur as population Census 2001 in these three sub-divisions were cancelled due to technical and administrative reasons although a population census was carried out in these sub-divisions as per schedule.

^ Provisional Population totals, paper 2, volume 1 of 2011, Rural-Urban distribution, INDIA series 1. Tables on houses, household Amenities and Assets, India series-1, Census of India-2011.

Table 7.2.3 : Household by number of dwelling rooms

	No. of Households	Distribution of Households according to number of dwelling rooms						
		One Room	Two Rooms	Three Rooms	Four Rooms	Five or More Rooms	No exclusive room	Un-specified rooms
1	2	3	4	5	6	7	8	9
1981*								
Total	118,614,803	53,046,175	33,948,809	14,496,724	7,482,461	6,852,624	769,506	2,018,504
Percentage	100.00	44.70	28.60	12.20	6.30	5.80	0.65	1.70
Urban	28,541,877	13,072,617	7,947,026	3,484,741	1,804,721	1,626,979	149,001	456,792
Percentage	100.00	45.80	27.80	12.30	6.30	5.70	0.52	1.60
Rural	90,072,926	39,973,558	26,001,783	11,011,983	5,677,740	5,225,645	620,505	1,561,712
Percentage	100.00	44.40	28.90	12.20	6.30	5.80	0.69	1.73
1991+								
Total	151,032,898	61,154,743	46,180,064	20,910,465	10,791,101	10,608,294	43,538	1,344,693
Percentage	100.00	40.50	30.60	13.80	7.20	7.00	0.03	0.89
Urban	39,493,450	15,620,078	11,992,915	5,852,191	3,070,829	2,751,947	16,578	188,912
Percentage	100.00	39.50	30.40	14.80	7.80	7.00	0.04	0.48
Rural	111,539,448	45,534,665	34,187,149	15,058,274	7,720,272	7,856,347	26,960	1,155,781
Percentage	100.00	40.80	30.70	13.50	6.90	7.00	0.02	1.04
2001								
Total	191,963,935	73,856,117	57,571,314	27,541,899	14,361,957	12,660,232	5,972,416	-
Percentage	100.00	38.47	29.99	14.35	7.48	6.60	3.11	-
Urban	53,692,376	18,852,794	15,857,448	9,176,931	4,656,850	3,900,405	1,247,948	-
Percentage	100.00	35.11	29.53	17.09	8.67	7.26	2.32	-
Rural	138,271,559	55,003,323	41,713,866	18,364,968	9,705,107	8,759,827	4,724,468	-
Percentage	100.00	39.78	30.17	13.28	7.02	6.34	3.42	-
2011^								
Total	246692667	91491894	78124581	35803824	18377481	6395066	9638369	6861452
Percentage	100	37.09	31.67	14.51	7.45	2.59	3.91	2.78
Rural	167826730	66155450	53987801	21308634	11071009	3842346	7211590	4249900
Percentage	100	39.42	32.17	12.70	6.60	2.29	4.30	2.53
Urban	78865937	25336444	24136780	14495190	7306472	2552720	2426779	2611552
Percentage	100	32.13	30.60	18.38	9.26	3.24	3.08	3.31

Source: Office of the Registrar General of India

* : Excluding Assam Excluding houseless and Institutional Households

+ : Excluding J& K ,Excluding houseless and Institutional Households

^ Tables on houses, household Amenities and Assets, India series-1, Census of India-2011.

Table 7.2.4 : Number of houseless households and population

Sl. No.	Year	Numbers of houseless households	Houseless Population		
			Total	Male	Female
1	2	3	4	5	6
1	1981*				
	Total	629,929	2,342,954	1,376,512	966,442
	Urban	209,520	618,843	406,154	212,689
	Rural	420,409	1,724,111	970,358	753,753
2	1991+				
	Total	522,445	2,007,489	1,180,368	827,121
	Urban	216,917	725,592	471,077	254,515
	Rural	305,528	1,281,897	709,291	572,606
3	2001				
	Total	447,585	1,943,766	1,136,496	807,270
	Urban	187,810	778,599	502,344	276,255
	Rural	259,775	1,165,167	634,152	531,015
4	2011				
	Total	449,761	1,772,889		
	Urban	192,865	834,541		
	Rural	256,896	938,348		

Source: Primary census Abstract for total population and houseless population, 2011, Office of the Registrar General of India

* : Excluding Assam

+ : Excludes Jammu & Kashmir



7.2.3 Though, there is a reduction in the number of homeless people in 2011 over 1991, the homeless people still constitutes 0.14% of the Country's population.

7.3 Safe water and improved sanitation facilities

7.3.1 Access to safe drinking water and proper sanitation is both a right and a basic need. It has a significant bearing on the achievements of other Millennium Development Goals including poverty reduction, and gender equality. However, despite two decades of concerted efforts by national governments and international communities, equitable access to safe drinking water supply and improved sanitation for all remains elusive. It is a pressing development issue.

7.3.2 Access to safe drinking water remains an urgent need as only 70.6% of occupied housing unit in urban areas received organized piped water supply and rest have to depend on surface or ground water which is untreated. The situation in rural areas is much worse with only 30.8% households reported water supply through Tap Water. In India, almost all surface water sources are contaminated and unfit for human consumption. The diseases commonly caused due to contaminated water are diarrhea, trachoma, intestine worms, hepatitis. Inadequate access to safe drinking water and sanitation facilities leads to infant mortality and intestinal diseases. As per Census 2011, 69.3% rural households 18.6% urban households are still without toilet of any type.

7.3.3 The details Rural –Urban classification of Households by water supply and toilet installation is in Table 7.3.1

TABLE 7.3.1 : HOUSEHOLDS CLASSIFIED BY SUPPLY OF WATER AND TOILET INSTALLATION BY RURAL AND URBAN

Year	Total number of Households	Households with Water Supply though Tap Water			Toilet Installation	
		Total	Inside	Outside	With Toilet of Any Type	Without Toilet of Any Type
1	2	3	4	5	6	7
2011						
Total	246692667	107,417,176	78,873,488	28,533,688	115,737,458	130,955,209
Percentage	100	43.5	32.0	11.6	46.9	53.1
Rural	167826730	51,705,165	29,969,145	21,736,020	51,575,339	116,251,391
Percentage	100	30.8	17.9	13.0	30.7	69.3
Urban	78865937	55,702,011	48,904,343	6,797,668	64,162,119	14,703,818
Percentage	100.0	70.6	62.0	8.6	81.4	18.6

Source : Office of the Registrar General of India (Census 2011)

7.3.4 Water is a finite resource. Conserving water is one way of ensuring that more is available for those who do not have it. The reduction of non-revenue water in Asia (currently ranging from 25-70 per cent in most water utilities) will significantly lower capital requirements for new investments and conserve. It costs far less to reduce non-revenue water than to expand capacity and perpetuate system inefficiencies. Access can also be expanded by applying the results of research in new technologies that separate water use (e. g., for cooking, drinking, bathing, sanitation), and through natural means such as rainwater harvesting and storage. In conjunction, water quality must remain a key focus area. **The state wise estimated requirement of water for domestic purposes including for cattle is presented in Table 7.3.2 .**

7.3.5 The source of drinking water is an indicator of development towards availability of safe drinking water. **The distribution of households by major source of drinking water in rural and urban areas is exhibited in tables 7.3.3a, 7.3.3b & 7.3.3 c.**

7.3.6 Food, potable drinking water, adequate system for disposal of excreta, good sanitation and personal hygiene etc are pre – requisite to reduce prevalence of morbidity. Sewage treatment is an important initiative in this direction, however, in Indian Metropolitan cities, on an average; sewage treatment capacity is only 51% of the sewage generation. The data on this is depicted in **tables 7.3.4 a, 7.3.4 b&7.3.4 c .**

The facilities for garbage disposal in Indian households are a representative indicator of the cleanliness of its environment. The distribution of household by arrangement of garbage disposal is in **table 7.3.5.**

TABLE 7.3.2 : STATE-WISE ESTIMATED ANNUAL REQUIREMENT OF WATER FOR DOMESTIC PURPOSES INCLUDING FOR CATTLE IN DIFFERENT STATES

Sl. No.	State/UT	Population in Thousand					Water Requirement in BCM				
		1991	2001	2004	2006	2025	1991	2001	2004	2006	2025
1	2	3	4	5	6	7	8	9	10	11	12
1	Andhra Pradesh	66,508	75,728	78,527	80,430	94,276	2.50	3.20	3.45	3.63	4.91
2	Arunachal Pradesh	865	1,091	1,139	1,170	1,429	0.03	0.05	0.05	0.05	0.07
3	Assam	22,414	26,638	28,050	29,009	36,766	0.84	1.13	1.23	1.31	1.91
4	Bihar	86,374	82,879	87,810	90,830	114,845	3.25	3.50	3.86	4.09	5.98
5	Chandigarh	642	901	969	1,013	1,642	0.02	0.04	0.04	0.05	0.09
6	Chhattisgarh	@	20,796	22,011	22,859	29,513	@	0.88	0.97	1.03	1.54
7	Goa	1,170	1,344	1,451	1,537	2,703	0.04	0.06	0.06	0.07	0.14
8	Gujarat	41,310	50,597	53,195	54,814	67,402	1.55	2.14	2.34	2.47	3.51
9	Haryana	16,464	21,083	22,296	23,040	28,941	0.62	0.89	0.98	1.04	1.51
10	Himachal Pradesh	5,171	6,077	6,294	6,425	7,345	0.19	0.26	0.28	0.29	0.38
11	Jammu & Kashmir	7,719	10,070	10,935	11,603	21,767	0.29	0.43	0.48	0.52	1.13
12	Jharkhand	@	26,909	28,303	29,173	35,730	@	1.14	1.24	1.32	1.86
13	Karnataka	44,977	52,734	54,824	56,137	65,879	1.69	2.23	2.41	2.53	3.43
14	Kerala	29,099	31,839	32,862	33,569	38,360	1.09	1.34	1.45	1.51	2.00
15	Madhya Pradesh	66,181	60,385	64,237	66,801	88,062	2.49	2.55	2.82	3.01	4.58
16	Maharashtra	78,937	96,752	101,275	104,104	127,719	2.97	4.09	4.45	4.69	6.65
17	Manipur	1,837	2,389	2,499	2,561	3,128	0.07	0.10	0.11	0.12	0.16
18	Meghalaya	1,775	2,306	2,411	2,472	3,021	0.07	0.10	0.11	0.11	0.16
19	Mizoram	690	891	932	955	1,167	0.03	0.04	0.04	0.04	0.06
20	Nagaland	1,210	1,989	2,090	2,132	2,606	0.05	0.08	0.09	0.10	0.14
21	Odisha	31,660	36,707	38,139	39,053	45,763	1.19	1.55	1.68	1.76	2.38
22	Punjab	20,282	24,289	25,336	25,976	30,609	0.76	1.03	1.11	1.17	1.59
23	Rajasthan	44,006	56,473	60,127	62,431	80,005	1.66	2.39	2.64	2.81	4.16
24	Sikkim	406	540	566	579	708	0.02	0.02	0.02	0.03	0.04
25	Tamil Nadu	55,859	62,111	64,019	65,261	73,569	2.10	2.62	2.82	2.94	3.83
26	Tripura	2,757	3,191	3,326	3,421	4,180	0.10	0.13	0.15	0.15	0.22
27	Uttar Pradesh	139,112	166,053	176,765	183,856	245,772	5.23	7.01	7.77	8.29	12.79
28	Uttarakhand	@	8,480	8,925	9,216	11,506	@	0.36	0.39	0.42	0.60
29	West Bengal	68,078	80,221	83,585	85,780	103,194	2.56	3.39	3.68	3.70	5.37
30	A. & N. Islands	281	356	377	394	606	0.01	0.02	0.02	0.02	0.03
31	D. & N. Haveli	138	220	237	248	429	0.01	0.01	0.01	0.01	0.02
32	Lakshadweep	52	61	64	66	97	0.00	0.00	0.00	0.00	0.01
33	Puducherry	808	974	1,013	1,042	1,427	0.03	0.04	0.04	0.05	0.07
34	Delhi	9,421	13,783	15,128	16,065	28,394	0.35	0.58	0.67	0.72	1.48
35	Daman & Diu	102	158	170	178	301	0.00	0.01	0.01	0.01	0.02
TOTAL		846,303	1,027,015	1,079,887	1,114,200	1,398,861	31.84	43.38	47.49	50.23	72.81

Source: Central Water Commission

BCM : Billion Cubic Metres

Note : + : All India figures relate to the estimated requirement as worked out by the standing sub committee for Assessment of availability and requirement of water for diverse uses in the country, 2000. (distributed prorata in the states in proportion to population).

@ : Three States namely Jharkhand, Uttarakhand & Chhattisgarh have been formed after 1991 as such their population as well water requirement in year 1991 have been included in the respective states: Chhattisgarh in M.P., Jharkhand in Bihar and Uttaranchal in Uttar Pradesh.

Table: 7.3.3 Distribution of households by availability of drinking water facility

Sl.No	India/ State/ Union Territory #	Distribution of households by availability of drinking water facility													Availability of Drinking Water Source		
		Total No. of Households (Excluding institutional households)	Tap water			Well			Handpump	Tubewell	Spring	River, Canal	Tank, Pond, Lake	Any other source	Within the premises	Near the premises	Away
			Total	From treated source	From un-treated source	Total	Covered well	Un-covered well									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	A & N Islands #	93,376	85.0	68.9	16.2	7.3	0.7	6.6	0.0	0.5	1.2	2.6	1.5	1.9	60.6	27.0	12.4
2	Andhra Pradesh	21,024,534	69.9	49.0	20.9	6.4	0.5	5.9	13.7	6.9	0.5	0.3	0.3	2.1	43.2	37.3	19.5
3	Arunachal Pradesh	261,614	65.5	26.4	39.1	5.7	1.4	4.3	10.7	2.4	5.7	6.0	0.9	3.2	41.1	37.4	21.6
4	Assam	6,367,295	10.5	9.2	1.3	18.9	1.7	17.2	50.2	9.2	1.3	3.4	4.6	2.0	54.8	26.7	18.5
5	Bihar	18,940,629	4.4	3.1	1.3	4.3	0.7	3.7	86.6	3.0	0.0	0.2	0.1	1.4	50.1	37.9	12.0
6	Chandigarh #	235,061	96.7	93.7	3.0	0.1	0.1	0.0	1.8	0.9	0.0	0.0	0.1	0.5	86.2	11.7	2.2
7	Chhattisgarh	5,622,850	20.7	12.3	8.4	11.4	0.8	10.6	58.4	7.2	0.7	0.9	0.2	0.5	19.0	54.5	26.5
8	Dadra & Nagar Haveli #	73,063	46.5	26.0	20.5	7.2	1.5	5.7	24.5	20.6	0.6	0.3	0.0	0.4	52.6	36.4	11.0
9	Daman & Diu #	60,381	75.2	54.6	20.6	0.7	0.5	0.2	5.5	18.1	0.0	0.0	0.0	0.5	76.4	22.1	1.5
10	Delhi #	3,340,538	81.3	75.2	6.1	0.1	0.1	0.0	5.3	8.4	0.0	0.0	1.2	3.6	78.4	15.4	6.2
11	Goa	322,813	85.4	82.1	3.4	11.1	4.0	7.1	0.1	0.3	1.2	0.3	0.4	1.3	79.7	15.5	4.8
12	Gujarat	12,181,718	69.0	39.9	29.2	7.1	2.3	4.8	11.6	9.6	0.1	0.3	0.2	2.0	64.0	23.5	12.4
13	Haryana	4,717,954	68.8	55.9	12.9	3.0	0.7	2.3	12.0	12.9	0.0	0.3	0.9	1.9	66.5	21.4	12.1
14	Himachal Pradesh	1,476,581	89.5	83.9	5.6	2.9	1.6	1.3	3.6	0.7	0.7	0.3	0.5	1.9	55.5	35.0	9.5
15	Jammu & Kashmir	2,015,088	63.9	34.7	29.2	6.5	1.9	4.7	11.4	1.5	6.2	6.7	0.7	3.1	48.2	28.7	23.1
16	Jharkhand	6,181,607	12.9	10.0	2.9	36.5	1.9	34.6	43.8	3.5	0.8	1.6	0.2	0.8	23.2	44.9	31.9
17	Karnataka	13,179,911	66.1	41.2	24.8	9.0	1.0	8.0	5.5	16.0	0.3	0.8	1.0	1.4	44.5	37.3	18.2
18	Kerala	7,716,370	29.3	23.4	6.0	62.0	14.6	47.4	0.5	3.7	1.4	0.2	0.7	2.1	77.7	14.1	8.2
19	Lakshadweep #	10,703	20.3	9.1	11.1	71.7	6.9	64.9	2.5	0.1	0.0	0.0	0.4	5.1	83.7	14.3	2.0
20	Madhya Pradesh	14,967,597	23.4	16.5	6.9	20.0	1.1	18.9	47.1	7.6	0.3	0.7	0.4	0.6	23.9	45.6	30.5
21	Maharashtra	23,830,580	67.9	56.3	11.6	14.4	2.2	12.2	9.9	5.7	0.4	0.4	0.4	1.0	59.4	27.6	13.1
22	Manipur	507,152	38.6	25.6	13.0	7.5	2.8	4.7	6.5	0.4	5.6	15.0	23.2	3.4	16.1	46.2	37.8
23	Meghalaya	538,299	39.3	27.8	11.5	25.4	6.9	18.5	2.8	2.6	19.0	2.6	5.7	2.6	24.1	43.2	32.7
24	Mizoram	221,077	58.7	39.4	19.3	4.7	2.0	2.7	0.8	0.9	18.4	7.7	1.8	6.9	31.2	46.7	22.2
25	Nagaland	399,965	47.2	6.1	41.1	25.7	6.6	19.1	2.2	4.5	5.6	2.0	10.3	2.7	29.3	42.4	28.3
26	Odisha	9,661,085	13.8	10.0	3.9	19.5	2.2	17.3	41.5	20.0	1.8	1.7	0.9	0.8	22.4	42.2	35.4
27	Puducherry #	301,276	95.3	90.8	4.5	1.9	0.1	1.8	1.2	1.4	0.0	0.0	0.0	0.3	77.4	21.5	1.1
28	Punjab	5,409,699	51.0	41.1	9.9	0.5	0.2	0.2	24.7	21.9	0.0	0.2	0.1	1.7	85.9	10.0	4.1
29	Rajasthan	12,581,303	40.6	32.0	8.5	10.8	1.2	9.6	25.3	12.2	0.1	0.8	5.9	4.3	35.0	39.0	25.9
30	Sikkim	128,131	85.3	29.2	56.1	0.6	0.5	0.2	0.0	0.0	11.1	0.4	0.6	2.0	52.6	29.7	17.7
31	Tamil Nadu	18,493,003	79.8	55.8	24.0	5.1	1.2	3.8	4.6	8.2	0.2	0.2	0.5	1.5	34.9	58.1	7.0
32	Tripura	842,781	33.2	20.3	12.9	27.4	2.9	24.5	18.1	16.3	1.9	1.8	0.5	0.9	37.1	30.5	32.4
33	Uttar Pradesh	32,924,266	27.3	20.2	7.1	4.0	0.6	3.4	64.9	2.9	0.0	0.1	0.1	0.7	51.9	36.0	12.1
34	Uttarakhand	1,997,068	68.2	53.9	14.3	1.1	0.7	0.4	22.0	2.0	1.1	0.9	0.7	4.0	58.3	26.6	15.2
35	West Bengal	20,067,299	25.4	21.0	4.4	6.0	0.7	5.4	50.1	16.7	0.5	0.3	0.2	0.8	38.6	34.7	26.6
	INDIA	246,692,667	43.5	32.0	11.6	11.0	1.6	9.4	33.5	8.5	0.5	0.6	0.8	1.5	46.6	35.8	17.6

Source: Registrar General of India, 2011

Table 7.3.4 (a) : Status of sewage generation and treatment capacity in Metropolitan cities

Sl.No.	Name of the city	Sewage generation (in MLD)	Sewage Treatment Capacity (in MLD)	Percent of treatment capacity
1	Agra	260.36	88	33
2	Ahmadabad	472.00	488	96
3	Allahabad	176.00	60	34
4	Amritsar	192.00	-	-
5	Asansol	147.00	-	-
6	Bangalore	771.75	-	-
7	Bhopal	334.75	22	6
8	Chennai	158.00	264	100
9	Coimbatore	120.00	-	-
10	Delhi	3800.00	2330	61
11	Dhanbad	192.00	-	-
12	Faridabad	164.00	65	39
13	Hyderabad	426.21	593	100
14	Indore	204.00	78	38
15	Jabalpur	143.34	-	-
16	Jaipur	451.71	54	11
17	Jamshedpur	199.43	-	-
18	Kanpur	417.35	171	41
19	Kochi	188.40	-	-
20	Kolkata	705.86	172	24
21	Lucknow	363.81	42	11
22	Ludhiana	235.20	311	100
23	Madurai	97.93	-	-
24	Meerut	177.05	-	-
25	Mumbai	2671.00	2130	80
26	Nagpur	380.00	100	26
27	Nasik	227.84	107.5	47
28	Patna	279.14	105	37
29	Pune	474.00	305	64
30	Rajkot	108.80	44.5	40
31	Surat	432.00	202	46
32	Vadodara	180.00	206	100
33	Varanasi	230.17	102	44
34	Vijayawada	128.39	-	-
35	Vishakhapatnam	134.99	-	-
Total		15644.48	8040	51

Source: Status of sewage treatment in India (CUPS/61/2005-06) Central Pollution Control Board
MLD: Million litre per day

Note: Information related to Sewage Generation and Treatment Capacities of Metropolitan Cities.

- Status of Municipal Wastewater Generation and treatment capacity of Metro Politian Cities.
- There are 35 metropolitan cities (more than 10 Lac populaiton), 15,644 Millions Liter Per Day (MLD) of sewage is generated from these metropolitan cities. The treatment capacity exists for 8040 MLD i.e. 51% is treatment capacity is created.
- Among the Metropolitan cites, Delhi has the maximum treatment capacity that is 2330 MLD (30% of the total treatment capacity of metropolitan cities)
- Next ot Delhi, Mumbai has the capacity of 2130 MLD, which is 26% of total capacity in metropolitan cities.
- Delhi and Mumbai therefore in combination have 55% of treatment capacity of the metropolitan cities.
- Some cities such as Hydrerabad, Vadodara, Chennai and Ludhiana and Ahmadabad treatment capacity meets the volume of generation.
- Cities like Delhi, Dhanbad have more than 50% capacity, rest of the cities have the capacity less than 50%

Table 7.3.4 (b): State-wise sewage generation of class-I cities

Sl.No.	State/Union Territory	No. of Cities	Population (in Year 2008)	Sewage Generation (in MLD)	Sewage Treatment Capacity (in MLD)
1	Andaman & Nicobar	1	107,200	12.90	-
2	Andhra Pradesh	47	20,143,050	1760.60	654.00
3	Assam	5	1,417,820	380.70	-
4	Bihar	23	5,783,554	1009.70	135.50
5	Chandigarh	1	994,820	429.76	164.79
6	Chhattisgarh	7	2,515,100	350.00	69.00
7	Delhi	1	14,858,800	3800.00	2330.00
8	Goa	1	122,330	9.79	-
9	Gujarat	28	14,678,240	1680.92	782.50
10	Haryana	20	5,494,110	626.69	312.00
11	Himachal Pradesh	1	163,490	28.94	35.63
12	Jammu & Kashmir	2	1,910,060	213.93	-
13	Jharkhand	14	4,964,171	830.47	-
14	Karnataka	33	15,102,373	1790.40	43.44
15	Kerala	8	3,778,516	575.17	-
16	Madhya Pradesh	25	10,795,000	1248.72	186.10
17	Maharashtra	50	40,255,170	9986.29	4225.25
18	Manipur	1	249,870	26.74	-
19	Meghalaya	1	186,030	20.84	-
20	Mizoram	1	282,550	31.65	-
21	Nagaland	1	171,810	19.24	-
22	Odisha	12	3,335,930	660.73	53.00
23	Puducherry	2	504,130	56.46	-
24	Punjab	19	6,329,860	1545.30	411.00
25	Rajasthan	24	9,611,490	1382.37	54.00
26	Tamilnadu	42	16,852,940	1077.21	333.42
27	Tripura	1	214,327	24.00	-
28	Uttar Pradesh	61	25,762,280	3506.02	1240.13
29	Uttarakhand	6	1,249,380	176.97	18.00
30	West Bengal	60	19,818,471	2345.21	505.92
Total		498	227,652,872	35558.12	11553.68

Source: Central Pollution Control Board. MLD: Million litre per

Status of Water Supply, Wastewater Generation and Treatment in Class-I Cities & Class-II Towns of India (CUPS/70/ 2009-10)

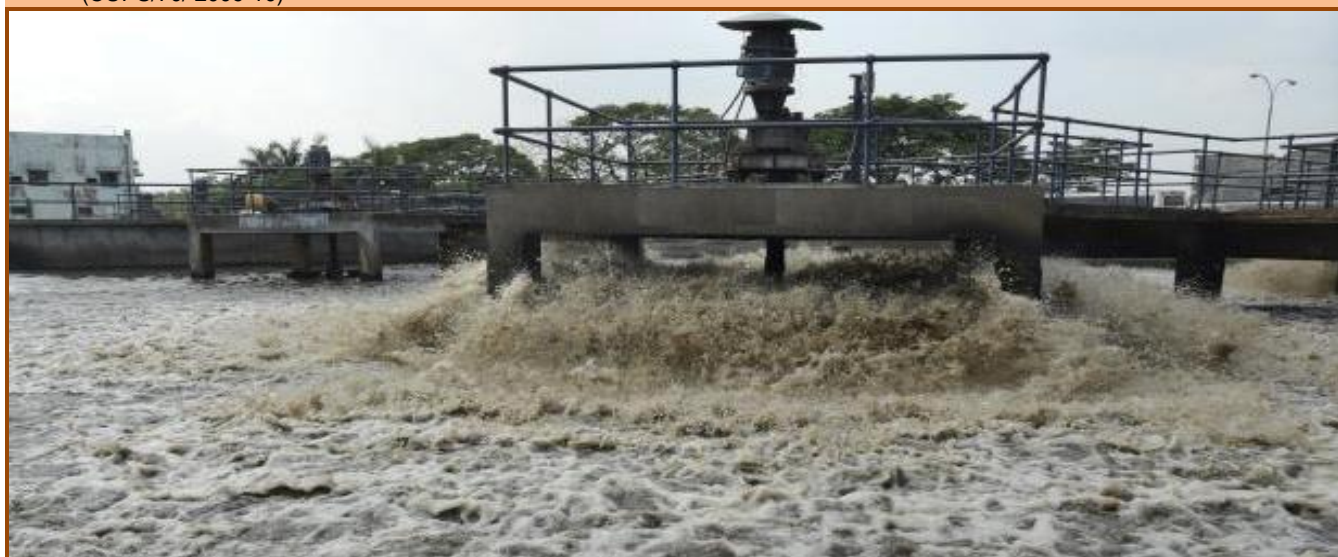


Table 7.3.4 (c) : State-wise sewage generation of class-II towns

Sl.No.	State/Union Territory	Population in Year 2008	No of Class - II Towns	Sewage generation of Class-II Towns (in MLD)	Sewage Treatment capacity (in MLD)
1	Andhra Pradesh	3448610	52	217.59	10.42
2	Assam	573290	8	6.46	-
3	Bihar	1113800	14	107.42	2.00
4	Chhattisgarh	566080	7	40.82	-
5	Goa	172850	2	13.89	18.18
6	Gujarat	2180590	31	227.55	-
7	Haryana	544040	7	43.52	-
8	Jammu & Kashmir	244990	4	27.86	-
9	Jharkhand	826300	10	78.21	-
10	Karnataka	1800258	26	233.37	12.18
11	Kerala	1686660	26	231.32	-
12	Madhya Pradesh	1745050	23	130.90	9.00
13	Maharashtra	2503080	34	213.73	29.00
14	Meghalaya	81750	1	11.25	-
15	Nagaland	126520	1	1.36	-
16	Odisha	904510	12	78.42	-
17	Puducherry	79690	1	7.98	-
18	Punjab	1109670	14	157.40	42.80
19	Rajasthan	1599260	21	147.79	-
20	Tamilnadu	3254950	42	184.67	29.30
21	Uttar Pradesh	3382520	46	345.70	12.61
22	Uttarakhand	69490	1	9.07	6.33
23	West Bengal	2004440	27	180.42	61.88
	Total	30018398	410	2696.70	233.70

Source: Status of water supply, waste water generation and treatment in class I cities and class II towns of india Central Pollution Control Board.

MLD: Million litre per day

Table 7.3.5 : Number of households by arrangement of garbage disposal per 1000 households living in a house

State/UT	Arrangement of garbage disposal						No. of households living in a house	
	By panchayat/municipality/corporation	By residents	Others	No arrangement	Not reported	All	Estimated	Sample
Urban								
A & N Islands	870	54	0	76	0	1000	20,748	192
Andhra Pradesh	683	134	40	143	0	1000	5,881,294	2650
Arunachal Pradesh	18	731	109	141	2	1000	25,452	387
Assam	268	496	75	160	0	1000	435,469	804
Bihar	393	70	35	498	3	1000	1,534,197	1003
Chandigarh	593	132	70	207	0	1000	299,066	240
Chhattisgarh	515	138	61	286	4	1000	779,300	479
D & N Haveli	359	520	54	67	0	1000	5,983	144
Daman & Diu	525	392	22	62	0	1000	13,408	192
Delhi	519	412	11	58	0	1000	2,652,640	1685
Goa	433	0	4	562	0	1000	90,314	95
Gujarat	500	372	41	86	0	1000	3,723,817	1615
Haryana	361	329	29	281	0	1000	1,089,711	767
Himachal Pradesh	703	112	52	133	0	1000	172,585	240
Jammu & Kashmir	577	108	1	314	0	1000	326,486	864
Jharkhand	298	209	48	446	1	1000	972,694	910
Karnataka	670	135	23	171	0	1000	3,252,093	2240
Kerala	231	159	63	547	0	1000	1,732,564	1294
Lakshadweep	117	0	0	883	0	1000	5,827	96
Madhya Pradesh	496	96	23	384	0	1000	3,149,590	2160
Maharashtra	807	71	12	110	0	1000	8,976,198	5014
Manipur	110	531	176	163	20	1000	89,020	707
Meghalaya	504	194	98	204	0	1000	68,708	384
Mizoram	80	498	82	339	2	1000	56,285	910
Nagaland	138	699	96	67	0	1000	44,468	228
Odisha	512	62	157	268	0	1000	1,170,317	802
Pondicherry	564	292	67	77	0	1000	144,890	480
Punjab	464	209	47	280	0	1000	1,673,799	1247
Rajasthan	440	302	39	219	0	1000	2,531,266	1659
Sikkim	954	32	0	14	0	1000	13,046	192
Tamil Nadu	768	114	10	107	0	1000	5,898,627	4245
Tripura	254	51	63	633	0	1000	94,457	480
Uttar Pradesh	544	243	58	151	4	1000	6,559,728	3676
Uttaranchal	693	201	71	36	0	1000	329,812	384
West Bengal	536	102	42	315	0	1000	4,644,618	3376
All India	590	175	36	199	1	1000	584,584,753	41841

Source : NSS Reoprt No. 489: Housing Condition in India : Household Amenities and Other Characteristics
n.r. : not reported



Table 7.4.1 (a) Per 1000 distribution of households by primary source of energy for cooking (Rural)

States/UT	primary source of energy for cooking										estd. No of house holds (00)	no.of sample house holds surveyed
	coke, coal and charcoal	fire wood and chips	L.P.G.	gobar gas	dung-cake	kerosene	electricity	Charcoal & others	With no cooking arrangement	all		
Andhra Pradesh	1	749	194	1	0	7	1	0	47	1000	148374	3924
Arunachal Pradesh	0	758	238	0	0	1	0	3	0	1000	1706	1041
Assam	0	850	142	0	0	5	0	0	0	1000	48810	2616
Bihar	12	743	35	0	148	2	0	61	0	1000	142999	3294
Chhattisgarh	0	941	20	1	9	8	3	17	1	1000	40353	1495
Delhi	0	0	664	0	0	264	0	0	70	1000	2021	57
Goa	0	332	603	0	0	50	0	13	2	1000	2301	160
Gujarat	0	857	106	4	11	24	0	0	2	1004	65945	1720
Haryana	0	580	214	1	180	15	3	2	5	1000	31782	1440
Himachal Pradesh	1	712	263	0	0	17	1	0	5	1000	12960	1660
Jammu & Kashmir	0	643	246	0	92	12	4	2	0	1000	11938	1446
Jharkhand	134	776	25	1	35	2	9	18	0	1000	42264	1758
Karnataka	0	857	107	1	0	15	0	1	20	1000	76532	2038
Kerala	0	700	265	4	0	3	1	0	28	1000	56673	2606
Madhya Pradesh	1	905	55	3	32	1	0	1	2	1000	98447	2734
Maharashtra	0	782	170	7	1	16	0	5	19	1000	124261	4012
Manipur	0	672	325	0	2	0	0	0	0	1000	3069	1376
Meghalaya	0	909	41	0	1	26	13	2	8	1000	4114	864
Mizoram	0	721	275	0	1	3	0	0	0	1000	937	632
Nagaland	0	516	466	0	0	0	0	0	12	1000	1509	704
Odisha	5	843	37	2	39	2	1	28	43	1000	73798	2974
Punjab	0	326	337	11	289	11	1	21	5	1000	31740	1558
Rajasthan	0	925	56	0	14	4	0	0	2	1000	87698	2575
Sikkim	0	475	454	0	0	23	2	0	34	1000	1195	608
Tamil Nadu	0	701	254	0	0	26	0	0	19	1000	98327	3319
Tripura	4	927	61	0	0	7	0	0	1	1000	6818	1311
Uttar Pradesh	1	700	58	0	196	1	1	39	4	1000	252276	5908
Uttarakhand	0	595	178	0	10	0	0	0	216	1000	17813	1045
West Bengal	39	734	48	0	44	6	0	123	6	1000	137303	3575
A&N Islands	0	493	305	0	0	131	0	0	71	1000	538	272
Chandigarh	0	153	620	0	7	220	0	0	0	1000	423	32
Dadara & N. Haveli	0	461	169	0	0	370	0	0	0	1000	344	96
Daman & Diu	0	102	893	0	0	2	0	3	0	1000	233	64
Lakshadweep	0	713	25	0	0	135	64	0	62	1000	59	55
Puducherry	0	487	467	0	0	18	0	0	28	1000	901	128
All India	8	763	115	2	63	8	1	24	16	1000	1626461	59097

Source : NSS Reoprt No. 542: Energy Sources of Indian Households for Cooking and Lighting in India,2009-10 (NSS66th Round)

Table 7.4.1 (b) Per 1000 distribution of households by primary source of energy for cooking (Urban)

States/UT	Primary source of energy for cooking										Estd. No of house holds (00)	No. of sample house hold surveyed
	Coke, coal and charcoal	Fire wood and chips	L.P.G.	Gobar gas	Dung-cake	Kerosene	Electricity	Charcoal & others	With no cooking arrangement	All		
Andhra Pradesh	1	157	686	0	1	50	0	3	101	1000	60162	2951
Arunachal Pradesh	2	170	769	0	14	28	2	7	0	1000	515	600
Assam	0	178	746	0	1	70	0	0	6	1000	6854	832
Bihar	65	295	502	0	68	6	4	18	41	1000	18097	1270
Chhattisgarh	29	251	623	0	13	20	7	19	37	1000	8564	736
Delhi	0	10	809	0	0	12	9	0	159	1000	29020	808
Goa	0	43	893	0	0	64	0	0	0	1000	1015	287
Gujarat	23	151	608	0	9	140	0	58	11	1000	47241	1698
Haryana	1	130	791	0	41	17	1	2	17	1000	15324	1180
Himachal Pradesh	18	68	738	0	0	69	8	0	98	1000	1537	382
Jammu & Kashmir	6	96	775	0	3	94	22	1	1	1000	4040	1269
Jharkhand	422	73	412	0	5	0	9	1	77	1000	11002	990
Karnataka	0	190	589	0	0	110	0	2	108	1000	48084	2037
Kerala	2	368	555	0	0	6	8	2	60	1000	20532	1845
Madhya Pradesh	8	293	602	0	16	23	1	0	58	1000	32234	1973
Maharashtra	2	86	733	0	0	102	3	9	66	1000	97279	3984
Manipur	0	260	705	0	0	5	1	24	4	1000	1161	1182
Meghalaya	4	236	444	0	0	124	46	121	26	1000	896	408
Mizoram	0	88	906	0	0	5	0	0	1	1000	752	896
Nagaland	0	227	732	0	0	27	1	3	10	1000	599	320
Odisha	47	378	414	1	6	32	13	9	100	1000	12759	1055
Punjab	0	108	714	0	34	127	5	1	11	1000	18934	1557
Rajasthan	0	290	631	0	6	17	0	4	53	1000	30579	1551
Sikkim	0	0	732	0	0	30	0	0	238	1000	216	160
Tamil Nadu	0	178	647	1	0	101	0	0	73	1000	82035	3320
Tripura	3	350	608	0	0	29	0	0	2	1000	1587	544
Uttar Pradesh	6	242	619	0	63	12	4	3	52	1000	71435	3086
Uttarakhand	1	141	769	0	2	59	0	0	28	1000	5012	730
West Bengal	145	124	564	0	5	63	0	44	55	1000	49559	2749
A&N Island	0	15	674	0	2	270	0	0	39	1000	344	288
Chandigarh	2	47	725	0	1	67	0	0	157	1000	2123	273
Dadara & N. Haveli	0	0	727	0	0	273	0	0	0	1000	152	96
Daaman & Diu	0	79	882	0	0	40	0	0	0	1000	173	64
Lakshadweep	0	267	422	0	0	70	26	0	216	1000	52	128
Puducherry	0	93	734	0	2	86	2	0	82	1000	1905	448
All India	23	175	645	0	13	65	3	11	65	1000	681770	41697

Source : NSS Reoprt No. 542: Energy Sources of Indian Households for Cooking and Lighting in India,2009-10 (NSS 66th Round p-A-55 to 72)

7.4 Sources of Fuel and Lighting –Household purposes.

The primary source of energy for cooking and lighting is an indicator of conditions of living as well as within household air pollution. The Tables 7.4.1 (a) & (b) and 7.4.2(a),(b) & (c) present the sources of energy for cooking and lighting in India.

Table :7.4.2(a) Distribution of households by source of lighting , India

Sl. No.	India/ State/ Union Territory #	Distribution of households by source of lighting									
		Total No. of Households (Excluding institutional households)		Electricity		Kerosene		Any other		No lighting	
		2011	2001	2011	2001	2011	2001	2011	2001	2011	2001
1	2	3	4	5	6	7	8	9	10	11	12
1	A & N Islands #	93376	73062	86.1	87.8	12.9	21.7	0.6	0.9	0.5	0.6
2	Andhra Pradesh	21024534	16849857	92.2	67.2	6.9	32.1	0.6	0.4	0.4	0.3
3	Arunachal Pradesh	261614	212615	65.7	54.7	18.5	31.4	5.3	5.6	10.5	8.3
4	Assam	6367295	4935358	37.1	24.9	61.8	74.7	1.0	0.3	0.2	0.1
5	Bihar	18940629	13982590	16.4	10.3	82.4	89.3	1.2	0.4	0.1	0.0
6	Chandigarh #	235061	201878	98.4	96.8	1.2	2.8	0.3	0.2	0.2	0.2
7	Chhattisgarh	5622850	4148518	75.3	53.1	23.2	46.0	1.2	0.5	0.3	0.4
8	Dadra & Nagar Haveli #	73063	43973	95.2	86.0	4.4	12.9	0.0	0.3	0.3	0.8
9	Daman & Diu #	60381	34342	99.1	97.8	0.8	1.8	0.1	0.1	0.1	0.3
10	Goa	322813	279216	96.9	93.6	2.4	5.7	0.4	0.3	0.4	0.4
11	Gujarat	12181718	9643989	90.4	80.4	8.1	18.1	0.5	0.6	1.0	0.9
12	Haryana	4717954	3529642	90.5	82.9	8.1	16.2	1.0	0.5	0.5	0.4
13	Himachal Pradesh	1476581	1240633	96.8	94.8	2.8	4.6	0.3	0.4	0.1	0.2
14	Jammu & Kashmir	2015088	1551768	85.1	80.6	9.7	14.8	3.2	4.2	2.0	0.5
15	Jharkhand	6181607	4862590	45.8	24.3	53.1	75.3	1.0	0.4	0.1	0.1
16	Karnataka	13179911	10232133	90.6	78.5	8.6	20.8	0.4	0.3	0.4	0.3
17	Kerala	7716370	6595206	94.4	70.2	5.2	29.1	0.4	0.6	0.0	0.0
18	Lakshadweep #	10703	9240	99.7	99.7	0.2	0.2	0.1	0.1	0.0	0.0
19	Madhya Pradesh	14967597	10919653	67.1	70.0	32.1	29.5	0.6	0.3	0.2	0.2
20	Maharashtra	23830580	19063149	83.9	77.5	14.5	21.5	0.7	0.5	0.9	0.5
21	Manipur	507152	397656	68.4	60.0	25.1	38.0	5.9	1.0	0.6	0.9
22	Meghalaya	538299	420246	60.9	42.7	37.0	55.9	1.3	0.7	0.8	0.7
23	Mizoram	221077	160966	84.2	69.6	13.5	27.8	1.9	1.3	0.3	0.4
24	Nagaland	399965	332050	81.6	63.6	15.6	31.6	1.6	2.0	1.1	2.8
25	NCT of Delhi #	3340538	2554149	99.1	92.9	0.7	6.2	0.2	0.7	0.1	0.2
26	Odisha	9661085	7870127	43.0	26.9	55.3	72.1	0.6	0.5	1.1	0.5
27	Puducherry #	301276	208655	97.7	87.8	2.1	11.8	0.1	0.2	0.2	0.1
28	Punjab	5409699	4265156	96.6	91.9	2.2	6.7	0.6	0.5	0.7	0.9
29	Rajasthan	12581303	9342294	67.0	54.7	30.9	44.1	1.2	0.7	0.8	0.5
30	Sikkim	128131	104738	92.5	77.8	6.6	21.6	0.4	0.3	0.5	0.4
31	Tamil Nadu	18493003	14173626	93.4	78.2	5.9	21.1	0.4	0.4	0.4	0.4
32	Tripura	842781	662023	68.4	41.8	29.1	57.5	2.1	0.4	0.3	0.2
33	Uttar Pradesh	32924266	25760601	36.8	31.9	61.9	67.4	1.1	0.5	0.2	0.1
34	Uttarakhand	1997068	1586321	87.0	60.3	11.1	37.3	1.6	2.1	0.3	0.3
35	West Bengal	20067299	15715915	54.5	34.5	43.5	61.9	1.5	0.5	0.5	0.2
	INDIA	246692667	191963935	67.3	86.8	31.4	43.3	0.8	0.5	0.5	0.3

Source : Office of the Registrar General

Table :7.4.2(b) Distribution of households by source of lighting (Rural)

Sl. No.	India/ State/ Union Territory #	Distribution of households by source of lighting									
		Total No. of Households (Excluding institutional households)		Electricity		Kerosene		Other	No		
		2011	2001	2011	2001	2011	2001	2011	2001	2011	2001
1	2	3	4	5	6	7	8	9	10	11	12
1	A & N Islands #	59030	49653	79.4	68.1	19.3	29.9	0.8	1.2	0.6	0.8
2	Andhra Pradesh	14246309	12676218	89.7	59.7	9.2	39.7	0.6	0.4	0.5	0.3
3	Arunachal Pradesh	195723	164501	55.5	44.5	23.6	37.9	7.0	7.1	14.0	10.5
4	Assam	5374553	4220173	28.4	16.5	70.4	83.1	1.1	0.3	0.2	0.1
5	Bihar	16926958	12660007	10.4	5.1	88.4	94.5	1.2	0.4	0.1	0.0
6	Chandigarh #	6785	21302	97.3	97.4	2.4	2.1	0.2	0.3	0.1	0.2
7	Chhattisgarh	4384112	3359078	70.0	46.1	28.2	52.9	1.5	0.6	0.3	0.4
8	Dadra & Nagar Haveli #	35408	32783	91.7	82.6	7.9	16.0	0.1	0.3	0.6	1.0
9	Daman & Diu #	12750	22091	98.3	97.5	1.5	2.0	0.1	0.2	0.2	0.4
10	Goa	124674	140755	95.6	92.4	3.4	6.9	0.3	0.3	0.6	0.4
11	Gujarat	6765403	5885961	85.0	72.1	12.8	26.2	0.8	0.7	1.4	0.1
12	Haryana	2966053	2454463	87.2	78.5	11.3	20.6	1.0	0.5	0.5	0.4
13	Himachal Pradesh	1310538	1097520	96.6	94.5	3.0	4.9	0.3	0.4	0.1	0.2
14	Jammu & Kashmir	1497920	1161357	80.7	74.8	12.6	19.2	4.1	5.4	2.6	0.6
15	Jharkhand	4685965	3802412	32.3	10.0	66.4	89.6	1.2	0.3	0.0	0.0
16	Karnataka	7864196	6675173	86.7	72.2	12.3	27.2	0.5	0.3	0.5	0.3
17	Kerala	4095674	4942550	92.1	65.5	7.4	33.8	0.4	0.7	0.0	0.0
18	Lakshadweep #	2523	5351	99.8	99.7	0.2	0.1	0.0	0.1	0.0	0.0
19	Madhya Pradesh	11122365	8124795	58.3	62.3	40.9	37.2	0.6	0.3	0.2	0.2
20	Maharashtra	13016652	10993623	73.8	65.2	23.9	33.6	1.0	0.7	1.3	0.6
21	Manipur	335752	296354	61.2	52.5	32.2	45.1	5.9	1.2	0.7	1.1
22	Meghalaya	422197	329678	51.6	30.3	45.9	68.2	1.6	0.8	0.9	0.8
23	Mizoram	104874	79362	68.8	44.1	26.9	52.8	3.9	2.3	0.5	0.7
24	Nagaland	284911	265334	75.2	56.9	21.1	37.5	2.2	2.4	1.5	3.2
25	NCT of Delhi #	79115	169528	97.8	85.5	1.4	13.0	0.6	0.9	0.2	0.6
26	Odisha	8144012	6782879	35.6	19.4	62.8	79.8	0.6	0.5	1.1	0.4
27	Puducherry #	95133	72199	95.8	81.0	3.6	18.6	0.2	0.2	0.5	0.1
28	Punjab	3315632	2775462	95.5	89.5	2.9	8.9	0.7	0.5	0.9	1.1
29	Rajasthan	9490363	7156703	58.3	44.0	39.3	54.7	1.5	0.8	1.0	0.5
30	Sikkim	92370	91723	90.2	75.0	8.7	24.3	0.5	0.3	0.6	0.4
31	Tamil Nadu	9563899	8274790	90.8	71.2	8.3	28.2	0.3	0.3	0.6	0.4
32	Tripura	607779	539680	59.8	31.8	37.7	67.6	2.5	0.4	0.4	0.2
33	Uttar Pradesh	25475071	20590074	23.8	19.8	75.0	79.5	1.1	0.6	0.1	0.1
34	Uttarakhand	1404845	1196157	83.1	50.3	14.5	46.7	2.1	2.7	0.3	0.3
35	West Bengal	13717186	11161870	40.3	20.3	57.8	79.2	1.5	0.5	0.4	0.1
	INDIA	167828744	138271559	55.3	43.5	43.2	55.6	1.0	0.6	0.5	0.3

Source : Office of the Registrar General

Table :7.4.2(c) Distribution of households by source of lighting (Urban)

Sl. No.	India/ State/ Union Territory #	Distribution of households by source of lighting									
		Total No. of Households (Excluding institutional households)		Electricity		Kerosene		Other sources		No lighting	
		2011	2001	2011	2001	2011	2001	2011	2001	2011	2001
1	2	3	4	5	6	7	8	9	10	11	12
1	A & N Islands #	34346	23409	97.7	95.2	1.9	4.3	0.1	0.2	0.2	0.2
2	Andhra Pradesh	6778225	4173639	97.3	90.0	2.0	9.2	0.5	0.5	0.2	0.3
3	Arunachal Pradesh	65891	48114	96.0	89.4	3.2	9.4	0.4	0.5	0.4	0.7
4	Assam	992742	715185	84.1	74.3	15.2	25.0	0.5	0.6	0.3	0.2
5	Bihar	2013671	1322583	66.7	59.3	32.2	39.9	0.8	0.7	0.2	0.2
6	Chandigarh #	228276	180576	98.4	96.7	1.1	2.9	0.2	0.2	0.2	0.2
7	Chhattisgarh	1238738	789440	93.7	82.9	5.7	16.5	0.3	0.3	0.2	0.3
8	Dadra & Nagar Haveli #	37655	11190	98.5	95.8	1.4	3.8	0.0	0.3	0.1	0.0
9	Daman & Diu #	47631	12251	99.3	98.3	0.6	1.3	0.1	0.1	0.1	0.3
10	Goa	198139	138461	97.7	94.7	1.8	4.6	0.3	0.3	0.3	0.4
11	Gujarat	5416315	3758028	97.2	93.4	2.1	5.5	0.2	0.5	0.5	0.7
12	Haryana	1751901	1075179	96.2	92.9	2.7	6.1	0.7	0.5	0.4	0.4
13	Himachal Pradesh	166043	143113	98.1	97.4	1.6	2.2	0.2	0.3	0.1	0.1
14	Jammu & Kashmir	517168	390411	98.0	97.9	1.2	1.6	0.6	0.4	0.2	0.1
15	Jharkhand	1495642	1060178	88.0	75.6	11.4	23.8	0.5	0.5	0.1	0.1
16	Karnataka	5315715	3556960	96.4	90.5	3.1	8.8	0.3	0.4	0.2	0.3
17	Kerala	3620696	1652656	97.0	84.3	2.8	15.1	0.2	0.5	0.0	0.0
18	Lakshadweep #	8180	3889	99.7	99.7	0.2	0.3	0.1	0.0	0.0	0.0
19	Madhya Pradesh	3845232	2794858	92.7	92.3	6.6	7.1	0.4	0.3	0.2	0.2
20	Maharashtra	10813928	8069526	96.2	94.3	3.1	5.1	0.3	0.3	0.4	0.3
21	Manipur	171400	101302	82.4	82.0	11.2	17.3	5.9	0.5	0.5	0.3
22	Meghalaya	116102	90568	94.9	88.1	4.4	10.9	0.3	0.5	0.3	0.5
23	Mizoram	116203	81604	98.1	94.4	1.5	5.2	0.3	0.2	0.1	0.2
24	Nagaland	115054	66716	97.4	90.3	2.1	8.3	0.3	0.5	0.2	0.9
25	NCT of Delhi #	3261423	2384621	99.1	93.4	0.6	5.7	0.2	0.7	0.1	0.2
26	Odisha	1517073	1087248	83.1	74.1	15.3	24.3	0.4	0.7	1.2	1.0
27	Puducherry #	206143	136456	98.5	91.4	1.3	8.2	0.1	0.2	0.1	0.1
28	Punjab	2094067	1489694	98.3	96.5	1.0	2.6	0.3	0.4	0.3	0.5
29	Rajasthan	3090940	2185591	93.9	89.6	5.2	9.6	0.5	0.4	0.5	0.4
30	Sikkim	35761	13015	98.7	97.1	0.9	2.8	0.1	0.1	0.3	0.0
31	Tamil Nadu	8929104	5898836	96.1	88.0	3.4	11.1	0.2	0.4	0.3	0.4
32	Tripura	235002	122343	91.6	86.4	7.0	13.0	1.2	0.4	0.2	0.2
33	Uttar Pradesh	7449195	5170527	81.4	79.9	17.2	19.3	0.9	0.5	0.4	0.3
34	Uttarakhand	592223	390164	96.5	90.9	2.9	8.4	0.4	0.4	0.3	0.3
35	West Bengal	6350113	4554045	85.1	79.6	12.7	19.5	1.6	0.6	6.0	0.3
	INDIA	78867951	53692376	92.7	87.6	6.5	11.6	0.5	0.5	0.3	0.4

Source : Office of the Registrar General

7.5 SLUM POPULATION

7.5.1 In India, as per 2001 Census, 640 cities/ towns are reporting slums accounting for 42.6 million people living in the slums. The total slum population is 23.1% to the total urban population in these cities.

7.5.2 The large urban cities are the centres of economic growth and contributes significantly to the GDP of the country. Cities with population above 100,000 accounts for 60 % of country's population in 2001. About 17.7 million population lives in the cities with population above one million, which is 41.6 % of the total slum population in the country. In absolute numbers, Greater Mumbai has the highest slum population of around 6.5 million followed by Delhi 1.9 million and Kolkata 1.5 million. The slum areas of Surat, Hyderabad, Chennai and Nagpur have more than half a million population each. **The data on Slum Population in India is available in Tables 7.5.1a -7.5.1 d and 7.5.2.**

Table 7.5.1 (a) : Total urban population, population of cities/town reporting slums and slum population in slum area-India, States, Union Territories- 2001

Sl. No.	State/Uts	Number of cities towns reporting slums	Total urban populaiton of State/Ut	Population of cities/towns reporting slums	Total slum populaiton	percentagte of slum populaiton to total	
						Urban populaito n of States/Ut	Population of cities/towns reporting slums
1	2	3	4	5	6	7	8
1	A & N Islands *	1	116198	99984	16244	14.0	16.2
2	Andhra Pradesh	77	20808940	16090585	5187493	24.9	32.2
3	Assam	7	3439240	1371881	82289	2.4	6.0
4	Bihar	23	8681800	4814512	531481	6.1	11.0
5	Chandigarh*	1	808515	808515	107125	13.2	13.2
6	Chhattisgarh	12	4185747	2604933	817908	19.5	31.4
7	Delhi*	16	12905780	11277586	2029755	15.7	18.0
8	Goa	2	670577	175536	14482	2.2	8.3
9	Gujarat	41	18930250	12697360	1866797	9.9	14.7
10	Haryana	22	6115304	4296670	1420407	23.2	33.1
11	Jammu & Kashmir	5	2516638	1446148	268513	10.7	18.6
12	Jharkhand	11	5993741	2422943	301569	5.0	12.4
13	Karnataka	35	17961529	11023376	1402971	7.8	12.7
14	Kerala	13	8266925	3196622	64556	0.8	2.0
15	Madhya Pradesh	43	15967145	9599007	2417091	15.1	25.2
16	Maharashtra	61	41100980	33635219	11202762	27.3	33.3
17	Meghalaya	1	454111	132867	86304	19.0	65.0
18	Odisha	15	5517238	2838014	629999	11.4	22.2
19	Pudicherry*	3	648619	513010	73169	11.3	14.3
20	Punjab	27	8262511	5660268	1159561	14.0	20.5
21	Rajasthan	26	13214375	7668508	1294106	9.8	16.9
22	Tamil Nadu	63	27483998	14337225	2866893	10.4	20.0
23	Tripura	1	545750	189998	29949	5.5	15.8
24	Uttar Pradesh	69	34539582	21256870	4395276	12.7	20.7
25	Uttarakahand	6	2179074	1010188	195470	9.0	19.3
26	West Bengal	59	22427251	15184596	4115980	18.4	27.1
INDIA		640	283741818	184352421	42578150	15.0	23.1

Source :Slum Population -Census of India, 2001

Note : Himachal Pradesh, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Daman & Diu, Dadra & Nagar Haveli and Lakshadweep have not reported any slums in 2001

* Union Territory

Table 7.5.1 (b) : Total population, slum population in municipal corporations with population above one million- 2001

Sl. No.	Name of Million Plus Municipal Corporations	State/Union territory*	Total populaiton	Total slum populaiton	Percentage of slum population to total population
1	2	3	4	5	6
1	Agra	Uttar Pradesh	1275134	121761	9.5
2	Ahmadabad	Gujarat	3520085	473662	13.5
3	Bangalore	Karnataka	4301326	430501	10.0
4	Bhopal	Madhya Pradesh	1437354	125720	8.7
5	Chennai	Tamil Nadu	4343645	819873	18.9
6	Delhi*	Delhi*	9879172	1851231	18.7
7	Faridabad	Haryana	1055938	490981	46.5
8	Greater Mumbai	Maharashtra	11978450	6475440	54.1
9	Haora (Howrah)	West Bengal	1007532	118286	11.7
10	Hyderabad	Andhra Pradesh	3637483	626849	17.2
11	Indore	Madhya Pradesh	1474968	260975	17.7
12	Jaipur	Rajasthan	2322575	368570	15.9
13	Kalyan-Dombivli	Maharashtra	1193512	34860	2.9
14	Kanpur	Uttar Pradesh	2551337	367980	14.4
15	Kolkatta	West Bengal	4572876	1485309	32.5
16	Lucknow	Uttar Pradesh	2185927	179176	8.2
17	Ludhiana	Punjab	1398467	314904	22.5
18	Meerut	Uttar Pradesh	1068772	471581	44.1
19	Nagpur	Maharashtra	2052066	737219	35.9
20	Nashik	Maharashtra	1077236	138797	12.9
21	Patna	Bihar	1366444	3592	0.3
22	Pimpri Chinchwad	Maharashtra	1012472	123957	12.2
23	Pune	Maharashtra	2538473	492179	19.4
24	Surat	Gujarat	2433835	508485	20.9
25	Thane	Maharashtra	1262551	351065	27.8
26	Vadodara	Gujarat	1306227	186020	14.2
27	Varanasi	Uttar Pradesh	1091918	137977	12.6
Total			73345775	17696950	24.1

Source : Slum Population -Census of India, 2001

Table 7.5.1 (c) : Population of scheduled castes and scheduled tribes living in slum areas and their proportion to the total slum population-State/Union territory reporting slum population-2001

Sl. No	State/Uts	Population in slum areas		Percentage of populaiton in slum areas		Percentage of populaiton in urban areas	
		Scheduled Castes population	Scheduled Tribes populaiton	Scheduled Caste	Scheduled Tribes	Scheduled Castes	Scheduled Tribes
1	2	3	4	5	6	7	8
1	A & N Island *	NSC	24	0.0	0.1	0.0	0.9
2	Andhra Pradesh	767272	130997	14.8	2.5	10.2	1.8
3	Assam	12355	211	15.0	0.3	7.9	4.5
4	Bihar	94523	7724	17.8	1.5	10.0	0.5
5	Chandigarh*	41869	NST	39.1	0.0	17.7	0.0
6	Chhattisgarh	143533	64945	17.5	7.9	12.4	8.4
7	Delhi*	552784	NST	27.2	0.0	16.7	0.0
8	Goa	294	7	2.0	0.0	1.9	0.1
9	Gujarat	259986	83741	13.9	4.5	7.5	3.2
10	Haryana	267975	NST	18.9	0.0	14.4	0.0
11	Jammu & Kashmir	17147	1091	6.4	0.4	5.3	2.0
12	Jharkhand	26105	50425	8.7	16.7	10.0	9.8
13	Karnataka	339218	64863	24.2	4.6	12.0	2.9
14	Kerala	4870	120	7.5	0.2	6.9	0.2
15	Madhya Pradesh	510034	91399	21.1	3.8	14.0	4.9
16	Maharashtra	1292808	284010	11.5	2.5	9.2	2.7
17	Meghalaya	720	43843	0.8	50.8	0.9	68.3
18	Odisha	108961	72763	17.3	11.5	12.7	8.1
19	Pudicherry*	18255	NST	24.9	0.0	10.7	0.0
20	Punjab	331320	NST	28.6	0.0	20.7	0.0
21	Rajasthan	349473	52763	27.0	4.1	14.8	2.9
22	Tamil Nadu	744558	14196	26.0	0.5	12.9	0.4
23	Tripura	7136	619	23.8	2.1	18.3	4.7
24	Uttar Pradesh	898790	2495	20.4	0.1	12.5	0.0
25	Uttarakhand	44865	362	23.0	0.2	12.0	0.7
26	West Bengal	567522	50810	13.8	1.2	13.1	1.2
INDIA		7402373	#VALUE!	17.4	2.4	11.8	2.2

Source : Slum Population - Census of India, 2001

Note : In case of Himachal Pradesh, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Daman & Diu, Dadra & Nagar Haveli and Lakshadweep no slum population has been reported at the Census of India - 2001

NSC : No notified Scheduled Castes, NST : No notified Scheduled Tribes.

* Union Territory

Table 7.5.1 (d) : Population and percentage of scheduled castes and scheduled tribes population living in slums in million plus cities -2001

Sl. No.	Name of Million Plus Municipal Corporations	State/Union territory*	Slum Population		Percentage of populaton in slum		Percentage of populaiton in urban areas	
			Scheduled Castes	Scheduled Tribes	Scheduled Caste	Scheduled Tribes	Scheduled Castes	Scheduled Tribes
1	2	3	3	4	5	6	7	8
1	Agra	Uttar Pradesh	39054	22	32.1	Neg	21.5	Neg
2	Ahmadabad	Gujarat	95633	6692	20.2	1.4	12.1	1.0
3	Bangalore	Karnataka	139920	6957	32.5	1.6	11.1	1.1
4	Bhopal	Madhya Pradesh	36073	5794	28.7	4.6	12.4	3.0
5	Chennai	Tamil Nadu	269301	1830	32.8	0.2	13.8	0.2
6	Delhi*	Delhi*	483640	NST	26.1	0.0	15.8	0.0
7	Faridabad	Haryana	57763	NST	11.8	0.0	9.1	0.0
8	Greater Mumbai	Maharashtra	385626	56567	6.0	0.9	4.9	0.8
9	Haora(Howrah)	West Bengal	9430	368	8.0	0.3	4.8	0.4
10	Hyderabad	Andhra Pradesh	89860	8875	14.3	1.4	7.4	0.9
11	Indore	Madhya Pradesh	61244	4429	23.5	1.7	13.7	2.5
12	Jaipur	Rajasthan	90607	19957	24.6	5.4	12.6	3.7
13	Kalyan-Dombivli	Maharashtra	7111	323	20.4	0.9	5.8	2.1
14	Kanpur	Uttar Pradesh	84255	786	22.9	0.2	11.1	0.1
15	Kolkatta	West Bengal	92812	2507	6.2	0.2	6.0	0.2
16	Lucknow	Uttar Pradesh	24943	107	13.9	0.1	10.1	0.1
17	Ludhiana	Punjab	47917	NST	15.2	0.0	13.1	0.0
18	Meerut	Uttar Pradesh	111345	25	23.6	Neg	16.3	Neg
19	Nagpur	Maharashtra	151111	107936	20.5	14.6	16.7	8.9
20	Nashik	Maharashtra	44198	16749	31.8	12.1	12.5	6.8
21	Patna	Bihar	944	0	26.3	0.0	8.5	0.3
22	Pimpri Chinchwad	Maharashtra	50607	2355	40.8	1.9	13.9	1.9
23	Pune	Maharashtra	125127	5264	25.4	1.1	11.8	1.0
24	Surat	Gujarat	30112	36236	5.9	7.1	3.6	3.5
25	Thane	Maharashtra	23722	10955	6.8	3.1	4.6	2.5
26	Vadodara	Gujarat	20765	12823	11.2	6.9	6.6	3.6
27	Varanasi	Uttar Pradesh	16622	0	12.0	0.0	7.2	0.0
Total			2589742	307557	14.6	1.7	10.3	1.2

Source : Slum Population -Census of India, 2001

NST : No notified Scheduled Tribes

Neg : Negligible population

Table 7.5.2 : Estimated slum population in metropolitan cities

(Population in lakh)

Sl. No.	Name of City	1981			1991			2001*		
		Total Population	Slum Population	%age	Total Population	Slum Population	%age	Total Population	Slum Population	%age
1	2	3	4	5	6	7	8	9	10	11
	Ahmedabad	25.480	5.172	20.3	33.122	6.724 @	20.3	43.629	8.859	20.3
1	Bangalore	29.218	3.650	12.5	41.303	5.162	12.5	63.597	7.949	12.5
2	Bhopal	6.710	0.568	8.5	10.628	1.487 **	14.0	15.327	2.145	14.0
3	Chennai	42.893	13.769	32.1	54.220	15.251	28.1	69.823	19.620	28.1
4	Cochin	8.249	2.046	24.8	11.406	2.829 @	24.8	15.364	3.810	24.8
5	Coimbatore	9.204	0.801 +	8.7	11.007	0.958	8.7	13.283	1.156	8.7
6	Delhi	57.228	18.000	31.5	84.191	22.480	26.7	122.204	32.628	26.7
7	Greater Mumbai	89.887	30.831	34.3	125.962	43.205 @	34.3	170.701	58.550	34.3
8	Hyderabad	25.500	5.000	19.6	43.444	8.593	19.8	62.964	12.466	19.8
9	Indore	8.293	1.263	15.2	11.091	1.686 @	15.2	15.430	2.345	15.2
10	Jaipur	10.152	2.958	29.1	15.182	4.418 @	29.1	22.108	6.433	29.1
11	Kanpur	16.391	6.140	37.5	20.299	4.172	20.6	24.875	5.124	20.6
12	Kolkata	91.940	30.280	32.9	110.219	36.262 @	32.9	131.147	43.147	32.9
13	Lucknow	10.076	2.850	28.3	16.692	2.778	16.6	22.581	3.748	16.6
14	Ludhiana	6.071	3.104	51.1	10.427	3.687	35.4	16.342	5.785	35.4
15	Madurai	9.077	1.634 +	18.0	10.859	1.953	18.0	13.134	2.364	18.0
16	Nagpur	12.195	3.890	31.9	16.640	5.308 @	31.9	23.212	7.405	31.9
17	Patna	9.189	5.837	63.5	10.996	6.982 @	63.5	15.273	9.698	63.5
18	Pune	17.222	2.807	16.3	24.940	4.065 @	16.3	35.299	5.753	16.3
19	Surat	9.239	2.347	25.4	15.190	3.858 @	25.4	22.916	5.821	25.4
20	Vadodara	7.449	1.182	15.9	11.268	2.063	18.3	17.074	3.125	18.3
21	Varanasi	7.972	2.600	32.6	10.309	2.074	20.1	13.314	2.676	20.1
22	Vishakhapatnam	6.036	1.520	25.2	10.571	2.664	25.2	16.683	4.204	25.2
	Total	490.191	143.077	29.2	676.844	181.935	26.9	922.651	245.952	26.7

Source : T.C.P.O., Ministry of Urban Affairs & Employment

@ : Based on the percentage identified slum population of 1981.

+ : Based on the percentage identified slum population of 1991.

* : Estimated

** : Based on the no. of identified Jhuggi collected by the State Govt. in 1991-92

Note : Classification of the size of cities is based on 1991 census.

7.6 SOLID WASTE AND HAZARDOUS MATERIAL MANANGEMENT

7.6.1 The categorisation of hazardous waste viz-a-viz respective regulatory is detaild in table 7.6.1

Table 7.6.1 : Hazardous waste regulatory quantities

Waste Category (Numbers)	Types of Wastes	Regulatory Quantities
1	2	3
1	Cyanide wastes	1 kilogram per year calculated as cyanide
2	Metal finishing wastes	10 kilograms per year the sum of the specified substance 'calculated as pure metal
3	Waste containing water soluble chemical compounds of lead, copper, zinc, chromium, nickle, selenium, bariumand antimony	10 kilograms per year the sum of the specified substance 'calculated as pure metal
4	Mercury, arsenic, thallium, and cadmium bearing wastes	5 kilograms per year the sum of the specified substance 'calculated as pure metal
5	Non-halogenated hydrocarbons including solvents	200 kilograms per year calculated as non-halogenated 'hydrocarbons
6	Halogenated hydrocarbons including solvents	50 kilograms per year calculated as halogenated 'hydrocarbons
7	Wastes from paints, pigments, glue, varnish and printing ink	250 kilograms per year calculated as oil or oil emulsions
8	Wastes from dyes and dye intermediates containing inorganic chemical compounds	200 kilograms per year calculated as inorganic chemicals
9	Wastes from dyes and dye intermediates containing organic chemical compounds	50 kilograms per year calculated as organic chemicals
10	Waste oils and oil-emulsions	1000 kilograms per year calculated as oil and oil emulsions
11	Tarry wastes from refining and tar residues from distillation or pyrolytic treatment	200 kilograms per year calculated as tar
12	Sludge arising from treatment of waste water containing heavy metals, toxic organics, oils, emulsions, and spend chemicals and incineration ash	Irrespective of any quantity
13	Phenols	5 kilograms per year calculated as phenols
14	Asbestos	200 kilograms per year calculated as asbestos
15	Wastes from manufacture of pesticides, herbicides, and residues from pesticides and herbicide formulation units.	5 kilograms per year calculated as pesticides and their intermediate products
16	Acidic/alkaline/slurry wastes	200 kilograms per year calculated as acids/alkalies
17	Off-specification and discarded products	Irrespective of any quantity
18	Discarded containers and container liners of hazardousand toxic wastes	Irrespective of any quantity

Source : Central Pollution Control Board

7.6.2 When solid waste is not collected and disposed of efficiently and effectively, it attracts rodents and flies which spread diseases. It also pollutes and degrades land and water resources. If these wastes are left untreated, they would ferment slowly and produce bio-gas which would be distributed in the atmosphere. The bio-gas contains 65-70% methane gas which is a green house gas, have a global warming potential 34 times more than that of Carbon Dioxide. Therefore, development of suitable technologies for utilization of wastes is essential to minimize adverse health and environment consequences. Comprehensive guidelines are available with Central Pollution Control Board for Toxic Waste Management including hospital wastes.

7.6.3 The State wise Status of hazardous waste generation in India can be assessed from the table 7.6.2

7.6.4 The details of quantities and waste generation rates (table 7.6.3), waste characterization (table 7.6.4) and status of landfill sites (table 7.6.5) in 59 cities as per a survey conducted by CPCB in the year 2004-05.

Table 7.6.2 : State-wise status of hazardous waste generation

SI. NO.	STATE/UT	Quantity of Hazardous Waste Generation			
		Landfill able	Incinerable	Recyclable	Total
1	2	3	4	5	6
1	Andhra Pradesh	211442	31660	313217	556319
2	Assam	3252		7480	10732
3	Bihar	3357	9	73	3439
4	Chattisgarh	5277	6897	283213	295387
5	Delhi (unverified)	3338	1740	203	5281
6	Gujarat	1107128	108622	577037	1792787
7	Goa	10763	8271	7614	26648
8	Haryana	30452	1429	4919	36800
9	Himachal Pradesh	35519	2248	4380	42147
10	Jammu & Kashmir	9946	141	6867	16954
11	Jharkhand	23135	9813	204236	237184
12	Karnataka	18366	3713	54490	76569
13	Kerala	59591*	223	23085	82899*
14	Madhya Pradesh	34945	5036	127909	167890
15	Maharashtra	568135	152791	847442	1568368
16	Manipur	-	115	137	252
17	Meghalaya	19	697	6443	7159
18	Mizoram	90	Nil	12	102
19	Nagaland	61	Nil	11	72
20	Odisha	74351	4052	18427	96830
21	Punjab	13601	14831	89481	117913
22	Rajasthan	165107	23025	84739	272871
23	Tripura	0	30	237	267
24	Tamil Nadu	157909	11145	89593	258647
25	Uttar Pradesh	36370	15697	117227	169294
26	Uttarakhand	17991	580	11	18582
27	West Bangal	120598	12583	126597	259777
	Union Territory				
28	Daman, Diu, Dadra & NH	17219	421	56350	73990
29	Puducherry	132	25	36235	36392
30	Chandigarh	232	-	723	955
	Total	2728326	415794	3088387	6232507

Source: Central Pollution Control Board, Hazardous Waste Management Division Delhi, Feb., 2009

Table 7.6.3 : Quantities and waste generation rates in 59 cities

Sl. No.	Name of city	Population (as per 2001 census)	Area (Sq. Km)	Waste Quantity (Tonnes Per Day)	Waste generation rate (Kcal/day)
1	Agartala	189998	63	77	0.40
2	Agra	1275135	140	654	0.51
3	Ahemdabad	3520085	191	1302	0.37
4	Aizwal	228280	117	57	0.25
5	Allahabad	975393	71	509	0.52
6	Amritsar	966862	77	438	0.45
7	Asansol	745439	127	207	0.44
8	Bangalore	4301326	226	1669	0.39
9	Bhopal	1437354	286	574	0.40
10	Bhubaneswar	648032	135	234	0.36
11	Chandigarh	808515	114	326	0.40
12	Chennai	4343645	174	3036	0.62
13	Coimbatore	930882	107	530	0.57
14	Daman	35770	7	15	0.42
15	Dehradun	426674	67	131	0.31
16	Delhi'	10306452	1483	5922	0.57
17	Dhanbad	199258	24	77	0.39
18	Faridabad	1055938	216	448	0.42
19	Gandhinagar	195985	57	44	0.22
20	Gangtok	29354	15	13	0.44
21	Greater Mumbai	11978450	437	5320	0.45
22	Guwahati	809895	218	166	0.20
23	Hyderabad	3843585	169	2187	0.57
24	Impal	221492	34	43	0.19
25	Indore	1474968	130	557	0.38
26	Itanagar	35022	22	12	0.34
27	Jabalpur	932484	134	216	0.23
28	Jaipur	2322575	518	904	0.39
29	Jammu	369659	102	215	0.58
30	Jamshedpur	1104713	64	338	0.31
31	Kanpur	2551337	267	1100	0.43
32	Kavarati	10119	4	3	0.30
33	Kochi	595575	98	400	0.67
34	Kohima	77030	30	13	0.17
35	Kolkata	4572876	187	2653	0.58
36	Lucknow	2185927	310	475	0.22
37	Ludhiana	1398467	159	735	0.53
38	Madurai	928868	52	275	0.30
39	Meerut	1068772	142	490	0.46
40	Nagpur	2052066	218	504	0.25
41	Nashik	1077236	269	200	0.19
42	Panjim	69066	69	32	0.54
43	Patna	1366444	107	511	0.37
44	Pondicherry	220865	19	130	0.59
45	Port Blair	99984	18	76	0.76
46	Pune	2538473	244	1175	0.46
47	Raipur	605747	56	184	0.30
48	Rajkot	967476	105	207	0.21
49	Ranchi	847093	224	208	0.25
50	Shillong	132867	10	45	0.34
51	Silvassa	50463	17	16	0.32
52	Simla	142555	20	39	0.27
53	Srinagar	989440	341	428	0.48
54	Surat	2433835	112	1000	0.41
55	Tiruvananantapuram	744983	142	171	0.23
56	Vadodara	1306227	240	357	0.27
57	Varanasi	1091918	80	425	0.39
58	Vijaywada	851282	58	374	0.44
59	Vishakhapatnam	982904	110	584	0.59

Source: Central Pollution Control Board (CPCB)

CPCB with the assistance of NEERI conducted survey of solid waste management in 59 cities (35 metro cities and 24 State capital -2004-05)

Table 7.6.4 : Waste characterisation in 59 cities

Sr. No.	Name of City	Compostables (%)	Recyclables (%)	C/N Ratio	HCV* (Kcal/Kg)	Moisture in (%)
1	2	3	4	5	6	7
1	Agartala	58.57	13.68	30.02	2427	60
2	Agra	46.38	15.76	21.56	520	28
3	Ahemdabad	40.81	11.65	29.64	1180	32
4	Aizwal	54.24	20.97	27.45	3766	43
5	Allahabad	35.49	19.22	19.00	1180	18
6	Amritsar	65.02	13.94	30.69	1836	61
7	Asansol	50.33	14.21	14.08	1156	54
8	Bangalore	51.84	22.43	35.12	2386	55
9	Bhopal	52.44	22.33	21.58	1421	43
10	Bhubaneswar	49.81	12.69	20.57	742	59
11	Chandigarh	57.18	10.91	20.52	1408	64
12	Chennai	41.34	16.34	29.25	2594	47
13	Coimbatore	50.06	15.52	45.83	2381	54
14	Daman	29.60	22.02	22.34	2588	53
15	Dehradun	51.37	19.58	25.90	2445	60
16	Delhi	54.42	15.52	34.87	1802	49
17	Dhanbad	46.93	16.16	18.22	591	50
18	Faridabad	42.06	23.31	18.58	1319	34
19	Gandhinagar	34.30	13.20	36.05	698	24
20	Gangtok	46.52	16.48	25.61	1234	44
21	Greater Mumbai	62.44	16.66	39.04	1786	54
22	Guwahati	53.69	23.28	17.71	1519	61
23	Hyderabad	54.20	21.60	25.90	1969	46
24	Impal	60.00	18.51	22.34	3766	40
25	Indore	48.97	12.57	29.30	1437	31
26	Itanagar	52.02	20.57	17.68	3414	50
27	Jabalpur	58.07	16.61	28.22	2051	35
28	Jaipur	45.50	12.10	43.29	834	21
29	Jammu	51.51	21.08	26.79	1782	40
30	Jamshedpur	43.36	15.69	19.69	1009	48
31	Kanpur	47.52	11.93	27.64	1571	46
32	Kavarati	46.01	27.20	18.04	2242	25
33	Kochi	57.24	19.36	18.22	591	50
34	Kohima	57.48	22.67	30.84	2844	65
35	Kolkata	50.56	11.48	31.81	1201	46
36	Lucknow	47.41	15.53	21.41	1557	60
37	Ludhiana	49.80	19.32	52.17	2559	65
38	Madurai	55.32	17.25	32.69	1813	46
39	Meerut	54.54	10.96	19.24	1089	32
40	Nagpur	47.41	15.53	26.37	2632	41
41	Nashik	39.52	25.11	37.20	2762	62
42	Panjim	61.75	17.44	23.77	2211	47
43	Patna	51.96	12.57	18.62	819	36
44	Pondicherry	49.96	24.29	36.86	1846	54
45	Port Blair	48.25	27.66	35.88	1474	63
46	Pune	62.44	16.66	35.54	2531	63
47	Raipur	51.40	16.31	22.35	1273	30
48	Rajkot	41.50	11.20	52.56	687	17
49	Ranchi	51.49	9.86	20.23	1060	49
50	Shilong	62.54	17.27	28.86	2736	63
51	Silvassa	71.67	13.97	35.24	1281	42
52	Simla	43.02	36.64	23.76	2572	60
53	Srinagar	61.77	17.76	22.46	1264	61
54	Surat	56.87	11.21	42.16	990	51
55	Tiruvananthapuram	72.96	14.36	35.19	2378	60
56	Vadodara	47.43	14.50	40.34	1781	25
57	Varanasi	45.18	17.23	19.40	804	44
58	Vijaywada	59.43	17.40	33.90	1910	46
59	Vishakhapatnam	45.96	24.20	41.70	1602	53

Source :Central Pollution Control Board (CPCB)

CPCB with the assistance of National Environmental Engineering Research Institute (NEERI) conducted survey of solid waste management in 59 cities (35 metro cities and 24 State capital -2004-05)

HCV : High colorific value

C/N Ratio : Carbon to Nitrogen Ratio

Table 7.6.5 : Status of landfill sites in 59 cities

Sr. No.	Name of City	No. of landfill sites	Area of landfill (ha)	Life of landfill (years)	New site proposed
1	2	3	4	5	6
1	Agartala	1	6.80	14	Yes
2	Agra	1	1.50	30	No
3	Ahemdabad	1	84.00	30	Yes
4	Aizwal	1	-	-	No
5	Allahabad	2	-	-	No
6	Amritsar	1	-	-	Yes
7	Asansol	1	2.00	7	No
8	Bangalore	2	40.70	-	No
9	Bhopal	1	-	-	No
10	Bhubaneswar	4	-	-	Yes
11	Chandigarh	1	18.00	-	No
12	Chennai	2	465.50	1	No
13	Coimbatore	2	292.00	-	No
14	Daman	2	-	-	No
15	Dehradun	1	4.5	-	Yes
16	Delhi'	3	66.40	-	No
17	Dhanbad	3	-	-	No
18	Faridabad	3	2.40	-	No
19	Gandhinagar	-	-	-	Yes
20	Gangtok	1	2.80	-	No
21	Greater Mumbai	3	140.00	-	No
22	Guwahati	1	13.2	-	No
23	Hyderabad	1	121.50	-	No
24	Imphal	1	-	-	No
25	Indore	1	59.50	-	No
26	Itanagar	1	-	-	No
27	Jabalpur	1	60.70	-	Yes
28	Jaipur	3	31.40	-	No
29	Jammu	1	-	10	Yes
30	Jamshedpur	2	4.10	-	No
31	Kanpur	1	27.00	-	No
32	Kavarati	1	0.20	-	No
33	Kochi	1	-	-	No
34	Kohima	1	-	-	No
35	Kolkata	1	24.70	35	Yes
36	Lucknow	1	1.40	3	Yes
37	Ludhiana	1	40.4	-	No
38	Madurai	1	48.60	35	No
39	Meerut	2	14.20	-	No
40	Nagpur	1	-	-	No
41	Nashik	1	34.40	15	No
42	Panjim	1	1.20	30	No
43	Patna	-	-	-	Yes
44	Pondicherry	-	-	-	Yes
45	Port Blair	1	0.20	6	Yes
46	Pune	1	-	-	No
47	Raipur	1	14.60	-	Yes
48	Rajkot	2	1.20	-	Yes
49	Ranchi	1	15.00	-	No
50	Shillong	1	-	-	No
51	Silvassa	1	-	-	No
52	Simla	1	0.60	-	No
53	Srinagar	1	30.40	-	No
54	Surat	1	200.00	-	No
55	Thiruvananthpuram	1	12.15	-	No
56	Vadodara	1	8.1	-	Yes
57	Varanasi	1	2.00	-	Yes
58	Vijayawada	-	-	-	No
59	Vishakhapatnam	1	40.5	25	No

Source :Central Pollution Control Board (CPCB)

CPCB with the assistance of NEERI conducted survey of solid waste management in 59 cities (35 metro cities and 24 State capital -2004-05)

Table 7.7.1: Criteria for direct disposal of hazardous waste into secured landfill

Leachate Quality	Concentration	
pH	,4-12	
Total Phenols	<100	mg./l.
Arsenic	<1	mg./l.
Lead	<2	mg./l.
Cadmium	<0.2	mg /l.
Chromium-VI	<0.5	mg./l.
Copper	<10	mg./l.
Nickel	<3	mg./l.
Mercury	<0.1	mg./l.
Zinc	<10	mg./l.
Fluoride	<50	mg./l.
Ammonia	<1,000	mg./l.
Cyanide	<2	mg./l
Nitrate	<30	mg./l
Absorbable organic bound Chlorine	<3	mg./l
Water soluble compounds except salts	<10	%
Strength		
Transversal Strength (Vane Testing)	>25	KN/m2
Unconfined Compression Test	>50	KN/m2
Axial Deformation	<20	%
Degree of Mineralization or Content of Organic Materials (original sample)		
Annealing loss of the dry residue at 550°	C <20	Wt. % (for non-biodegradable waste) <5 Wt. % (for biodegradable waste)
Extractable Lipophylic contents (Oil & Grease)	<4	Wt. %

Source: CPCB-2010, Hazardous waste management series/2010-11

Note:

1). leachate quality is based on water leachate test i.e. Leachability tests are conducted by preparing a suspension of waste and water i.e. taking 100 gm of waste and filling up to 1 liter with distilled water, stirring or shaking for 24 hrs, filtering the solids and analyzing the filtrate.

2) Calorific value of the land disposable hazardous waste should be less than 2500 K. Cal/Kg
Above characteristics of Leachate are typical characteristics of leachate (Ref. Datta, M. (1997) Generation and Control of Leachate and Landfill Gas P. 90. In waste Disposal in engineering Landfill. Narson Publishing House, New Delhi)

Tot. Dis. : Total Dissolved

Tot. kj : Total Killo joule



7.8 PLASTICS WASTE MANAGEMENT

Plastic waste has attracted widespread attention in India, particularly in the last five years, due to the widespread littering of plastics on the landscape of India. The environmental issues due to plastic waste arise predominantly due to the throwaway culture that plastics propagate, and also the lack of an efficient waste management system.

7.8.1 Plastics are difficult to destroy and are classified as non- bio degradable. The collection of such Soiled Waste including the one recycled three or even four times earlier, is not only uneconomical for recovery of material, but also unhygienic and undermines the environmental benefits of materials recycling. These indiscriminately disposed solid plastic wastes are of concern in view of causing chokage of municipal sewers, blocking of the storm water run-offs in drains particularly in hilly areas, causing deaths to many animals, like, cows which feed on the garbage food thrown in polythene bags. Stringent measures lare required to be taken by the States to reduce the menace of Pollution through Plastic waste.

7.8.2. The status of management of plastic waste is depicted in table 7.8.3

Table 7.8.1 :Plastic waste management status in India

Sl. No.	Item	1995-96	2001
1	2	3	4
1	Consumption of Plastic	1889	4374
2	Waste available for recycling	800	2000
3	Total	2689	6374

Source : Parivesh Newsletter, CPCB

