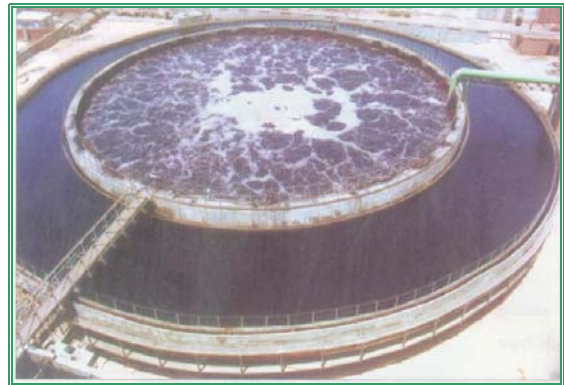


STATUS OF WATER SUPPLY, WASTEWATER GENERATION AND TREATMENT IN CLASS-I CITIES & CLASS-II TOWNS OF INDIA



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FOREWORD

The status of water supply and sanitation significantly indicate the environmental quality in terms of aquatic pollution load. The Central Pollution Control Board (CPCB) published three reports in three decades on the status of water supply and waste water generation, collection, treatment and disposal in Class-I cities and Class-II towns (1978-79, 1989-90 and 2000). This is the fourth report in the series which provides the status of water supply, sewage generation and treatment of 498 Class-I cities and 410 Class-II towns along with the information on 53 coastal class-I cities and 35 coastal class-II towns besides Ganga Basin as a separate subsection.

The estimated sewage generation from Class-I cities and Class-II towns together is 38,254 MLD, out of which only 11,787 MLD (35%) is being treated with a capacity gap of 26,467 MLD (30% of total generation) which needs urgent attention of all concerned.

Municipal Bodies deserve all appreciations on providing pertinent information. I gratefully acknowledge the contribution of my colleagues Sh. J.K.Vimal, Sh. R.D.Swami and Sh. A.K.Sinha. The supervision of Dr. D.D.Basu and Sh. J.S.Kamyotra is specially acknowledged. This report will prove formidable for all the authorities involved in planning and execution of measures for improving the urban environment in general and for the management of municipal wastewater in particular.

Hopefully this report will be useful for all the stakeholders.

24th December, 2009


(S.P. Gautam)

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CHAPTER 1

1.0 INTRODUCTION

Urban water supply and sanitation are important basic needs for the improvement of the quality of life and enhancement of productive efficiency of the people. In urban areas, water is tapped for domestic and industrial uses from rivers, streams, wells and lakes. Almost 80% of the water supplied for domestic use, comes out as wastewater. In most of the cases wastewater is let out untreated and it either sinks into the ground as a potential pollutant of ground water or is discharged into the natural drainage system causing pollution in downstream areas

Municipal sewage may be defined as “waste (mostly liquid) originating from a community; may be composed of domestic wastewaters and/or industrial discharges”. It is major source of water pollution in India, particularly in and around large urban centers. In India about 78% of the urban population has access to safe drinking water and about 38% of the urban population has access to sanitation services. Water requirement for various sectors is given in Table 1.1. This indicates that demand for drinking water is increasing, since the population in urban areas is increasing. The increasing trend for urbanization is shown in Table 1.2

Table 1.1 Water Requirements for Various Sectors

Sector	Water Demand in km ³ (or BCM)					
	Standing Committee of MoWR			NCIWRD		
Year	2010	2025	2050	2010	2025	2050
Irrigation	688	910	1072	557	611	807
Drinking Water	56	73	102	43	62	111
Industry	12	23	63	37	67	81
Energy	5	15	130	19	33	70
Others	52	72	80	54	70	111
Total	813	1093	1447	710	843	1180

Source: Website of Ministry of Water Resources, Govt. of India, National Council for Integrated Water Resource and Development (NCIWRD)

Table 1.2: Total urban population and share of class-I cities

S. No.	Census Year	Population	Urban Population of class-I cities	Percent Urban Population of class-I Cities
1	1901	25616051	6586347	25.7
2	1911	25580199	6955756	27.2
3	1921	27691306	8142241	29.4
4	1931	32976018	10090279	30.6
5	1941	43558665	16519922	37.9
6	1951	61629646	27308404	44.3
7	1961	77562000	39380309	50.7
8	1971	106966534	60123375	56.2
9	1981	156188507	94292998	60.3
10	1991	217611000	138802000	63.7
11	2001	286119689	178426355	64.6

With the enhancement of drinking water supply to urban areas, the wastewater generation is increasing. If such wastewater is not collected, treated and disposed properly, it will create directly contribution to the locally available freshwater supplies. Additionally, the cumulative results of untreated wastewater can have broad degenerative effects on both public health and ecosystem.

Urban environmental management is one of the most pressing issue as the urbanization trend continues globally. Among the challenges faced by urban planners is the need to ensure ongoing basic human services such as the provision of water and sanitation. The under-management of domestic wastewater in many southern urban areas presents a major challenge. The accumulation of human waste is constant and unmanaged wastewater directly contributes to the contamination of locally available freshwater supplies. Additionally, the cumulative results of unmanaged wastewater can have broad degenerative effects on both public and ecosystem health

CHAPTER 2

2.0 Methodology

The methodology adopted for collection of information and preparation of this report is as follows:

2.1 Source of information

There are 498 class-I cities and 410 Class-II Towns in India as per estimation done (based on Census-2001). To collect information/data on water supply, wastewater generation, collection, treatment and disposal in class-I cities, the questionnaires were sent to all the state secretaries, sample questionnaire is attached in Annexure-5 municipal corporations, state water boards, municipalities, public health engineering department, pollution control boards and also other concerned agencies. In spite of regular persuasion, the response was not very good and therefore estimations were done as given in Para 2.3 and the same along with the available data from concerned agencies and municipalities were compiled in the report.

2.2 Data Processing

The data collected was structured through MS-Excel and stored. Data was compiled and processed to remove inconsistencies and to obtain state-wise and national status of water supply, wastewater generation, treatment and disposal.

2.3 Assumption and Limitations

In case, where the data on population and area received from different states, did not tally with the data of census report 2001, then the population as per census report 2001 have been used for analysis. For estimation of population for 2008, computed growth rate in Urban population based on 1991 and 2001 census data were used and population corresponding to 2008 was used for estimation viz. wastewater generation using per capita water supply taken from the report of Central Pollution Control Board (CPCB) titled "Status of sewage treatment in India-2005". Some of the municipalities have not furnished the volume of wastewater generated, which has been estimated for the purpose of the report as 80% of the volume of water supply. Some of the municipalities have furnished the percent coverage of sewerage system but, have not mentioned about the wastewater collection. This has been assessed based on the information furnished by some of the other municipalities, where in percent coverage is equal to wastewater collection.

The present trend of urbanization, water supply, wastewater generation, collection and disposal in coastal cities and towns were made by comparing the data taken from the reports published by Central Pollution Control Board (Series: COPOCS/27/2002-03, CUPS/4/1978-79, and CUPS/6/30/1989-90).

Chapter-3

3.1 Status of Water Supply in Class-I Cities and Class-II Towns:

There is an increasing trend in the population of Class-I Cities, due to which demand of water is also increasing and so that sewage generation. Close observation of Table 3.1 reveals that

- There are 498 Class-I cities, having water supply of 44769 Millions Liter Per Day (MLD).
- The population of Class-I Cities is projected 22.76 Crore.
- Among all the states Maharashtra is most populated and has maximum water supply that is 12482MLD (27 % of total water of all 498 class-I cities)
- Next to Maharashtra, Uttar Pradesh has the water supply of 4382 MLD, which is 9.7% of total water supply of all class-I cities.
- Among all the States/UTs per capita water supply of Chandigarh is maximum (540 MLD) followed by Maharashtra with 310 MLD.
- National average for per capita water supply is 179 considering Chandigarh as outlier.
- This has been summarized in table 3.1

Table 3.1: State wise water supply in Class-I Cities

S.No.	State/Union Territory	No. of Cities	Population in Year 2008	Water Supply in Class-I Cities (in MLD)	Per Capita Water Supply
1	Andaman & Nicobar	1	107200	15	139.93
2	Andhra Pradesh	47	20143050	2205	109.47
3	Assam	5	1417820	427.70	301.66
4	Bihar	23	5783554	1262.15	218.23
5	Chandigarh	1	994820	537.20	540
6	Chhattisgarh	7	2515100	438.09	174.18
7	Delhi	1	14858800	4346	292.49
8	Goa	1	122330	12.24	100.06
9	Gujarat	28	14678240	2101.18	143.15
10	Haryana	20	5494110	783.39	142.59
11	Himachal Pradesh	1	163490	36.18	221.3
12	Jammu & Kashmir	2	1910060	267.42	140.01
13	Jharkhand	14	4964171	1038.1	209.12
14	Karnataka	33	15102373	2238.04	148.19
15	Kerala	8	3778516	718.97	190.28
16	Madhya Pradesh	25	10795000	1560.91	144.6
17	Maharashtra	50	40255170	12482.87	310.09
18	Manipur	1	249870	43.43	173.81
19	Meghalaya	1	186030	26.05	140.03

[Table 3.1: Continued...]

S.No.	State/Union Territory	No. of Cities	Population in Year 2008	Water Supply in Class-I Cities (in MLD)	Per Capita Water Supply (in MLD)
20	Mizoram	1	282550	39.56	140.01
21	Nagaland	1	171810	24.05	139.98
22	Orissa	12	3335930	825.94	247.59
23	Pondicherry	2	504130	70.58	140
24	Punjab	19	6329860	1837.18	290.24
25	Rajasthan	24	9611490	1727.96	179.78
26	Tamilnadu	42	16852940	1346.54	79.9
27	Tripura	1	214327	30	139.97
28	Uttar Pradesh	61	25762280	4382.58	170.12
29	Uttrakhand	6	1249380	221.21	177.06
30	West Bengal	60	19818471	3723.53	187.88
	Total	498	143083804	44769.05	179.02

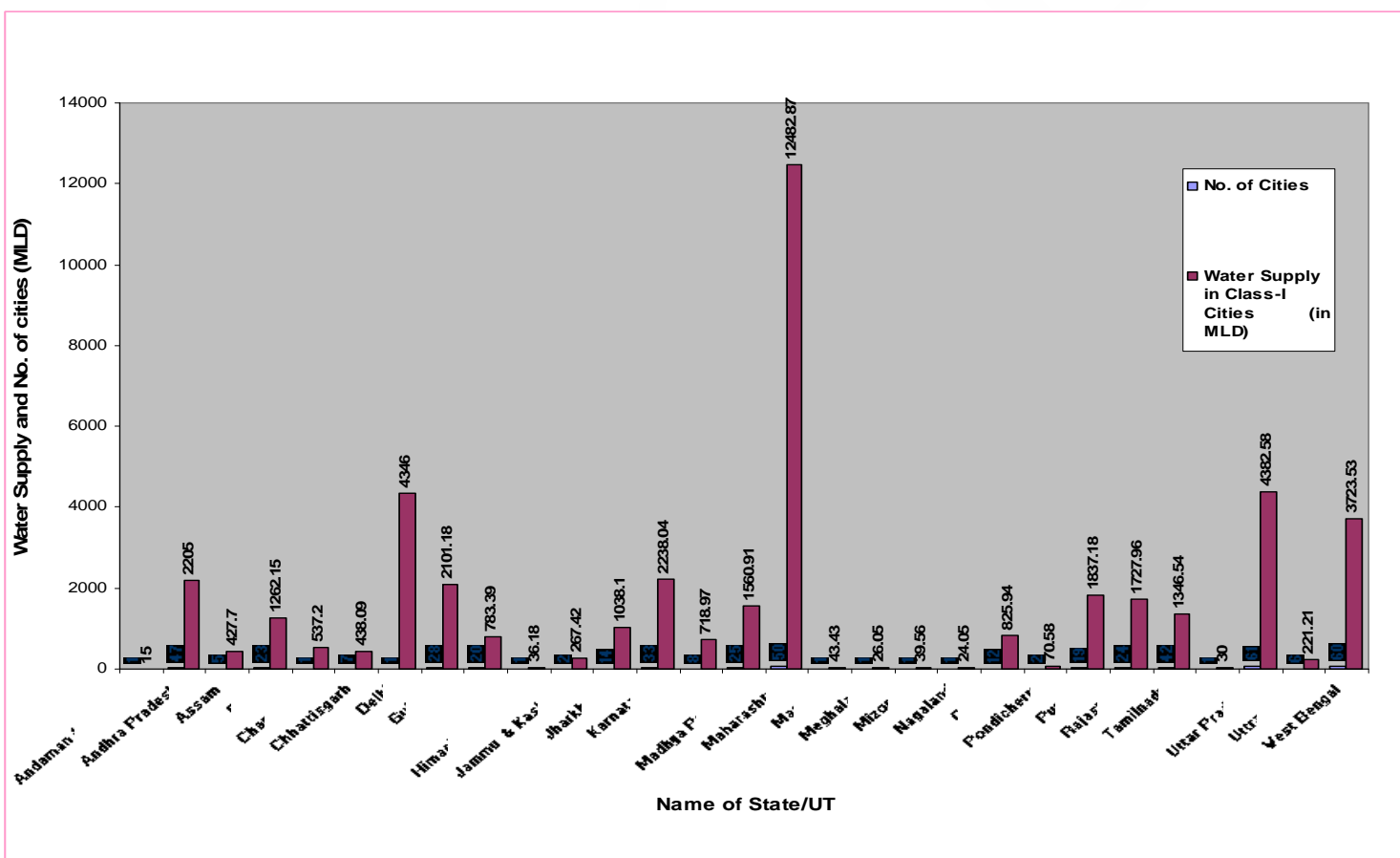


Figure 3.1: State wise Status of Water Supply in Class-I Cities

Close examination of Table 3.2 reveals that:

- There are 410 Class-II Towns (population between 50,000 to 1,00,000) having water supply of 3324 Million Liter Per Day (MLD).
- The population of 410 Class-II Towns is projected to 3.0 Crore.
- Among all the states/UTs Andhra Pradesh is most populated having water supply of 272 MLD and per capita water supply 78 MLD.
- Total water supply of Class-II Towns is reported to 3324 MLD, which is 6.91 percent of total water supply (water supply of class-I cities and class-II towns).
- Uttar Pradesh has the maximum water supply i.e. 432 MLD, which is 13 % of total water supply of class-II towns.
- Next to Uttar Pradesh, Karnataka state has water supply of 291 MLD (8.71%) and then Gujarat with 284 MLD (8.54%).
- Among all the states Punjab has maximum per capita water supply i.e. 177 MLD.
- National average for per capita water supply is 120 MLD.
- This has been summarized in table 3.2

Table 3.2: State wise water supply in Class-II Towns

S. No.	State/Union Territory	No. of Towns	Population (in Year 2008)	Water Supply in Class-II Towns (in MLD)	Per Capita Water Supply (in MLD)
1	Andhra Pradesh	52	3448610	272.03	78.88
2	Assam	8	573290	75.58	131.84
3	Bihar	14	1113800	134.28	120.56
4	Chhattisgarh	7	566080	51.03	90.15
5	Goa	2	172850	17.29	100.03
6	Gujarat	31	2180590	284.46	130.45
7	Haryana	7	544040	49.68	91.32
8	Jammu & Kashmir	4	244990	34.84	142.21
9	Jharkhand	10	826300	97.76	118.31
10	Karnataka	26	1800258	291.74	162.05
11	Kerala	26	1686660	164.06	97.27
12	Madhya Pradesh	23	1745050	163.64	93.77
13	Maharashtra	34	2503080	267.18	106.74
14	Meghalaya	1	81750	14.07	172.11
15	Nagaland	1	126520	17.71	139.98
16	Orissa	12	904510	98.03	108.38
17	Pondicherry	1	79690	9.98	125.24
18	Punjab	14	1109670	196.76	177.31
19	Rajasthan	21	1599260	184.76	115.53
20	Tamilnadu	42	3254950	230.86	70.93
21	Uttar Pradesh	46	3382520	432.19	127.77
22	Uttrakhand	1	69460	11.34	163.26
23	West Bengal	27	2004440	225.562	112.53
	Total	410	30018368	3,324.83	120.79

Close examination of table 3.3 reveal that:

- Total water supply of Class-I Cities and Class-II Towns in combination is 48093 MLD
- Maharashtra has the maximum population of 42758250, which is 16% of total population of Class-I cities and class-II towns.
- Maharashtra has maximum water supply of 12750, which is 26% of total water supply of Class-I cities and class-II towns.
- This has been summarized in table 3.3:

Table 3.3: Water Supply of Class-I Cities and Class-II Town (in aggregate)

S. No.	State/UT	Total no. of Class-I cities and Class-II towns	Total Population (including Class-I cities and Class-II Towns)	Total Water Supply (in MLD)
1	Andaman & Nicobar	1	107200	15
2	Andhra Pradesh	99	23591660	2477.03
3	Assam	13	1991110	503.28
4	Bihar	37	6897354	1396.43
5	Chandigarh	1	994820	537.2
6	Chhattisgarh	14	3081180	489.12
7	Goa	3	295180	29.53
8	Delhi	1	14858800	4346
9	Gujarat	59	16858830	2385.64
10	Haryana	27	6038150	833.07
11	Himachal Pradesh	1	163490	36.18
12	Jammu & Kashmir	6	2155050	302.26
13	Jharkhand	24	5790471	1135.86
14	Karnataka	59	16902631	2529.78
15	Kerala	34	5465176	883.03
16	Madhya Pradesh	48	12540050	1724.55
17	Maharashtra	84	42758250	12750.05
18	Manipur	1	249870	43.43
19	Meghalaya	2	267780	40.12
20	Mizoram	1	282550	39.56
21	Nagaland	2	298330	41.76
22	Orissa	24	4240440	923.97
23	Pondicherry	3	583820	80.56
24	Punjab	33	7439530	2033.94
25	Rajasthan	45	11210750	1912.72
26	Tamilnadu	84	20107890	1577.4
27	Tripura	1	214327	30
28	Uttar Pradesh	107	29144800	4814.77
29	Uttarakhand	7	1318840	232.55
30	West Bengal	87	21822911	3949.09
	Total	908	25,77,54,640	48093.88

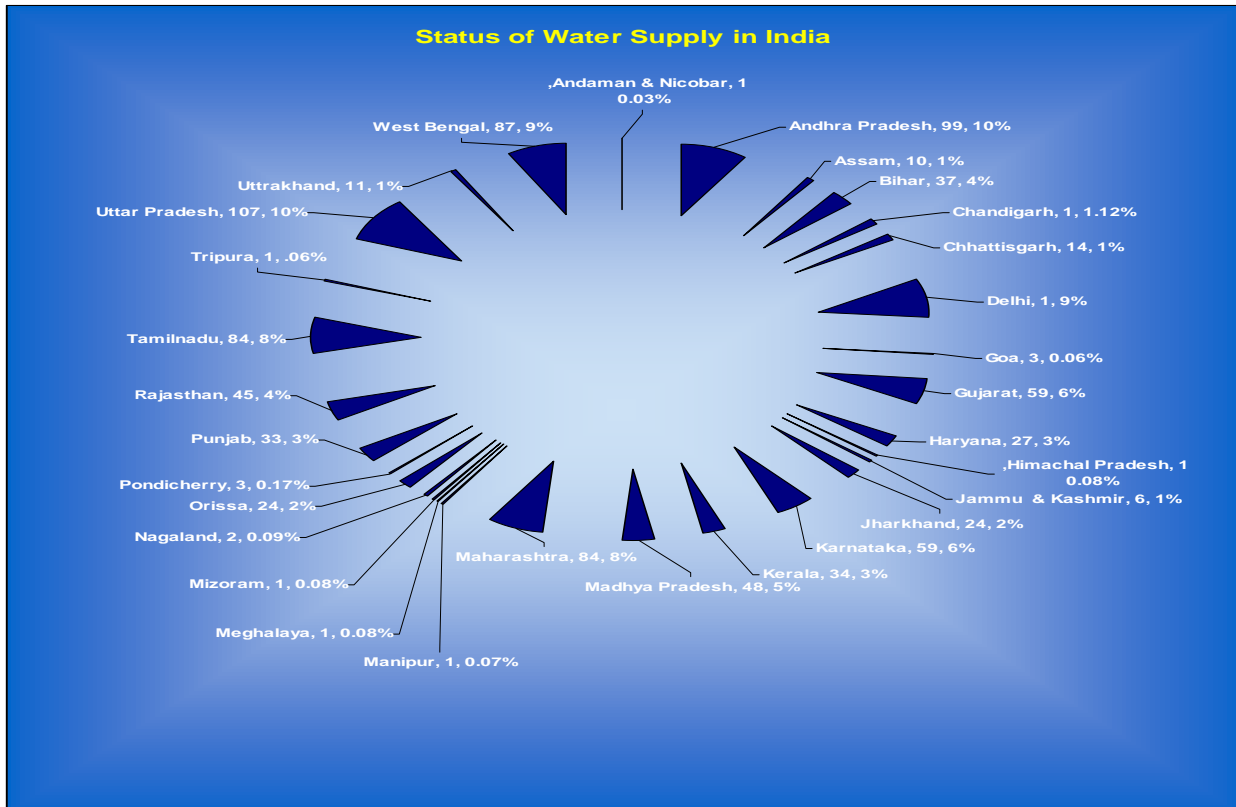


Figure 3.2: State wise water Supply (in percent) including number of Class-I Cities & Class-II Towns

3.2 Status on Sewage Generation in Metropolitan Cities, Class-I Cities and Class-II Towns:

Discharge of untreated sewage in water courses both surface and ground waters is the most important water polluting source in India. Out of about 38000 million liter per day of sewage generated treatment capacity exists for only about 12000 million liter per day. Thus, there is a large gap between generation and treatment of wastewater in India. Even the treatment capacity existing is also not effectively utilized due to operation and maintenance problem. Operation and maintenance of existing plants and sewage pumping stations is not satisfactory, as nearly 39% plants are not conforming to the general standards prescribed under the Environmental (Protection) Rules for discharge into streams as per the CPCB's survey report.. In a number of cities, the existing treatment capacity remains underutilized while a lot of sewage is discharged without treatment in the same city. Auxiliary power back-up facility is required at all the intermediate (IPS) & main pumping stations (MPS) of all the STPs.

3.2.1 Status of Municipal Wastewater Generation and treatment capacity of Metropolitan Cities:

- There are 35 metropolitan cities (more than 10 Lac Population), 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 cities, Delhi has the maximum treatment capacity that is 2330 MLD (30% of the total treatment capacity of metropolitan cities)

- Next to 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 Hyderabad, Vadodara, Chennai and Ludhiana and Ahmedabad 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%
- This has been summarized in table 3.4 and figure 3.3.

Table 3.4 : Status of sewage generation and treatment capacity in metropolitan cities

S. No.	Name of the city	Sewage generation (in MLD)	Sewage Treatment Capacity (in MLD)	Percent of treatment capacity
1	Hyderabad	426.21	593	100
2	Vishakhapatnam	134.99	-	-
3	Vijayawada	128.39	-	-
4	Patna	279.14	105	37
5	Delhi	3800	2330	61
6	Ahmadabad	472	488	96
7	Surat	432	202	46
8	Rajkot	108.8	44.5	40
9	Vadodara	180	206	100
10	Bangalore	771.75	-	-
11	Indore	204	78	38
12	Bhopal	334.75	22	6
13	Jabalpur	143.34	-	-
14	Mumbai	2671	2130	80
15	Pune	474	305	64
16	Nagpur	380	100	26
17	Nasik	227.84	107.5	47
18	Ludhiana	235.2	311	100
19	Amritsar	192	-	-
20	Jaipur	451.71	54	11
21	Chennai	158	264	100
22	Kanpur	417.35	171	41
23	Lucknow	363.81	42	11
24	Agra	260.36	88	33
25	Kolkata	705.86	172	24
26	Faridabad	164	65	39
27	Jamshedpur	199.43	-	-
28	Asansol	147	-	-
29	Coimbatore	120	-	-
30	Madurai	97.93	-	-
31	Meerut	177.05	-	-
32	Varanasi	230.17	102	44
33	Allahabad	176	60	34
34	Kochi	188.4	-	-
35	Dhanbad	192	-	-
Total		15644	8040	51

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

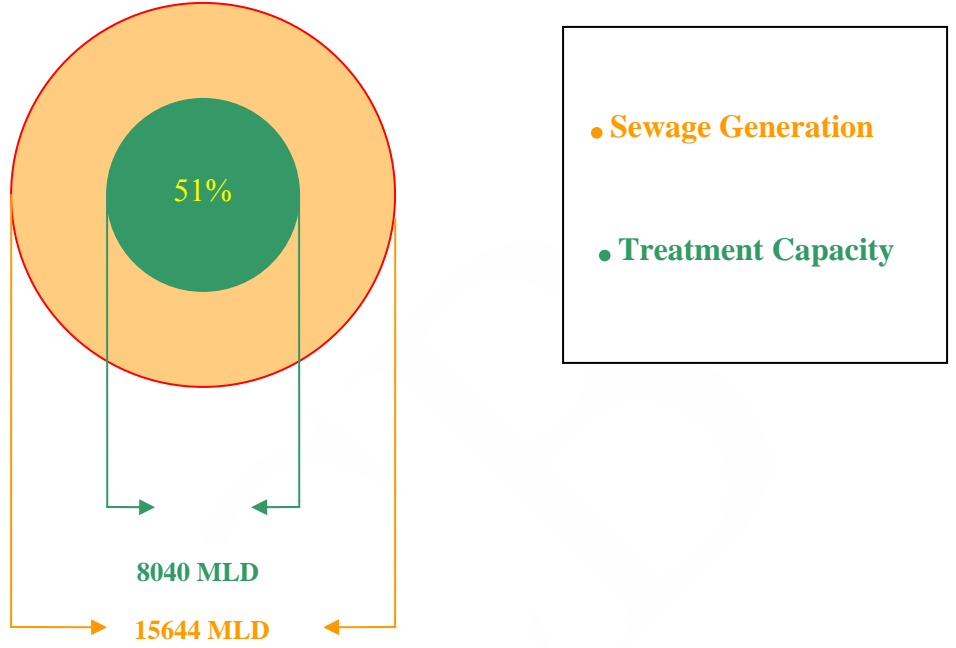


Figure 3.3: Sewage generation and treatment capacity in Metropolitan Cities

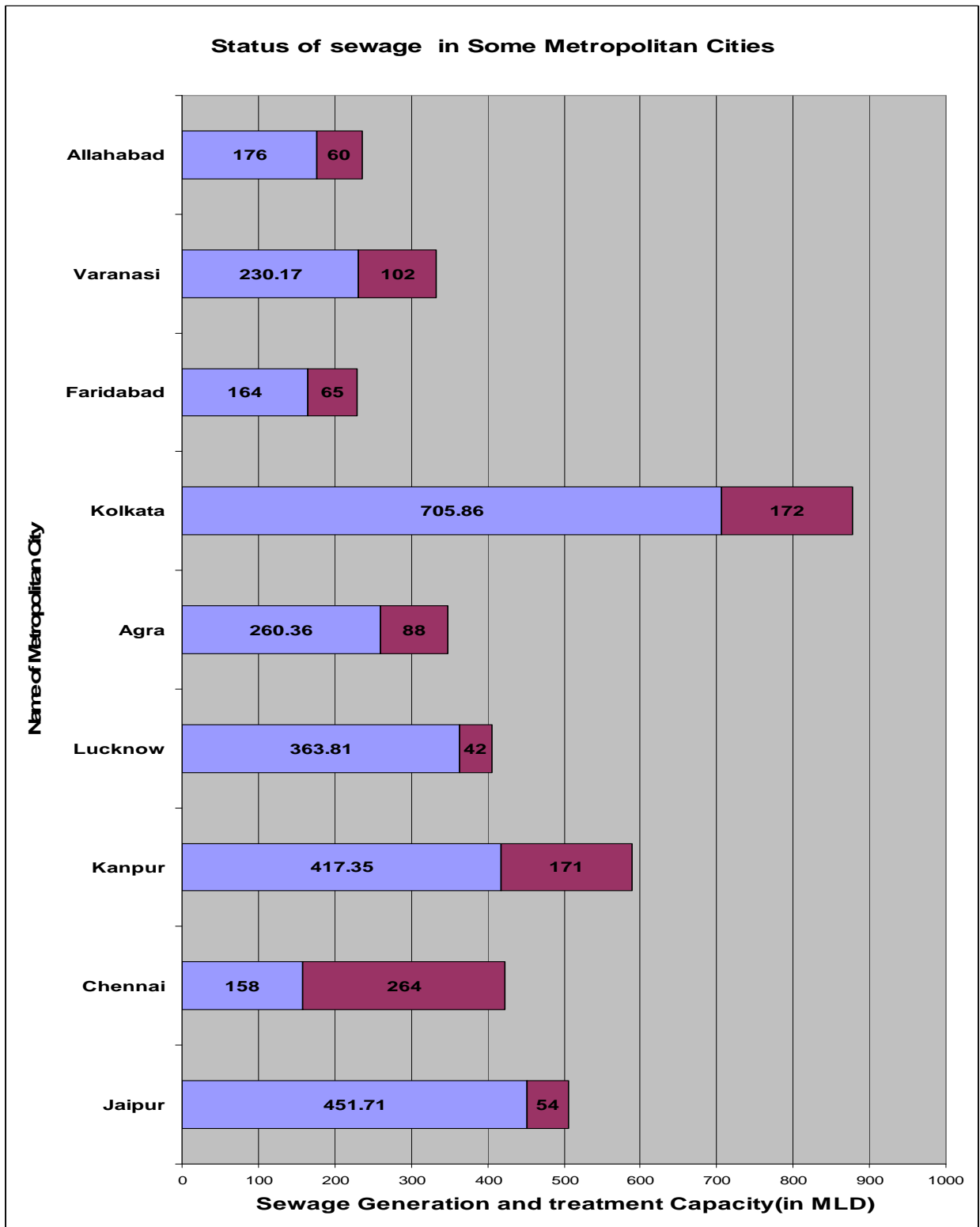


Figure 3.4: Sewage Generation and Treatment capacity in Some Metro Cities

3.2.2 Status of Municipal Wastewater Generation and treatment capacity of Class-I Cities (including metropolitan cities):

- There are projected 498 Class-I Cities (having more than 1 Lac Population)
- Nearly 52% cities (260 out of 498) cities are located in Andhra Pradesh, Maharashtra, Tamilnadu, Uttar Pradesh and West Bengal.
- The sewage generated in class-I cities estimated 35558.12 MLD
- 93 % of total wastewater is generated in Class-I cities only.
- Total Sewage treatment Capacity of class-I cities is reported 11553.68 MLD, which is 32% of the sewage generation.
- Out of 11553.69 MLD sewage treatment capacity, 8040 MLD is treated in 35 Metropolitan cities i.e. 69%. This indicates that other than metropolitan cities, the capacity of 462 Class-I cities is only 31%.
- Actual sewage treatment due to inadequacy of the sewage collection system shall be low compare to capacity.
- State wise generation and treatment in class-I cities is summarized in Table 3.5 and Figure 3.5.

Table 3.5: State-wise sewage generation of Class-I Cities

S. No.	State/Union Territory	No. of Cities	Population (in Year 2008)	Sewage Generation (In MLD)	Sewage Treatment Capacity (in MLD)
1	Andaman & Nicobar	1	107200	12	-
2	Andhra Pradesh	47	20143050	1760.60	654
3	Assam	5	1417820	380.14	-
4	Bihar	23	5783554	1009.7	135.5
5	Chandigarh	1	994820	429.76	164.79
6	Chhattisgarh	7	2515100	350.47	69
7	Delhi	1	14858800	3800	2330
8	Goa	1	122330	9.79	-
8	Gujarat	28	14678240	1680.92	782.5
9	Haryana	20	5494110	626.69	312
10	Himachal Pradesh	1	163490	28.94	35.63
11	Jammu & Kashmir	2	1910060	213.93	-
12	Jharkhand	14	4964171	830.47	-
13	Karnataka	33	15102373	1790.40	43.44
14	Kerala	8	3778516	575.17	-
15	Madhya Pradesh	25	10795000	1248.72	186.1
16	Maharashtra	50	40255170	9986.29	4225.25
17	Manipur	1	249870	26.74	-
18	Meghalaya	1	186030	20.84	-
19	Mizoram	1	282550	5.71	-
20	Nagaland	1	171810	13.62	-
21	Orissa	12	3335930	660.73	53
22	Pondicherry	2	504130	56.46	-
23	Punjab	19	6329860	1528.26	411
24	Rajasthan	24	9611490	1382.37	54
25	Tamilnadu	42	16852940	1077.21	333.42
26	Tripura	1	214327	24	-
27	Uttar Pradesh	61	25762280	3506.01	1240.13
28	Uttrakhand	6	1249380	176.97	18
29	West Bengal	60	19818471	2345.21	505.92
	Total	498	22,76,52,872	35558.12	11553.68

Source:

1. Questionnaire survey on 2007
2. Status of sewage treatment in India (CUPS/61/2005-06)- Central Pollution Control Board

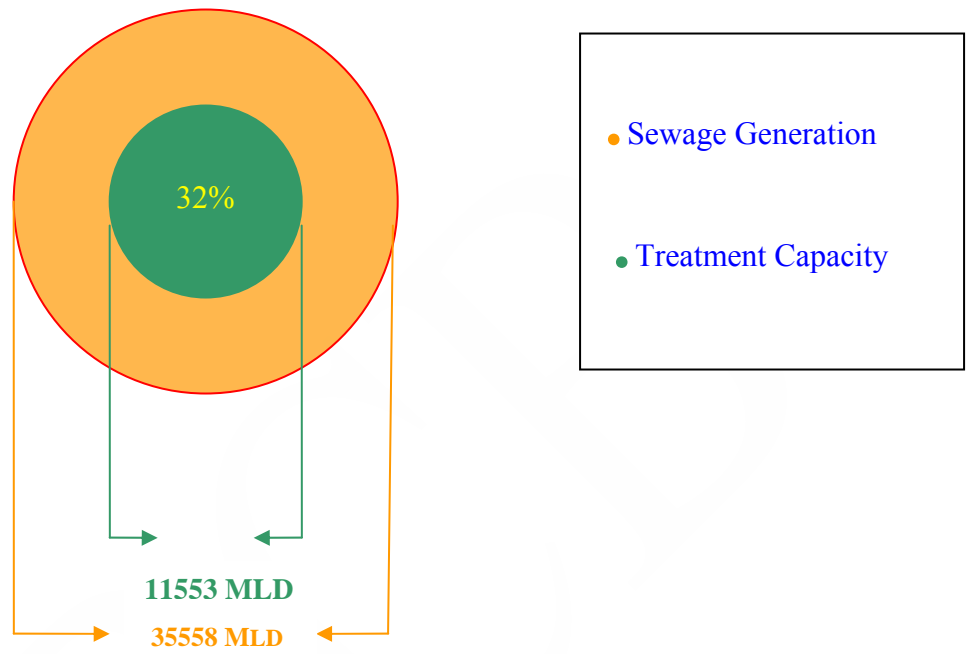


Fig 3.5: Sewage generation and treatment capacity in Class-I Cities

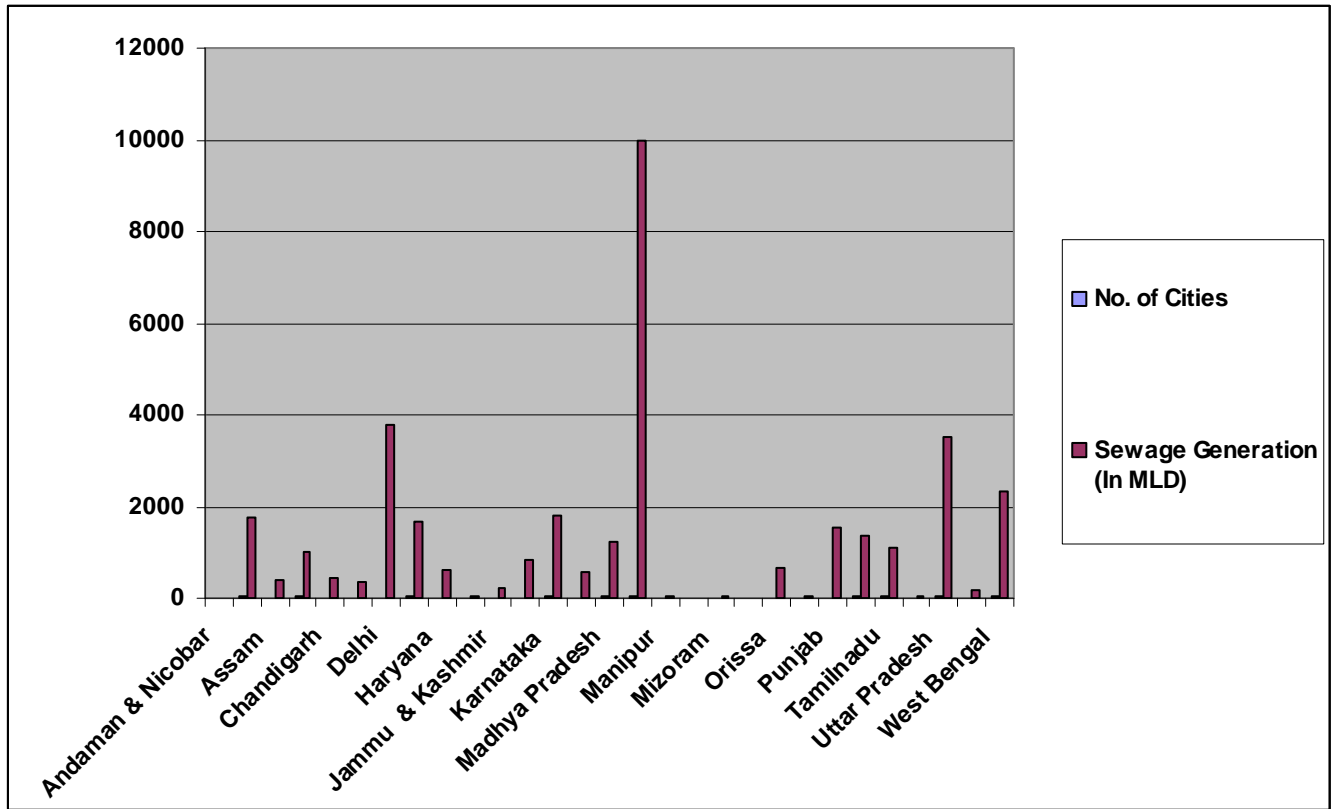


Figure 3.6: State wise sewage generation of Class-I Cities

3.2.3 Status of Municipal Wastewater Generation and treatment capacity of class-II Cities:

- The class-II towns are mostly located in Andhra Pradesh, Maharashtra, Tamilnadu, Uttar Pradesh and Gujarat (total 225, nearly 50%)
- The total wastewater generated in class-II towns is 2696.70 MLD
- Total sewage treatment capacity in Class-II towns is 233.7 which is 8% of the total sewage generated.
- State wise generation and treatment in Class-II Town is summarized in Table 3.6 and Figure 3.7

Table 3.6: State wise sewage generation in Class-II Towns

S.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
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	130.9	9.00
13	Maharashtra	2503080	34	213.73	29
14	Meghalaya	81750	1	11.25	-
15	Nagaland	126520	1	1.36	-
16	Orissa	904510	12	78.42	-
17	Pondicherry	79690	1	7.984	-
18	Punjab	1109670	14	157.4	42.80
19	Rajasthan	1599260	21	147.79	-
20	Tamilnadu	3254950	42	184.67	29.3
21	Uttar Pradesh	3382520	46	345.7	12.61
22	Uttarakhand	69490	1	9.07	6.33
23	West Bengal	2004440	27	180.42	61.88
	Total	3,00,18,398	410	2696.70	233.7

Source:

1. Questionnaire survey on 2007.
2. Status of sewage treatment in India (CUPS/61/2005-06)- Central Pollution Control Board.

Note: (-) indicates that no information is received.

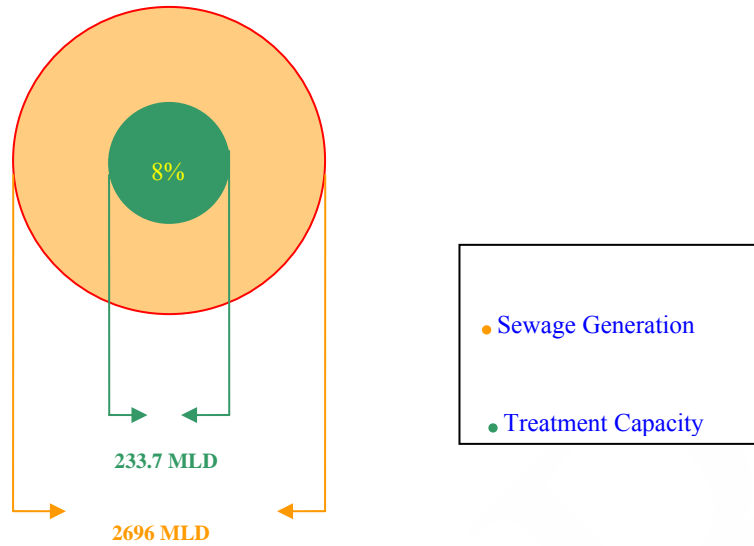


Fig 3.7: Sewage generation and treatment capacity in Class-II Towns

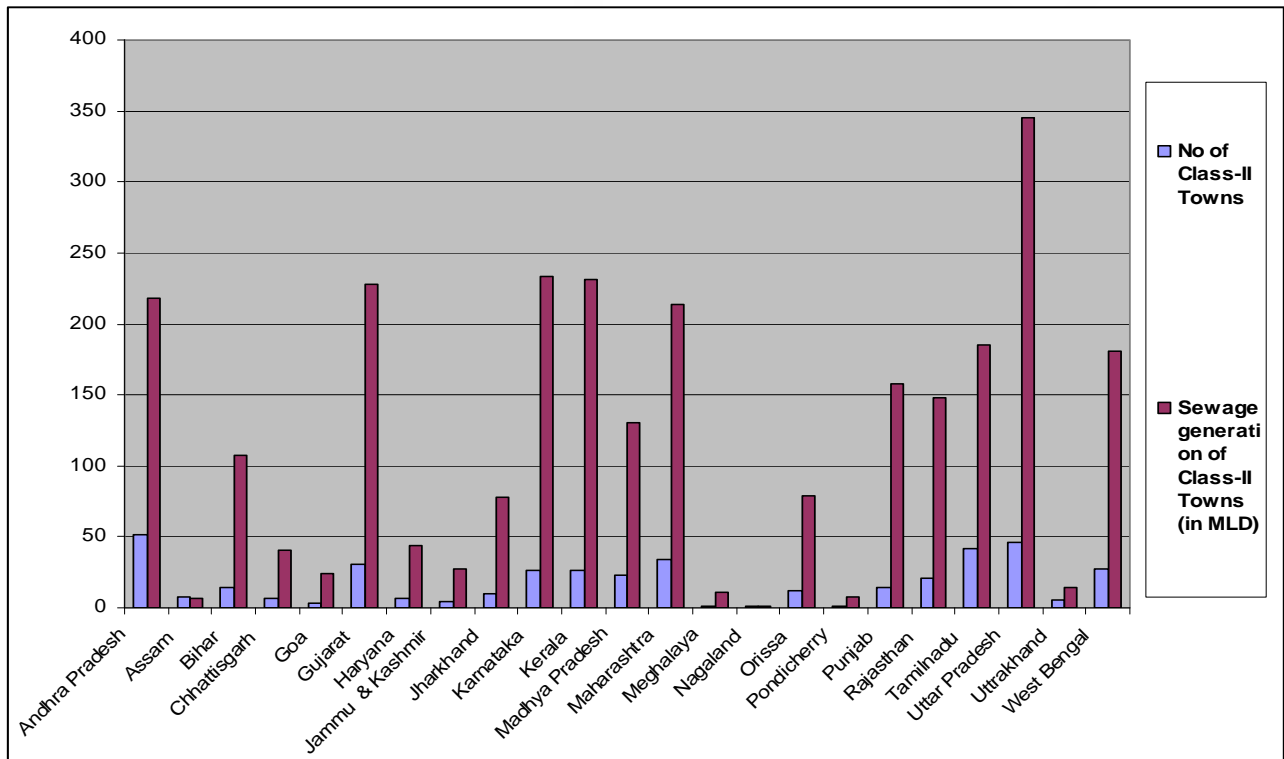


Figure 3.8: State wise sewage generation in Class-II Towns

Table 3.7: State-wise sewage generation of Class-I Cities and Class-II Towns

S. No.	State/Union Territory	Sewage generation of Class-I Cities (in MLD)	Sewage generation of Class-II Towns (in MLD)	Total (in MLD)
1	Andaman & Nicobar	12.00	-	12.0064
2	Andhra Pradesh	1760.60	217.59	1978.1996
3	Assam	380.14	6.46	386.6
4	Bihar	1009.7	107.42	1117.12
5	Chandigarh	429.76	-	58.2936
6	Chhattisgarh	350.47	40.82	391.29
7	Delhi	3800	-	3800
8	Goa	9.79	13.89	23.62
9	Gujarat	1680.92	227.55	1908.47
10	Haryana	626.69	43.52	670.212
11	Himachal Pradesh	28.94	-	28.94
12	Jammu & Kashmir	213.93	27.86	27.86
13	Jharkhand	830.47	78.21	908.68
14	Karnataka	1790.40	233.37	2023.778
15	Kerala	575.17	231.32	806.49
16	Madhya Pradesh	1248.72	130.9	1379.626
17	Maharashtra	9986.29	213.73	10200.02
18	Manipur	26.74	-	26.74
19	Meghalaya	20.84	11.25	32.09
20	Mizoram	5.712	-	5.712
21	Nagaland	13.62	1.36	14.984
22	Orissa	660.73	78.42	739.15
23	Pondicherry	56.46	7.984	64.444
24	Punjab	1528.26	157.40	1685.664
25	Rajasthan	1382.37	147.79	1530.16
26	Tamilnadu	1077.21	184.67	1261.88
27	Tripura	24	-	24
28	Uttar Pradesh	3506.01	345.70	3851.71
29	Uttrakhand	176.97	9.07	188.31
30	West Bengal	2345.21	180.42	2525.63
	Total	35558.12	2696.70	38254.82

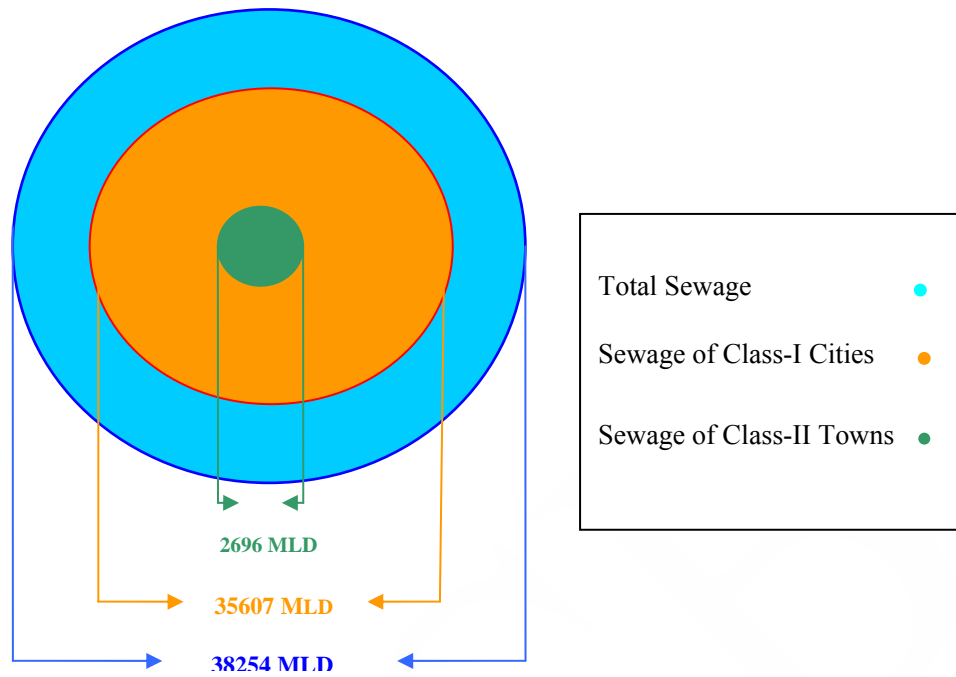


Figure 3.9: State wise sewage generation of Class-I cities and Class-II Towns

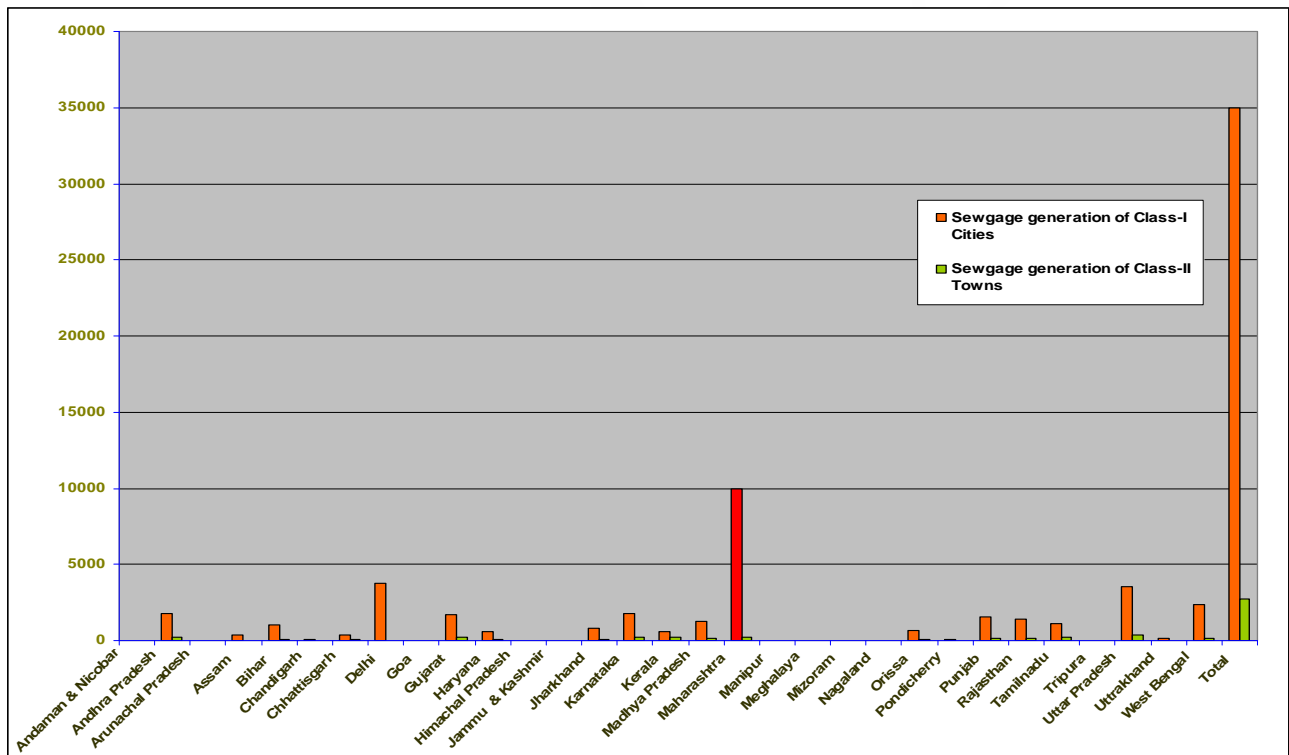


Figure 3.10: State-wise sewage generation of Class-I Cities and Class-II Towns

3.2.5 Status of municipal sewage generation in Ganga basin:

3.2.5.1 Sewage generation of Class-I Cities in Ganga Basin:

Information of sewage generation of Class-I Cities in Ganga basin is provided in the table 3.11(disposal into Ganga River), table 3.12 (disposal in tributaries) and table 3.13(disposal in land) respectively.

**Table 3.11: Sewage Generation of Class - I Cities in Ganga Basin
(Disposal In Ganga River)**

S. No.	City/Town	States/UT	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)
1	Bhagalpur	Bihar	381190	61.6	11.0
2	Patna	Bihar	1542184	249.2	109.0
3	Munger	Bihar	209790	34.0	13.5
4	Katihar	Bihar	196190	31.7	31.7
5	Kanpur	Uttar Pradesh	3114530	339.3	171.1
6	Varanasi	Uttar Pradesh	1353920	187.1	141.0
7	Allahabad	Uttar Pradesh	1218070	208.0	89.0
8	Farrukhabad-cum-Fatehgarh	Uttar Pradesh	280290	30.5	8.3
9	Mirzapur-Vindhyachal	Uttar Pradesh	252470	27.5	14.0
10	Unnao	Uttar Pradesh	178250	23.9	19.4
11	Ballia	Uttar Pradesh	125740	18.0	-
12	Dehradun	Uttarakhand	550800	76.1	-
13	Hardwar	Uttarakhand	215260	39.6	18.0
14	Kolkata	West Bengal	5267630	618.4	172.0
15	Haldia	West Bengal	196300	24.5	24.5
16	Santipur	West Bengal	158920	18.7	18.7
17	Nabadwip	West Bengal	132290	15.5	10.0
18	Basirhat	West Bengal	130090	15.3	-
19	Bangaon	West Bengal	117430	13.8	-
20	South Dumdum	West Bengal	450970	53.0	52.9
21	Rajpur Sonarpur	West Bengal	386850	33.6	45.4
22	Kamarhati	West Bengal	361480	48.8	40.0
23	North Dumdum	West Bengal	253040	29.7	-
24	Naihati	West Bengal	247750	20.5	-
25	Ulberia	West Bengal	232410	27.3	-
26	Kanchrapara	West Bengal	145040	17.0	-
27	Halisahar	West Bengal	143150	16.8	-
28	North Barrackpur	West Bengal	142050	19.2	16.7
29	Rishra	West Bengal	130250	13.5	15.3
30	Ashoknagar Kalyangarh	West Bengal	128200	17.3	15.0
31	Haora	West Bengal	1160010	136.2	63.9

[Table 3.11: Continued...]

S. No.	City/Town	States/UT	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)
32	Bhatpara	West Bengal	508250	59.7	28.5
33	Maheshtala	West Bengal	447600	52.5	3.9
34	Serampore	West Bengal	227650	26.7	18.9
35	Chandannagar	West Bengal	186490	16.1	22.7
36	Habra	West Bengal	146850	17.2	-
	Total		2,09,19,384	2637.7	1174.4

**Table 3.12: Sewage Generation of Class - I Cities in Ganga Basin
[Disposal in tributaries]**

S. No.	City/ Towns	States/UTs	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)	Treated Sewage Disposal (River)
1	Muzaffarpur	Bihar	342120	55.3	-	Budhi Gandak
2	Bihar Sharif	Bihar	259810	42.0	-	Phalgun
3	Gaya	Bihar	429180	69.4	-	Phalgun
4	Bettiah	Bihar	130700	21.1	-	Budhi Gandak
5	Motihari	Bihar	113690	18.4	-	Budhi Gandak
6	Hajipur	Bihar	133590	21.6	-	Gandak
7	Darbhanga	Bihar	298850	48.3	-	Ghughri
8	Chapra	Bihar	200300	32.4	2.0	Ghaghara
9	Sasaram	Bihar	146770	23.7	-	Chandrabhaga
10	Siwan	Bihar	121150	19.6	-	Daha
11	Arrah	Bihar	227800	36.8	-	Son
12	Dehri	Bihar	133290	21.5	-	Son
13	Saharsa	Bihar	138900	22.4	-	Simrahi Stream
14	Yamunanagar	Haryana	250250	18.6	35	WJC
15	Bokaro Steel City	Jharkhand	484830	71.3	-	Damodar
16	Dhanbad	Jharkhand	1064357	36.0	-	Damodar
17	Hazaribagh	Jharkhand	156510	23.0	-	Damodar
18	Morena	Madhya Pradesh	197670	17.4	-	Kunwari
19	Indore	Madhya Pradesh	1885510	212.5	90	Khan, Shipra
20	Sagar	Madhya Pradesh	304340	26.7	-	Dhasan
21	Bhind	Madhya Pradesh	201440	17.7	-	Chambal
22	Neemuch	Madhya Pradesh	140820	12.4	-	Chambal
23	Mandsaur	Madhya Pradesh	152590	15.8	-	Chambal
24	Dewas	Madhya Pradesh	302160	26.5	-	Chhoti Kali Sindh
25	Vidisha	Madhya Pradesh	164350	14.4	9	Betwa
26	Bhopal	Madhya Pradesh	1878380	255.2	17.64	Betwa
27	Rewa	Madhya Pradesh	240030	21.1	-	Baichaiya
28	Guna	Madhya Pradesh	179640	15.8	-	Sindh

[Table 3.12: Continued...]

S. No.	City/Town	States/UTs	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)	Treated Sewage Disposal (River)
29	Damoh	Madhya Pradesh	146930	14.1	-	Sonar, Bearma
30	Satna	Madhya Pradesh	295360	26.0	-	Tons
31	Shivpuri	Madhya Pradesh	192390	17.0	-	Sindh
32	Singrauli	Madhya Pradesh	243110	21.3	-	Gopad,Sone
33	Gwalior	Madhya Pradesh	1083260	114.1	-	Vaishali
34	Ujjain	Madhya Pradesh	563210	49.4	-	Shipra
35	Tonk	Rajasthan	166870	21.4	-	Banas
36	Kota	Rajasthan	855960	145.0	-	Chambal
37	Udaipur	Rajasthan	478860	61.5	-	Banas/Berach
38	Bhilwara	Rajasthan	344630	44.3	-	Banas
39	Alwar	Rajasthan	320100	41.1	-	Arvari
40	Moradabad	Uttar Pradesh	788730	86.0	-	Ramganga
41	Deoria	Uttar Pradesh	128190	14.0	-	Lttle Gandak
42	Rampur	Uttar Pradesh	346310	37.7	-	Kosi
43	Banda	Uttar Pradesh	165830	18.1	-	Ken
44	Aligarh	Uttar Pradesh	821310	89.5	-	Karwan
45	Meerut	Uttar Pradesh	1321300	144.0	-	Kali
46	Muzaffarnagar	Uttar Pradesh	389040	58.0	32.0	Kali
47	Gonda	Uttar Pradesh	150260	16.4	-	Ghaghara
48	Hapur	Uttar Pradesh	260740	28.4	-	Kali
49	Bulandshahr	Uttar Pradesh	216790	23.6	-	Kali
50	Modinagar	Uttar Pradesh	148300	15.1	-	Kali
51	Ghaziabad	Uttar Pradesh	1191280	129.8	126.0	Hindon River
52	Saharanpur	Uttar Pradesh	557100	60.7	38.0	Hindon River
53	Gorakhpur	Uttar Pradesh	768220	83.7	-	Haldi, Rapti
54	Sultanpur	Uttar Pradesh	123100	13.4	6.4	Gomti River

[Table 3.12: Continued...]

S. No.	City/Town	States/UTs	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)	Treated Sewage Disposal (River)
55	Lucknow	Uttar Pradesh	2715030	295.8	417.0	Gomti River
56	Jaunpur	Uttar Pradesh	196800	21.4	-	Gomti
57	Bahraich	Uttar Pradesh	207100	22.6	-	Ghaghara
58	Faizabad	Uttar Pradesh	178260	19.4	-	Ghaghara
59	Basti	Uttar Pradesh	131590	14.3	-	Ghaghara
60	Lakhimpur	Uttar Pradesh	148300	16.2	-	Ghaghara
61	Shahjahanpur	Uttar Pradesh	366460	40.0	-	Deoha
62	Pilibhit	Uttar Pradesh	152620	16.6	-	Deoha
63	Maunath Bhanjan	Uttar Pradesh	258390	28.2	-	Chhoti Saryu
64	Azamgarh	Uttar Pradesh	129080	14.1	-	Chhoti Saryu
65	Jhansi	Uttar Pradesh	471400	51.4	-	Betwa
66	Lalitpur	Uttar Pradesh	137530	15.0	-	Betwa
67	Chandausi	Uttar Pradesh	127620	14.0	-	Badaun Stream
68	Sambhal	Uttar Pradesh	225000	24.5	-	Badaun Stream
69	Amroha	Uttar Pradesh	202810	22.1	-	Badaun Stream
70	Budaun	Uttar Pradesh	182210	20.0	-	Badaun Stream
71	Sitapur	Uttar Pradesh	186750	20.3	-	Sarangan
72	Bareilly	Uttar Pradesh	860800	93.8	-	Ramganga
73	Rae Bareli	Uttar Pradesh	208220	22.7	-	Sai
74	Etah	Uttar Pradesh	131730	15.8	-	Sirsa
75	Hardoi	Uttar Pradesh	138340	15.1	-	Sai
76	Kathgodam-Haldwani	Uttarakhand	158840	17.3	-	Ramganga
77	Kharagpur	West Bengal	239180	28.1	-	Kosai

[Table 3.12: Continued...]

S. No.	City/Town	States/UTs	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)	Treated Sewage Disposal (River)
78	Medinipur	West Bengal	176350	20.7	-	Kosai
79	Krishnanagar	West Bengal	159930	18.8	-	Jalangi
80	Puruliya	West Bengal	130830	15.4	-	Haldi
81	Asansol	West Bengal	1090171	65.7	-	Damodar
82	Durgapur	West Bengal	566950	66.6	-	Damodar
83	Raniganj	West Bengal	190010	16.6	-	Damodar
84	Baharampur	West Bengal	184190	21.6	8.0	Beel
85	Bankura	West Bengal	148130	17.4	-	Roopnarayan
86	Barasat	West Bengal	266240	31.3	-	Bidyadhari
87	Kulti	West Bengal	333570	39.2	-	Damodar
88	Jamuria	West Bengal	148870	17.5	-	Damodar
89	Bardhaman	West Bengal	328750	38.6	-	Damodar
90	Panihati	West Bengal	400640	47.0	16.5	Irrigation , Pissic, Canal
91	Bally	West Bengal	300810	35.3	45.0	Irrigation, Pissic, Canal
92	Titagarh	West Bengal	142830	16.8	23	Irrigation, Pissicult, Khal
93	Siliguri	West Bengal	540820	63.5	-	Mahananda
94	Hugli-Chinsurah	West Bengal	195730	23.0	-	Mahananda
95	Raiganj	West Bengal	190010	22.3	-	Mahananda
96	Balurghat	West Bengal	155840	18.3	-	Padma
97	Madhyamgram	West Bengal	178830	21.0	-	Sunti
98	Delhi	Delhi	14858800	2948.0	2330	Yamuna
99	Palwal	Haryana	132700	10.0	9.0	Yamuna
100	Faridabad	Haryana	1392570	118.2	115.0	Yamuna
101	Panipat	Haryana	345400	26.7	45	Yamuna
102	Sonipat	Haryana	285400	21.2	30	Yamuna
103	Karnal	Haryana	277830	28.6	48.0	Yamuna

[Table 3.12: Continued...]

S. No.	City/Town	States/UTs	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)	Treated Sewage Disposal (River)
104	Gurgaon	Haryana	229080	17.0	30	Yamuna
105	Jagadhri	Haryana	133720	10.0	-	Yamuna
106	Agra	Uttar Pradesh	1549770	211.7	90.25	Yamuna
107	Mathura	Uttar Pradesh	367560	40.0	27.0	Yamuna
108	Noida	Uttar Pradesh	361510	39.4	70	Yamuna
109	Firozabad	Uttar Pradesh	242930	37.4	-	Yamuna
110	Etawah	Uttar Pradesh	260100	28.3	10.45	Yamuna
111	Fatehpur	Uttar Pradesh	186660	20.3	-	Yamuna
112	Hathras	Uttar Pradesh	151590	16.5	-	Yamuna
113	Orai	Uttar Pradesh	171520	18.7	-	Yamuna
	Total			7841.5	3670.24	

**Table 3.13: Sewage Generation of Class - I Cities in Ganga Basin
[Disposal in land]**

S. No.	City/Town	States/UTs	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)	Treated Sewage Disposal (River)
1	Purnia	Bihar	191780	31.0	-	Land
2	Dinapur Nizamat	Bihar	145980	23.6	-	Land
3	Rohtak	Haryana	378540	28.1	-	Land
4	Hisar	Haryana	338990	25.2	-	Land
5	Bhiwani	Haryana	223640	17.6	-	Land
6	Hansi	Haryana	99210	5.6	-	Land
7	Narnaul	Haryana	81340	4.5	-	Land
8	Thanesar	Haryana	158500	11.8	-	Land
9	Jind	Haryana	179640	13.3	-	Land
10	Bahadurgarh	Haryana	158190	11.7	-	Land
11	Rewari	Haryana	133250	10.0	-	Land
12	Kaithal	Haryana	154740	11.5	-	Land
13	Mango	Jharkhand	204290	30.1	-	Land
14	Adityapur	Jharkhand	146640	21.6	-	Land
15	Murwara (Katni)	Madhya Pradesh	244630	21.5	-	Land
16	Jaipur	Rajasthan	2858910	367.2	54.0	Land
17	Jhunjhunun	Rajasthan	123590	16.0	-	Land
18	Loni	Uttar Pradesh	148410	16.2	-	Land
19	Baranagar	West Bengal	288210	33.8	44.50	Land
20	Rajarhat Gopalpur	West Bengal	312550	36.7	-	Land
21	Bidhan Nagar	West Bengal	193030	22.7	-	Land
22	English Bazar	West Bengal	185670	21.8	-	Land
23	Uttarpara Kotrung	West Bengal	172730	20.3	-	Land
24	Dumdum	West Bengal	116520	13.7	-	Land
25	Barrackpur	West Bengal	165980	19.5	22.15	Land
26	Khardaha	West Bengal	133690	15.7	3.0	Land

[Table 3.13: Continued...]

S. No.	City/Town	States/UTs	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)	Treated Sewage Disposal (River)
27	Baidyabati	West Bengal	124470	14.6	2.0	Land
28	Bhadreswar	West Bengal	121840	14.3	6.0	Land
29	Bansberia	West Bengal	120120	14.1	2.80	Land
30	Champdani	West Bengal	118720	14.0	12.00	Land
	Total			907.4	146.45	

3.2.5.2 Sewage generation of Class-II Towns in Ganga basin :

Information of sewage generation of Class-II Towns in Ganga basin is provided in the table 3.14(disposal into Ganga River), table 3.15 (disposal in tributaries) and table 3.16(disposal in land) respectively.

Table 3.14: Sewage generation of Class - II towns in Ganga basin (Disposal in Ganga river)

S. No.	City/Town	States/UTs	Population	Total Sewage (in MLD)	Capacity of STP (in MLD)
1	Buxar	Bihar	82975	7.6	2.0
2	Sitamarhi	Bihar	56769	6.5	-
3	Begusarai	Bihar	93378	8.6	-
4	Mokameh	Bihar	56400	8.0	-
5	Najibabad	Uttar Pradesh	79087	7.6	-
6	Bijnor	Uttar Pradesh	79368	7.6	8.1
7	Mughalsarai	Uttar Pradesh	88386	16.0	-
8	Ghazipur	Uttar Pradesh	95243	10.7	-
9	Kannauj	Uttar Pradesh	71530	7.0	-
10	Deoband	Uttar Pradesh	81706	7.8	-
11	Gangaghat	Uttar Pradesh	70817	6.8	-
12	Rishikesh	Uttarakhand	59671	10.7	6.3
13	Roorkee	Uttarakhand	97064	11.0	-
14	Ranaghat	West Bengal	68754	6.0	-
	Total			122.0	16.4

**Table 3.15: Sewage generation of Class - II towns in Ganga basin
[Disposal in tributaries]**

S. No.	City/Town	States/UTs	Population	Total Sewage, (in MLD)	Treatment Capacity (in MLD)	Treated Sewge Disposal (River)
1	Jehanabad	Bihar	98070	7.5	-	Punpun
2	Aurangabad	Bihar	95220	7.3	-	Punpun
3	Dhar	Madhya Pradesh	77740	5.4	-	Chambal
4	Nagda	Madhya Pradesh	99420	7.0	9.0	Chambal
5	Sehore	Madhya Pradesh	93660	7.0	-	Kali Sindh
6	Chhatarpur	Madhya Pradesh	102500	7.2	-	Ken
7	Mhow Cantt.	Madhya Pradesh	87570	13.8	-	Khan River
8	Chittaurgarh	Rajasthan	109470	6.4	-	Berach
9	Baran	Rajasthan	89340	5.3	-	Chambal
10	Gangapur City	Rajasthan	110350	6.4	-	Chambal
11	Bundi	Rajasthan	100680	6.2	-	Chambal
12	Dhaulpur	Rajasthan	105040	6.8	-	Chambal
13	Sawai Madhopur	Rajasthan	111140	6.4	-	Chambal
14	Khurja	Uttar Pradesh	114550	9.4	-	Kali
15	Kasganj	Uttar Pradesh	107650	9.2	-	Kali
16	Kashipur	Uttarakhand	108230	9.4	-	Kosi
17	Rudrapur	Uttarakhand	103270	8.5	-	Yamuna
18	Bishnupur	West Bengal	70180	5.3	-	Damodar
	Total		1592206	134.6	9.0	

**Table 3.16: Sewage generation of Class - II towns in Ganga basin
(Disposal in land)**

S. No.	City/Town	States/UTs	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)	Treated Sewage Disposal
1	Lakhisarai	Bihar	93410	7.2	-	Land
2	Madhubani	Bihar	79540	6.1	-	Land
3	Jamalpur	Bihar	115990	9.0	-	Land
4	Nawada	Bihar	98750	7.6	-	Land
5	Bagaha	Bihar	109660	8.4	-	Land
6	Samastipur	Bihar	66710	5.1	-	Land
7	Araria	Bihar	72710	5.6	-	Land
8	Gopalganj	Bihar	65300	5.0	-	Land
9	Jamui	Bihar	80100	6.1	-	Land
10	Kishanganj	Bihar	102590	9.6	-	Land
11	Phulwari Sharif	Bihar	63800	5.0	-	Land
12	Supaul	Bihar	64820	5.0	-	Land
13	Ambikapur	Chhatisgarh	74580	4.8	-	Land
14	Hansi	Haryana	99210	5.6	-	Land
15	Narnaul	Haryana	81340	4.5	-	Land
16	Phusro	Jharkhand	100160	7.7	-	Land
17	Daltonganj	Jharkhand	85570	6.6	-	Land
18	Ramgarh Cantt.	Jharkhand	88150	7.2	-	Land
19	Juumri Tilaiya	Jharkhand	83330	7.3	-	Land
20	Giridih	Jharkhand	118280	9.1	-	Land
21	Deoghar	Jharkhand	118050	9.1	-	Land
22	Sindri	Jharkhand	92190	7.1	-	Land
23	Jharia	Jharkhand	98370	7.5	-	Land
24	Bina Etawa	Madhya Pradesh	52720	7.2	-	Land
25	Datia	Madhya Pradesh	85220	6.0	-	Land
26	Shahdol	Madhya Pradesh	80940	5.7	-	Land
27	Tikamgarh	Madhya Pradesh	70630	4.9	-	Land
28	Murwara (Katni)	Madhya Pradesh	244630	21.5	-	Land
29	Pithampur	Madhya Pradesh	70090	5.0	-	Land
30	Ashok Nagar	Madhya Pradesh	59410	4.2	-	Land
31	Dabra	Madhya Pradesh	58360	4.1	-	Land
32	Jaora	Madhya Pradesh	65650	4.6	-	Land
33	Seoni	Madhya Pradesh	92490	8.4	-	Land
34	Shajapur	Madhya Pradesh	51590	3.6	-	Land
35	Sheopur	Madhya Pradesh	56680	4.0	-	Land
36	Basoda	Madhya Pradesh	64230	4.5	-	Land
37	Jhunjhunun	Rajasthan	123590	16.0	-	Land
38	Kishanganj	Rajasthan	142870	18.4	-	Land
39	Bharatpur	Rajasthan	251480	32.3	-	Land
40	Makrana	Rajasthan	94950	5.5	-	Land
41	Nawalgarh	Rajasthan	64390	3.7	-	Land
42	Hindaun	Rajasthan	96650	5.6	-	Land
43	Nimbahera	Rajasthan	60790	3.5	-	Land
44	Tanda	Uttar Pradesh	96700	8.0	-	Land
45	Baraut	Uttar Pradesh	99900	8.2	-	Land

[Table 3.16 Continued...]

S. No.	City/Town	States/Us	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)	Treated Sewage Disposal
46	Balrampur	Uttar Pradesh	84060	7.0	-	Land
47	Shahabad	Uttar Pradesh	78760	6.5	-	Land
48	Chandpur	Uttar Pradesh	79570	6.6	-	Land
49	Nagina	Uttar Pradesh	83000	6.8	-	Land
50	Sahaswan	Uttar Pradesh	67740	5.6	-	Land
51	Sikandrabad	Uttar Pradesh	81370	6.7	-	Land
52	Shikohabad	Uttar Pradesh	102520	8.5	-	Land
53	Mubarkpur	Uttar Pradesh	59460	6.3	-	Land
54	Pilkhua	Uttar Pradesh	78210	6.5	-	Land
55	Mahoba	Uttar Pradesh	91730	7.6	-	Land
56	Mainpuri	Uttar Pradesh	104220	10.0	-	Land
57	Mawana	Uttar Pradesh	80550	6.6	-	Land
58	Kairana	Uttar Pradesh	85030	7.0	-	Land
59	Shamli	Uttar Pradesh	104600	8.6	-	Land
60	Tanda	Uttar Pradesh	96700	8.0	-	Land
61	Bela Pratapgarh	Uttar Pradesh	83620	8.0	-	Land
62	Bhadohi	Uttar Pradesh	86650	7.1	-	Land
63	Agga Cantt.	Uttar Pradesh	65410	5.4	-	Land
64	Auraiya	Uttar Pradesh	75190	6.2	-	Land
65	Nawabganj	Uttar Pradesh	87400	7.2	-	Land
66	Baheri	Uttar Pradesh	68180	5.6	-	Land
67	Faridpur	Uttar Pradesh	71030	6.0	-	Land
68	Sherkot	Uttar Pradesh	61540	5.1	-	Land
69	Kiratpur	Uttar Pradesh	64380	5.3	-	Land
70	Ujhani	Uttar Pradesh	59420	5.0	-	Land
71	Jahangirabad	Uttar Pradesh	59790	5.0	-	Land
72	Dadri	Uttar Pradesh	66880	5.5	-	Land
73	Muradnagar	Uttar Pradesh	86230	7.1	-	Land
74	Behta Hajipur	Uttar Pradesh	119900	9.1	-	Land
75	Rath	Uttar Pradesh	65110	5.4	-	Land
76	Jalaun	Uttar Pradesh	58240	4.8	-	Land
77	Konch	Uttar Pradesh	59050	5.0	-	Land
78	Mauranipur	Uttar Pradesh	59230	5.0	-	Land
79	Hasanpur	Uttar Pradesh	62090	5.1	-	Land
80	Chhibramau	Uttar Pradesh	58520	4.8	-	Land
81	Gola Gokarannath	Uttar Pradesh	62660	5.2	-	Land
82	Khatauli	Uttar Pradesh	68090	5.6	-	Land
83	Bisalpur	Uttar Pradesh	70630	5.8	-	Land
84	Gangoh	Uttar Pradesh	62790	5.2	-	Land
85	Tilhar	Uttar Pradesh	61590	5.1	-	Land
86	Laharpur	Uttar Pradesh	58290	4.8	-	Land
87	Obra	Uttar Pradesh	60990	5.0	-	Land
88	Renukoot	Uttar Pradesh	62300	5.1	-	Land
89	Vrindavan	Uttar Pradesh	65900	5.4	4.50	Land
90	Katwa	West Bengal	81090	6.2	2.30	Land
91	Suri	West Bengal	70040	6.0	-	Land

[Table 3.16 Continued...]

S. No.	City/Town	States/UT	Population	Total Sewage (in MLD)	Treatment Capacity (in MLD)	Treated Sewage Disposal
92	Contai	West Bengal	87800	6.7	-	Land
93	Bolpur	West Bengal	74390	5.6	-	Land
94	Arambag	West Bengal	63590	4.8	-	Land
95	Jangipur	West Bengal	84370	6.4	-	Land
96	Chakdaha	West Bengal	98530	8.3	-	Land
97	Kalna	West Bengal	59120	4.5	-	Land
98	Rampurhat	West Bengal	57340	4.4	-	Land
99	Gangarampur	West Bengal	60670	4.6	-	Land
100	Alipurduar	West Bengal	82760	6.3	-	Land
101	Koch Bihar	West Bengal	87030	9.5	-	Land
102	Old Maldah	West Bengal	71320	5.4	-	Land
103	Ghatal	West Bengal	58450	4.4	-	Land
104	Jhargram	West Bengal	60230	4.6	-	Land
105	Kharagpur Rly. Settlement	West Bengal	100090	7.6	-	Land
106	Kandi	West Bengal	57040	4.3	-	Land
107	Dhulian	West Bengal	82600	6.3	-	Land
108	Phulia	West Bengal	56940	4.3	-	Land
109	New Barrackpur	West Bengal	94250	7.2	-	Land
110	Islampur	West Bengal	59780	4.5	-	Land
111	Konnagar	West Bengal	81820	6.2	22.0	Land
112	Gayespur	West Bengal	62350	4.7	-	Land
113	Kalyani	West Bengal	92890	7.1	17	Land
114	Garulia	West Bengal	86460	6.6	7.90	Land
115	Budge Budge	West Bengal	85500	6.5	0.18	Land
	Total			767.3	53.88	

Table 3.17 gives the summary of the wastewater generation, treatment and disposal in Ganga basin, which is also reflected in figure

Table 3.17: Wastewater generation in Ganga basin

Category	Wastewater Volume (MLD)	Disposal
Class - I (36)	2637.7	Ganga river
Class - II (14)	122	Ganga river
	Total=2759.7	
Class - I (113)	7841.5	Other rivers (tributaries)
Class - II (18)	134.6	Other rivers (tributaries)
	Total=7976.1	
Class - I (30)	907.4	Land
Class - II (115)	767.3	Land
	Total=1674.7	
	Grand Total=12410.5	

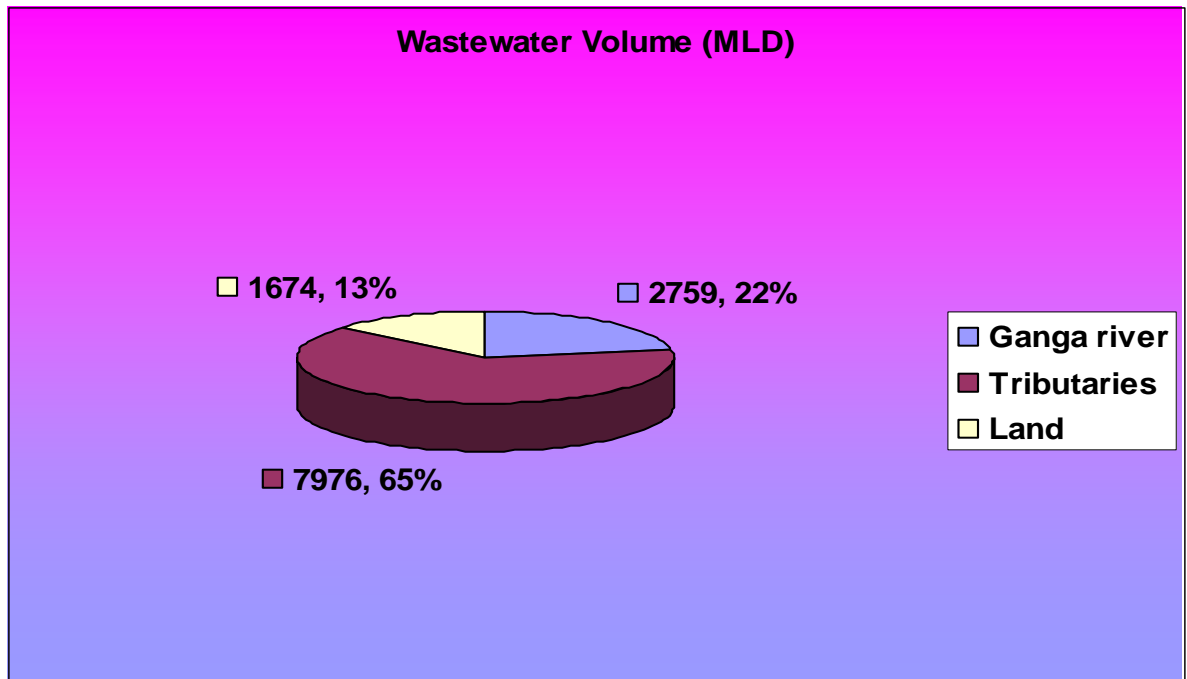


Figure 3.10: Percent disposal of wastewater in Ganga Basin

3.2.6 Status of Sewage generation in coastal Areas:

India, by virtue of its geographical location is having 8118 Km long coast line. A coastal area accommodates about 25% of countries total population. The domestic effluent of the municipal wastewater constitutes the largeness coastal pollution. The wastewater generated from the township and cities find its ultimate way I to the coastal waters including estuaries, creeks, bays etc. for years, indeed there is no other choice, when the production wastewater was a smaller magnitude and the urban centers /town where less density populated, this approaches did not degrade the environment. The disposed municipal sewage into the coastal water or ocean has been the advantage of the capacity of the sea, where the wastewater pollutant becomes equivalent and better than any conventional treatment plant, depending on the carrying capacity of the dilution factor. The concept Is that many factors s such as dilution, temperature, absorption, nutrient deficiency of the sea acting on it. The marine environment is generally unfavorable to the survival of most pathogenic organisms. However, under special circumstances, particularly in temperate and tropical coastal water in near the large cities, the pathogenic agents may be found in marine water in the proximity of coast line and estuary. In spite of that, the final disposal of sewage using marine outfall s has become actual solution of the coastal cities all over the world. In India, no such practice is followed except in Mumbai, where municipal sewage is being dispose of into marine out fall. In coastal, newer the less, from all other cities and towns located all along coast line of the country, the municipal wastewater either retreated or partially treated reaches the wastewater directly or indirectly,. In order to access the municipal wastewater that reaches the coastal waters of the country a study has been conducted in class-I cities (population more than 1,00,000) including metro cities and class-II towns (population between 50,000 and 99,999) located in the coastal area of the country. Following details regarding coastal areas have also been provided:

- Trend of the population growth in coastal cities and towns
- Trend of urbanization in the coastal areas

- Trend of wastewater generation, treatment and disposal in the class-I cities, class-II towns and metro cities in the coastal areas.

State wise distribution of Metro Cities, Class-I Cities and Class-II Towns cities is summarized in table 3.17. It is observed that Andhra Pradesh, Gujarat, Kerala houses maximum number of cities. In Kerala the class-I cities and class-II towns are evenly distributed, whereas in Gujarat, Andhra Pradesh Class-I towns are more predominant. Population wise West Bengal, Tamilnadu and Maharashtra are in predominate position. This is due to the mega polish like Mumbai, Kolkata and Chennai are located in these 3 states. Coastal stretch is largest in case of Andaman & Nicobar, Gujarat, and Tamilnadu. Shortest coastal stretch in case of Goa and West Bengal. The locations of coastal cities are shown in figure 3.12.

3.2.6.1 States and Union Territories wise Distribution of Metro and Class-I cities and Class-II Towns in the coastal areas:

Table 3.17: States and Union Territories wise distribution of Coastal Metro cities and Class-I cities and Class-II Towns

S.No.	Coastal State/UT	Coastal Stretch (in KM)	Population	Number of Metro cities	Number of Class-I cities including metro cities	Number of Class-II towns	Total No. of Cities and Towns
1	Andhra Pradesh	974	5343940	1	13	5	18
2	Goa	104	295180	-	1	2	3
3	Gujarat	1663	5426029	1	9	4	13
4	Karnataka	300	701344		2	1	3
5	Kerala	560	4555591	1	9	11	20
6	Maharashtra	720	15790854	1	4	2	6
7	Orissa	480	1338860	-	4	-	4
8	Tamilnadu	1076	6847419	1	4	8	12
9	West Bengal	158	6959260	1	5	1	6
10	Andaman And Nicobar	1912	107200		1	-	1
11	Pondicherry	45	333550		1	1	2
	Total	7992	47699227	7	53	35	88



Figure 3.12: Location of Metro Cities, Class-I Cities and Class-II Towns in Coastal area

3.2.6.2 Observation of Class –I Cities in Coastal Areas:

Status of water supply, sewage generation in Class-I cities' of coastal areas is summarized in Table 3.18. Close examination to Table 3.18 reveals the following information:

- Sewage generation in class-I cities of coastal areas is 6215.84 MLD. Class-I cities in Andhra Pradesh generates 402.76 MLD (6.47 %), Goa generates 9.79 MLD (0.15 %), Karnataka generates 107.55 (1.7%), Kerala generates 764.14 (12.29 %), Maharashtra generates 2549.86 (41.08 %), Orissa generates 253.64 (4.08 %), Tamilnadu 497.81 (8%), West Bengal generates 898.67(14.54 %), Andaman & Nicobar generates 12 MLD (0.19 %), Pondicherry generates 28.43 MLD (0.45 %) . This indicates that Maharashtra constitutes the maximum percentage. This is due to city of Mumbai which generates 2400 MLD i.e. 38 % of total wastewater generation of coastal areas. Wastewater generation of West Bengal coastal areas due to Metropolitan city of Kolkata. So is the case with Chennai in respect to Tamilnadu. It can therefore be concluded that wastewater of Chennai, Mumbai and Kolkata if treated and properly disposed to coastal areas through diffuser or use the treated wastewater for other purposes, nearly 60% problem of wastewater to coastal areas shall be solved.
- Sewage treatment capacity in Class-I cities of Coastal areas is reported 3037.14 MLD that is 48.86 % of total wastewater generation.
- There is a linear relationship between per capita water supply and sewage generation. With reference to per capita water supply there are two distinct group of states are emerging. One group of state such as Andhra Pradesh , Goa, Tamilnadu are around one hundred MLD and there are states like Karnataka , Kerala , Maharashtra, Orissa and West Bengal are more that two hundred . The Andaman Nicobar, Pondicherry , Gujarat are more than 100 lpcd.
- Average water supply to Coastal towns is 111.4. In comparison to per capita water supply of class-I cities (186.58 lpcd), of India, the coastal cities of India are less. This indicates that per capita waste water generation in coastal cities is less than the class-I cities of India.

Table 3.18: Status of Water Supply, Sewage Generation in Class-I cities of coastal areas

S. No.	State/UT/City	Population in year 2008	Total Water Supply (MLD)	Per Capta Water Supply (lpcd)	Sewage Generation (MLD)	Per Capita Sewage Generation (lpcd)	Treatment Capacity (MLD)	Mode of Disposal
Andaman & Nicobar Islands								
1	Portblair	107200	15.008	140	12.0064	112	-	
	Subtotal	107200	15.008	140	12.0064	112		
Andhra Pradesh								
1	Tenali	230750	5.34	23.14	4.72	20.46	-	-
2	Vizianagram	268460	28.86	107.5	23.09	86.01	-	-
3	Vishakhapatnam	1493200	168.74	113.01	135	90.41	-	sea
4	Srikakulam	168890	18.15	107.47	14.52	85.97	-	-
5	Bhimawaram	211480	22.74	107.53	18.19	86.01	-	Canal, Godavari River
6	Eluru	292250	30.9	105.73	24.72	84.59	-	Canal, Godavari River
7	Kakinda	446480	48	107.51	38.4	86.01	-	Sea, Creek, Agriculture
8	Machilipatnam	282390	30.36	107.51	24.29	86.02	-	Canal, Godavari River
9	Rajamundry	482550	34.08	70.62	27.261	56.49	30.04	-
10	Chirala	131600	8.06	61.25	6.45	49.01	-	-
11	Nellore	583580	63.46	108.74	50.77	87	-	Pennar River
12	Ongle	230370	25.6	111.13	20.48	88.9	-	-
13	Gudivada	172860	18.59	107.54	14.87	86.02	-	
	Subtotal	4994860	502.88	100.68	402.761	80.64	30.04	Canal, Godavari River
Gujarat								
1	Bharuch	182520	31.49	172.53	25.19	138.01	-	-
2	Bhavnagar	628480	108.41	172.5	86.73	138	-	Creek

[Table 3.18: Continued...]

S.No.	State/UT/City	Population in year 2008	Total Water Supply (MLD)	Per Capita Water Supply (lpcd)	Sewage Generation (MLD)	Per Capita Sewage Generation (lpcd)	Treatment Capacity (MLD)	Mode of Disposal
3	Gandhidham	128629	8.2	63.74	6.55	50.99	-	-
4	Jamnagar	550710	95	172.5	76	138	-	-
5	Navsari	164830	29.4	178.37	23.52	142.69	-	-
6	Porbandar	163690	28.24	172.52	22.59	138	-	-
7	Surat	2993560	540	180.39	432	144.31	302.5	Creek
8	Valsad	132000	23.26	176.21	18.61	140.98	-	-
9	Veraval	173680	29.96	172.5	23.97	138.01		Sea
	Subtotal	5118099	893.96	174.67	715.16	139.73	302.5	
	Goa							
1	Marmgao	122330	12.24	100.06	9.79	80.03	-	Sea
	Subtotal	122330	12.24	100.06	9.79	80.03		-
	Karnataka							
1	Manglore	490460	125.44	255.76	100.35	204.6	-	-
2	Udupi	139040	9	64.73	7.2	51.78	12	-
	Subtotal	629500	134.44	213.57	107.55	170.85	12	
	Kerala							
1	Alappuzha	189470	235.5	1242.94	188.4	994.35	-	
2	Guruvayoor	126936	16.2	127.67	12.8	100.84	-	-
3	Kochi	1355406	235.5	173.75	188.4	139	-	Cochin Backwater
4	Kollam	386740	29	74.99	23.2	59.99	-	-
5	Kozhikode	467080	81.15	173.74	64.92	138.99	-	-
6	Sherthalai	142184	24.7	173.72	19.8	139.26	-	-
7	Thrisur	339700	91.09	268.15	72.87	214.51	-	-
8	Thrivananthpuram	796870	225	282.35	180	225.88	-	-
9	Tellicherry (Talassery)	103360	17.19	166.31	13.75	133.03	-	-
	Subtotal	3907746	955.33	244.47	764.14	195.54		
	Maharashtra							
1	Bhiwandi	736400	158.33	215.01	126.66	172	8	Creek
2	Mumbai	14654710	3000	204.71	2400	163.77	2130	Sea, Creek
3	Panvel	127960	14	109.41	11.2	87.53	1.7	-
4	Virar	146300	15	102.53	12	82.02	-	-
	Subtotal	15665370	3187.33	203.46	2549.86	162.77	2139.7	

[Table 3.18: Continued...]

S.No.	State/UT/City	Population in year 2008	Total Water Supply (MLD)	Per Capita Water Supply (lpcd)	Sewage Generation (MLD)	Per Capita Sewage Generation (lpcd)	Treatment Capacity (MLD)	Mode of Disposal
	Orissa							
1	Baleshwar	130420	30.33	232.56	24.26	186.01	-	-
2	Behrampur	356360	82.85	232.49	66.28	185.99	-	-
3	Cuttack	658220	158.8	241.26	127.04	193.01	33	-
4	Puri	193860	45.08	232.54	36.06	186.01	20	-
	Subtotal	1338860	317.06	236.81	253.64	189.44	53	
	Tamilnadu							
1	Cuddalore	207730	21.04	101.29	16.83	81.02	-	-
2	Chennai	5523310	559.24	101.25	447.39	81	264	Sea, River, Canal
3	Nagarcoil	272680	27.61	101.25	22.09	81.01	-	-
4	Tuticorin	261808	14.4	55	11.5	43.93	-	-
	Subtotal	6265528	622.29	99.32	497.81	79.45	264	
	West Bengal							
1	Basirhat	130090	21.95	168.73	17.56	134.98	-	-
2	Kolkata	5267630	1625	308.49	705.86	134	172	Hugli River, Fish Form
3	Haldia	196300	3.5	17.83	2.8	14.26		-
4	Howrah	1160010	195.75	168.75	156.6	135	63.9	-
5	Bangaon	117430	19.81	168.7	15.85	134.97	-	-
	Subtotal	6871460	1866.01	271.56	898.67	130.78	235.9	
	Pondicherry							
1	Pondicherry	253860	35.54	140	28.43	111.99	-	-
	Total	45101133	8512.12	188.73	6215.84	137.82		

3.2.6.3 Observation in Class -II Towns of Coastal Areas

Status of water supply, sewage generation in Class-II Towns of coastal areas is summarized in Table 3.19. Close examination to Table 3.19 reveals the following information:

- Sewage generation in class-II Towns of coastal areas is 216.03 MLD.
- Class-II Towns in Andhra Pradesh generates 23.83 MLD (9.02 %), Goa generates 13.83 MLD (6.4 %), Karnataka generates 0.60MLD (0.16%), Kerala generates 100.13 (46%), Maharashtra generates 9.16 (4.24 %), Tamilnadu 25.93 (12%), West Bengal generate 7.55(3.49 %), Pondicherry generates 7.98 MLD (3.69%) . This indicates coastal class-II cities of Kerala is the largest generator of wastewater , the cities of Kerala if can

provide the proper sewage treatment and disposal system the problems shall be minimized to a great extent

- Per capita water supply of class-II towns of coastal areas is generally around 100 lpcd, however in Karnataka at Kawar per capita water supply is very low, Class-II Towns in coastal areas of Kerala appears to be 100.13 which exception of Kannur town where the per capita water supply is very high but in Kayamkulam the situation is reverse .

Table 3.19: Status of Water Supply, Sewage Generation in Class-II Towns of coastal areas

S.No.	State/UT/City	Population in year 2008	Total Water Supply (MLD)	Per Capita Water Supply (lpcd)	Sewage Generation (MLD)	Per Capita Sewage (lpcd)	Treatment Capacity (MLD)	Mode of Disposal
	Andhra Pradesh							
1	Anakapally	84820	5.2	61.31	4.16	49.05	-	-
2	Gudur	69550	6.18	88.86	4.94	71.03	-	-
3	Kavali	78630	4.81	61.17	3.85	48.96	-	-
4	Narsapur	58710	3.6	61.32	2.88	49.05	-	-
5	Palakol	57370	10	174.31	8	139.45	-	-
	Sub Total	349080	29.79	85.34	23.83	68.27		
	Goa							
1	Panji	74070	7.41	100.04	5.93	80.06	10	Sal River
2	Margao	98780	9.88	100.02	7.9	79.98	-	Sea
	Sub Total	172850	17.29	100.03	13.83	80.01		Mandovi River
	Gujarat							
1	Ankleshwer	77470	8	103.27	6.4	82.61		-
2	Bilimora	58240	5	85.85	4	68.68	-	-
3	Khambhat	91700	9	98.15	7.2	78.52	-	Sea
4	Mahuva	80520	12.08	150.02	9.66	119.97	-	Irrigation
	Sub Total	307930	34.08	110.67	27.26	88.53	-	
	Karnataka						-	
1	Karwar	71770	0.45	6.27	0.36	5.02	-	Coastal Regulation Zone
	Sub Total	71770	0.45	6.27	0.36	5.02	-	

[Table 3.19: Continued...]

S.No.	State/UT/City	Population in year 2008	Total Water Supply (MLD)	Per Capita Water Supply (lpcd)	Sewage Generation (MLD)	Per Capita Sewage (lpcd)	Treatment Capacity (MLD)	Mode of Disposal
	Kerala						-	
1	Changanassery	54040	8.99	166.36	7.19	133.05	-	-
2	Kassaragod	54790	9.11	166.27	7.29	133.05	-	-
3	Kayamkulam	67910	2.28	33.57	1.82	26.8	-	-
4	Kodungallur	32405	5.39	166.33	4.31	133	-	-
5	Payyannur	71460	11.88	166.25	9.5	132.94	-	-
6	Ponnani	90850	15.1	166.21	12.08	132.97	-	-
8	Kanhangad	68120	11.33	166.32	9.06	133	-	-
9	Kannur	66350	30	452.15	24	361.72	-	-
10	Kottayam	63150	18	285.04	14.4	228.03	-	-
11	Vadakara (Badagara)	78770	13.1	166.31	10.48	133.05	-	-
	Sub Total	647845	125.18	193.23	100.13	154.56		
	Maharashtra							
1	Ratnagiri	80180	7.31	91.17	5.85	72.96	-	-
2	Vasai	45304	4.14	91.38	3.31	73.06	-	-
	Sub Total	125484	11.45	91.25	9.16	73		
	Tamilnadu							
1	Chengalpattu	76410	4.96	64.91	3.97	51.96	-	-
2	Chidambaram	71940	5.04	70.06	4.03	56.02	-	-
3	Mayiladuthurai	93741	5.15	54.94	4.12	43.95	-	-
4	Nagapattinam	86489	4.76	55.04	3.81	44.05	-	-
5	Panruti	67590	5.6	82.85	4.48	66.28	-	-
6	Ramanathpuram	75610	1.5	19.84	1.2	15.87	-	-
7	Tindivanam	82750	3.9	47.13	3.12	37.7	-	-
8	Tiruchendur	27361	1.5	54.82	1.2	43.86	-	-
	Sub Total	581891	32.41	55.7	25.93	44.56	-	
	West Bengal						-	-
2	Contai	87800	9.44	107.52	7.55	85.99	-	-
	Sub Total	87800	9.44	107.52	7.55	85.99	-	-
	Pondicherry							
1	Karaikal	79690	9.98	125.24	7.98	100.14	-	-
	Sub Total	79690	9.98	125.24	7.98	100.14	-	-
	Total	2424340	270.07	111.4	216.03	89.11		

3.2.6.4 Observation on trend of Water Supply, Wastewater Generation in Cities and towns of coastal areas:

Trend of water supply, wastewater generation in cities and towns of coastal areas is summarized in Table 3.20:

Salient features of the trend are furnished below:

- In decade of 90's the growth of cities is observed is 33% while , the growth of the decade in beginning of millennium is slowed down. Metropolitan cities is increased from 3 to 6 Nos. from 80's to 2008. Class-I cities increase from 37 to 53 Nos. Class-II towns increase from 22 to 35. This trend indicates that all type of cities has grown in the decade of 90's . The growth of Metropolitan cities , class-I Cities, Class-II towns has been shown in figure 2.
- Since the cities are growing, the population is enhanced from 3 crores to 4.8 crores
- Consequently water supply has been increased approximately twice in magnitude (from 4970 MLD to 8782 MLD).
- The sewage generation has been enhanced 38 %.
- Comparing the data of decades of 90's to 2008, it is indicated that coastal cities and towns are not growing significantly.
- Treatment capacity of sewage in comparison to decade of 80's to until now has increased almost double (93%).

Table 3.20: Trend of water supply, wastewater generation, treatment and its disposal in cities and towns located in the coastal areas 1988-2008

	Year 1988				Year 1999				Year 2008			
	Metro Cities	Class-I Cities	Class-II Towns	Total	Metro Cities	Class-I Cities	Class-II Towns	Total	Metro Cities	Class-I Cities	Class-II Towns	Total
Number of Cities	3	37	22	59	6	50	37	87	6	53	35	88
Population Projected	18744666	29147026	1877185	31024211	35971972	45561552	2605818	48167370	31287816	45101133	2424340	47525473
Total Water Supply (in MLD)	3369.1	4710.57	260.25	4970.82	5722.5	6689.25	265.53	6954.78	6128.48	8512.12	270.07	8782.19
Per Capita Water Supply (lpcd)	179.7	161.61	138.64	160.22	159.08	146.82	101.9	144.39	195.87	188.73	111.39	184.79
Sewage Generation (in MLD)	2694.4	3771.26	208.38	3979.64	4334.9	5389	171.99	5560.99	4308.64	6215.84	216.03	6431.87
Treatment Capacity (in MLD)	81.07	193.9	-	193.9	402	483.01	38.5	521.51	2768	3025.14	-	3025.14

3.2.6.5 Observation of Status of water supply, sewage generation, Treatment capacity in Metro cities of Coastal Areas:

Status of water supply, sewage generation, Treatment capacity in Metro cities of Coastal Areas is summarized below in Table 3.21:

- Total Sewage generation in Metro Cities of coastal areas is 4308 MLD. Mumbai generates 2400 MLD (55.71%), Kolkata generates 705.86 MLD (16.38 %), Cochin generates 188.4 MLD (4.37%), Chennai generates 447.39 MLD (10.38%), Surat generates 432 (10.02 %), and Vishakhapatnam generates 134.99 MLD (3.13 %).
- Per capita water supply in Metro cities of coastal areas ranges from 101 to 308 lpcd.
- Total Treatment capacity in Metro cities of Coastal Areas is 2768 MLD. Mumbai has the capacity of 2130 MLD (76%), Chennai has the capacity of 264 MLD (9.53%), Surat has the capacity of 202 MLD (7.29 %).
- It is observed that City of Mumbai generates maximum sewage (2400MLD) and also the maximum treatment capacity of 2130 MLD (88% of its own sewage generation).
- Total Population of Class-I Cities in coastal areas is 4,51,011,33 and Class-II towns is 24,24,340, population of coastal Metro cities is 31287816, which is 65% of total population of coastal class-I cities and Class-Towns.

Table 3.21: Status of Water Supply, Sewage Generation in Metro-cities located on the coastal areas

S.No.	State/UT/City	Population in year 2008	Total Water Supply (MLD)	Per Capita Water Supply (lpcd)	Sewage Generation (MLD)	Per Capita Sewage (lpcd)	Treatment Capacity (MLD)	Mode of Disposal
1	Mumbai	14654710	3000	204.71	2400	163.77	2130	Sea, Creek
2	Kolkata	5267630	1625	308.49	705.86	134	172	Hugli River
3	Cochin	1355406	235.5	173.75	188.4	139	-	Backwaters
4	Chennai	5523310	559.24	101.25	447.39	81	264	Sea, River
5	Surat	2993560	540	180.39	432	144.31	202	Creek, Garden
6	Vishakhapatnam	1493200	168.74	113.01	134.99	90.4	-	-
	Total	31287816	6128.48	195.87	4308.64	137.71	2768	

3.2.6.6 State wise Summary on Population, water supply, wastewater generation, treatment in coastal Class-I cities and Class-II towns during 2008

State wise summary is depicted in table 3.22. It is observed from table 3.22 that the coastal population is mostly located in the states of Andhra Pradesh, Gujarat, Maharashtra, Tamilnadu, West Bengal and Kerala. Per capita water supply is higher in case of West Bengal, Kerala, Maharashtra and Orissa. Maximum Wastewater Generation is from the coastal towns of Maharashtra, Kerala and West Bengal. As observed earlier that the two mega polish Mumbai and Kolkata are located in Maharashtra and West Bengal respectively and these are the major contributor of waste water generation in two states. With respect to Kerala class-I cities and Class-II towns are evenly distributed. With respect to waste water generation, if the cities of Kolkata and Mumbai are not considered cities in Gujarat and Kerala should be in priority list for waste collection, disposal and treatment. Since in these two States numbers of cities are high, water supply, wastewater generation is evenly distributed.

Table 3.22: State-wise distribution of population, water supply, wastewater generation, treatment in coastal Class-I cities and Class-II towns during 2008

S.No.	State /UT	Population Estimated	Water Supply (MLD)	Per Capita Water Supply (lpcd)	Wastewater Generation (MLD)	Treatment Capacity (MLD)
1	Andhra Pradesh	5343940	532.67	99.68	425.83	30.04
2	Goa	295180	29.53	100.04	23.47	10
3	Gujarat	5426029	562.2	103.61	449.3	40.04
4	Karnataka	701270	134.89	192.35	107.91	12
5	Kerala	4555591	1080.51	237.18	864.27	-
6	Maharashtra	15790854	3198.78	202.57	2559.02	2139.7
7	Orissa	1338860	317.06	236.81	253.64	53
8	Tamilnadu	6847419	654.7	95.61	523.74	264
9	West Bengal	6959260	1875.45	269.49	906.22	235.9
10	Andaman and Nicobar Islands	107200	15.008	140	12.0064	-
11	Pondicherry	333550	45.52	136.47	36.41	-
	Total	47699153	7321.918		5263.2164	2784.68

Growth of Coastal Metropolitan cities, Class-I cities and Class-II Towns along with population is depicted in Figure 3.13:

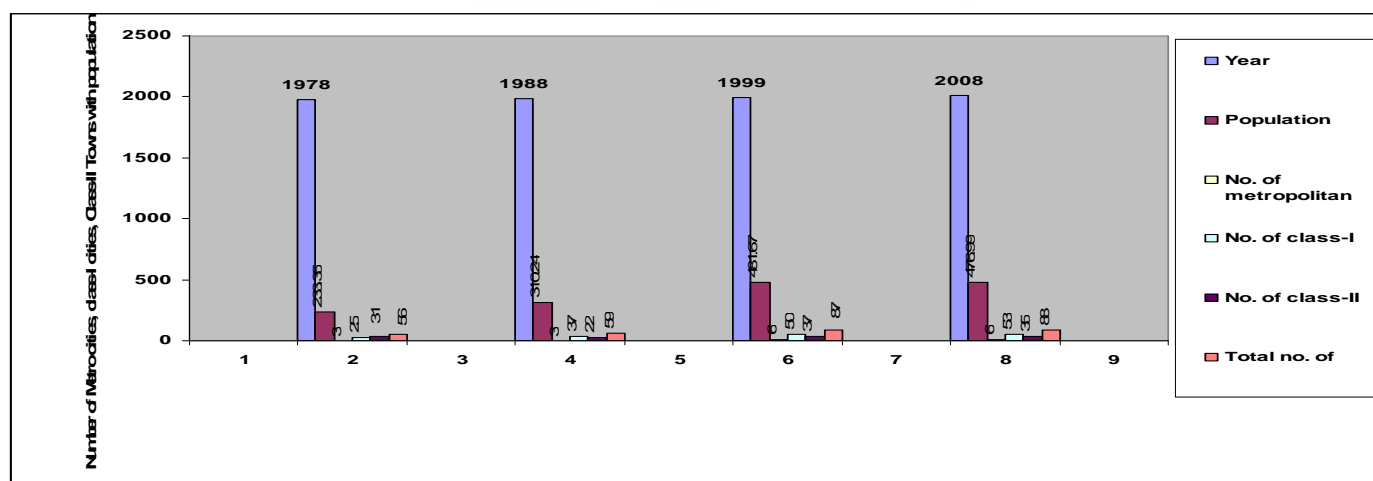


Figure 3.13: Growth of metro and class-I cities and class-II towns and population in the coastal areas

3.2.6.7 Pollution and nutrient loading in the coastal Waters:

The ocean margins trap most of nutrients originating from the land based sources and transported seaward by rivers and also by atmosphere. These nutrients, particularly nitrogen and phosphorus, mainly from municipal wastewater and urban runoff, industrial and agricultural operations and to a certain extent dredging and high oxygen demands in bottom waters. Nitrogen is the nutrient primarily responsible for the eutrophication temperature estuaries and coastal systems. Sewage is discharged untreated or partially treated near the coasts. Raw sewage is mainly water ($\approx 99\%$). The remainder consists of solid waste (sediment, Plastic and floatable) suspended and dissolved organic matter with BOD, oil and grease, nutrients and pathogens. The composition of typical raw sewage is given in figure 3.14.

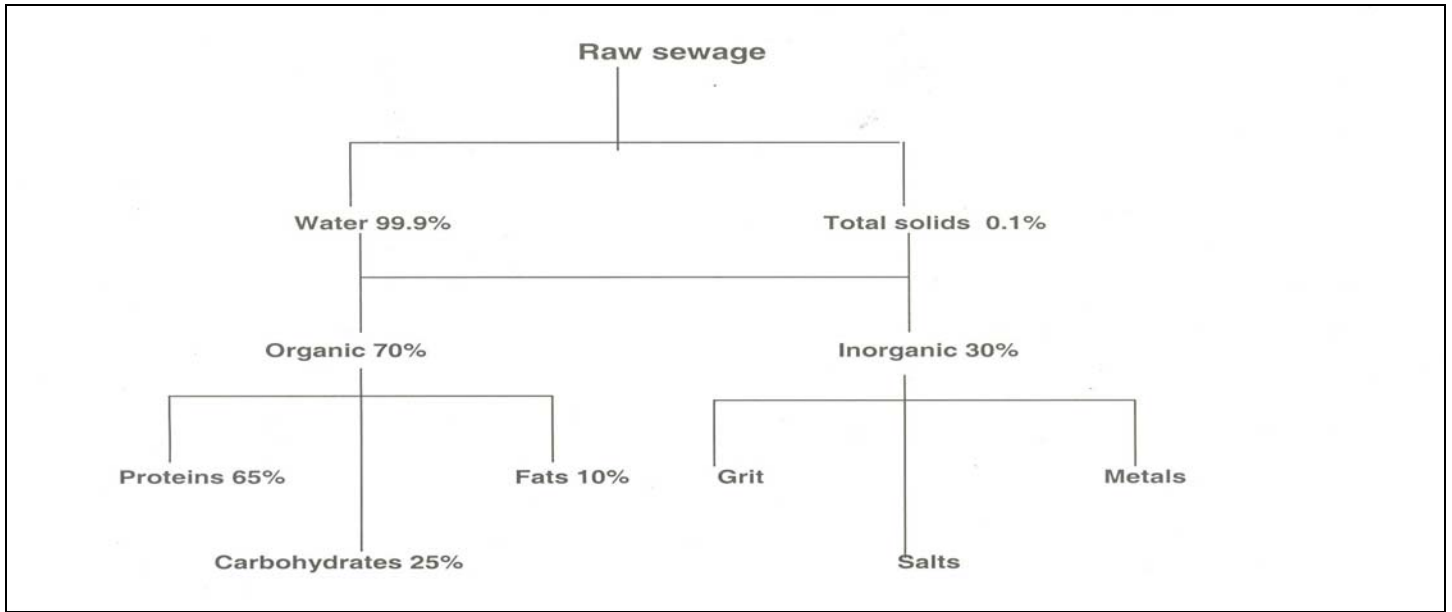


Figure 3.14: Composition of typical raw sewage

Nutrient enrichment causes eutrophication, which is one of the major stresses on coastal waters and severely deteriorate the coastal water quality. These excess nutrients particularly nitrogen and Phosphorus reach the coastal waters through wastewater generated from coastal urban centers. The average nitrogen, Phosphorus and potassium contents in municipal wastewater from Indian Cities are computed as 30 mg/l, 7.50 mg/l and 25 mg/l respectively, which are in agreement within the range given in CPHEEO manual (1993). These values are being used for calculating the nutrient load reaching the coastal waters. While the average BOD load from unit wastewater was estimated by Central Pollution Control Board as 200 mg/l is taken for calculation of BOD load. The nutrient load was calculated for whole of the wastewater generated by the coastal cities and towns, while the BOD load was calculated for untreated wastewater disposed into the coastal waters assuming that the various levels of treatments of wastewater reduce only the BOD load and not the quality of nutrients (NPK). The estimated BOD and nutrient load reaching the coastal waters are depicted in the figure 3.15.

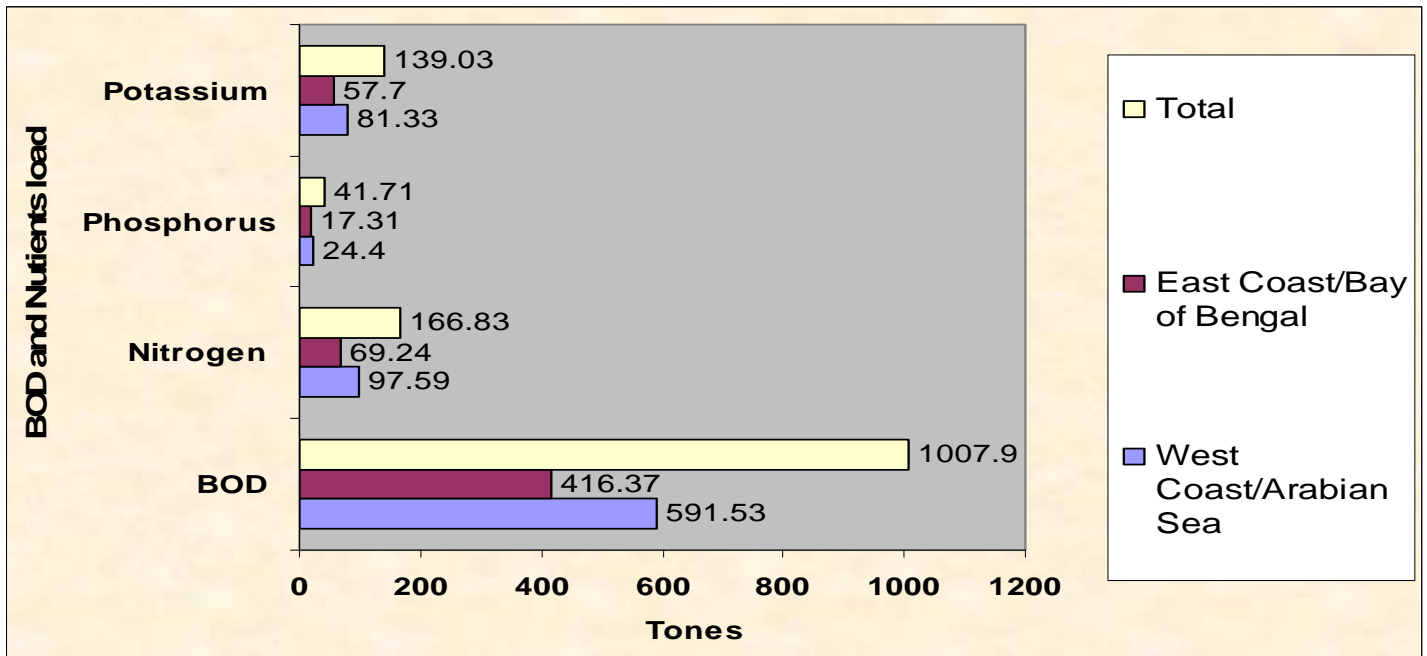


Figure 3.15: BOD and Nutrient Loads reaching the Indian Coastal waters from coastal cities and towns

Thus the annual BOD load reaching through municipal wastewater from coastal cities and towns to the coastal water is estimated to be 367883.50 tones. Similar estimations for nitrogen, phosphorus and potassium are 60893, 15224 and 50752.30 tones per annum respectively.

3.2.6.8 Economic Value of Municipal Wastewater

The Biodegradation of municipal wastewater by microorganism produces not only carbon dioxide and water, but also releases nitrogen and phosphorus along with micronutrients (figure 3) from plant and animal materials. When this wastewater is discharged into the natural water courses including coastal waters, these water bodies are genuinely over fertilized, which is not always desirable because it displaces the normal algal flora. Thus, wasting the nutrients without any use. Therefore, instead, the nutrient content of municipal waste water could be advantageously utilized for farming, which may add to the fertility and improve the soil characteristics. Hence, an attempt has been made to as assess the economic value of sewage both in terms of nutrient contents as well as water. Such an analysis may help the decision makers in taking steps for considering municipal wastewater as a source of revenue and to make the sewage treatment economically viable.

Therefore, in order to estimate the economic value of municipal wastewater, in this report has considered the value of both water and nutrients as a whole assuming that no loss of nutrients during treatment. At present the Municipal nutrient value, varied from Rs. 75/Ha/Annum to 400/Ha/ Annum for application level of 500 cm in depth /ha/Annum. From this the average sale price of wastewater generated from the coastal cities and towns is Rs. 76.32 million/Annum. While 347.56 tones /day and the total cost of nutrients contained in the wastewater assuming @ RS 8000/ tone of nutrients work out to be Rs1014.88 million/annum. Thus, the fertilizers along with wastewater worth Rs 1091.20 million are discharged in to the coastal waters from coastal cities and towns annually.

Chapter -4

4.0 Findings and Recommendations

4.1 Findings

- There are 498 Class-I Cities having population 25, 77, 54,640 and 410 Class-II Towns having population in India.
- Total water supply including all class-I cities and class-II town in India is 48093.88 MLD.
- Wastewater generation from all class-I cities and class-II towns is 38254 MLD and treatment capacity is 11787 MLD, which is about 31 % of total sewage. This has been summarized in Table 3.23

Table 3.23: Summary of water supply, sewage generation and its treatment

Category	No. of Cities	Population	Total Water Supply (in MLD)	Wastewater Generation (in MLD)	Treatment Capacity (in MLD)
Class-I City	498	14,30,83,804	44,769.05	35,558.12	11,553.68
Class-II town	410	3,00,18,368	3,324.83	2,696.7	233.7
Total	908	25,77,54,640	48,093.88	38254	11787.38

4.2 Recommendations

- The estimated sewage generation from Class I cities and Class II towns (as per estimation made for the year 2008) is 38254 MLD. Against this, there exists only 11787 MLD treatment capacity. Therefore, existing treatment capacity is just 30 % of present sewage generation. This evidently indicates ominous position of sewage treatment, which is the main source of pollution of rivers and lakes. To improve the water quality of rivers and lakes, there is an urgent need to increase sewage treatment capacity and its optimum utilization
- Municipal Authorities shall realize the problem of pollution of water bodies and pay attention to their liability to set up sewage treatment plants in cities and towns to prevent this pollution. This activity requires to be recognized as one of the most important indicators of overall development of the Country .
- Considering the widening gap between sewage generation and treatment capacity, it is required to set up a very thoughtful action plan to fill this gap in a minimum time frame. Large cities where pollution problem is more severe, cities/towns responsible for pollution of critically polluted stretches of rivers, and cities/towns polluting environmentally sensitive water bodies will be required to be taken up on priority basis in first phase. Uninterrupted upgrading of capacity with increase in population in cities/town taken in first phase will also be essential along with implementation of next phases.
- Considering the urgency of preventing pollution of our water bodies and preserving our precious water resources, sewage treatment and reutilization of treated sewage need to be accorded higher priority.

- Operation and maintenance of existing plants and sewage pumping stations is also a very neglected field, as nearly most of the treatment plants are not conforming to the general standards prescribed under the Environmental (Protection) Rules for discharge into streams. STPs are usually run by personals that do not have adequate knowledge of running the STPs and know only operation of pumps and motors. The operational parameters are not regularly analyzed hence the day-to-day variation in performance is not evaluated at most of the STPs. Thus, skilled persons having adequate knowledge should operate and manage the STPs. An expert is required to visit the STPs at least once a month and counsel for improvement of its performance. In a number of cities, the existing treatment capacity remains underutilized while a lot of sewage is discharged without treatment in the same city. Auxiliary power back-up facility is required at all the intermediate (IPS) & main pumping stations (MPS) of all the STPs.
- The first emphasis should be given to development of 100% treatment capacity up-to secondary level of treatment and diversion of treated sewage for its utilization in irrigation of crops not eaten raw. Improvement in bacterial quality of remaining sewage to be used for irrigation of sports fields and public parks or that has to be discharge into water bodies due to unavoidable circumstances is the next area of concern. This will require augmentation of treatment plants with tertiary treatment units, such as coagulant-aided tertiary sedimentation and chlorination etc.
- Rivers, which are used as a source of drinking water are receiving most of the pollution. Hence an action plan for arrest of pollution of rivers needs to be prepared and implemented.
- Groundwater recharging may be tried with treated wastewater to replenish the groundwater.
- Reuse of treated municipal wastewater should be encouraged in industries.
- Use of treated Municipal wastewater for irrigation and fodder cultivation should be encouraged by local authorities. The revenue thus obtained will be used to supplement the sewage treatment costs.
- Coastal cities which have ground water as sewage needs recharging of ground water by treated sewage with proper design. With drawing ground water replacement may lead to saline intrusion.
- Kolkata, Mumbai and Chennai shall collect treatment and reuse of the sewage and controlled discharge to coastal water bodies. This will reduce 60% of the problem of coastal water.

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
	Andman & Nicobar				
1	Port Blair	107200	15.008	112	12.0064
	Andhra Pradesh				
1	Hyderabad M.Corp	5312810	577.76	87	462.21
2	Visakhapatnam	1493200	168.74	90.4	134.99
3	Vijayawada	1271170	160.49	101	128.39
4	Warangal	814000	134.51	132.2	107.61
5	Guntur	792650	122.86	124	98.29
6	Nellore	583580	63.46	87	50.77
7	Rajahmundry	482550	34.08	87	27.261
8	Kukatpalle	447510	48.11	86	38.49
9	Kakinada	446480	48	86	38.4
10	Nizamabad	441910	47.5	86	38
11	Kurnool	412320	44.33	86	35.46
12	L.B. Nagar	403460	43.38	86	34.7
13	Gajuwaka	398770	42.86	86	34.29
14	Ramagundam	362730	30	87	20.492
15	Tirupati	350590	29	66.17	23.2
16	Outhbullapur	347760	37.39	86	29.91
17	Anantapur	340260	36.58	86	29.26
18	Secunderabad	314440	33.8	86	27.04
19	Karimnagar	313880	33.74	86	26.99
20	Eluru	292250	30.9	84.59	24.72
21	Machilipatnam	282390	30.36	86	24.29
22	Malkajgiri	269500	28.97	86	23.177
23	Vizianagaram	268460	28.86	86	23.09
24	Proddatur	254000	27.3	86	21.84
25	Kapra	245130	26.35	86	21.08
26	Khammam	243350	14.65	48.16	11.72
27	Adoni	240190	7.647	25.47	6.1176
28	Chittoor	235570	25.33	86	20.26
29	Nandyal	233730	25.13	86	20.1
30	Serilingampalle	231810	24.93	86	19.94
31	Tenali	230750	5.34	18.51	4.272
32	Ongole	230370	25.6	88.9	20.48
33	Rajendranagar	220500	23.7	86	18.96
34	Bheemavaram	211480	22.74	86	18.19
35	Mahbubnagar	201510	21.66	86	17.33
36	Cuddapah	193620	20.81	86	16.65
37	Hindupur	192590	20.7	86	16.56
38	Uppal Kalan	182120	19.58	86	15.66
39	Guntakal	180800	19.44	86	15.55
40	Gudivada	172860	18.59	86	14.87

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
41	Nalgonda	170400	18.31	86	14.65
42	Srikakulam	168890	18.15	86	14.52
43	Adilabad	166680	17.91	86	14.33
44	Alwal	163890	17.61	86	14.09
45	Dharmavaram	159240	17.11	86	13.69
46	Tadepalligudem	157550	16.94	86	13.55
47	Kadapa	562100	39.8	56.64	31.84
	Total	20143050	2205.177		1760.6096
	Assam				
1	Guwahati	1001950	313.11	250	250.49
2	Silchar	176570	55.18	250	44.14
3	Dibrugarh	151930	47.48	250	37.98
4	Tinsukia	106040	17.76	134	14.21
5	Nagaon	133260	41.65	250	33.32
	Toatl	1569750	475.18		380.14
	Bihar				
1	Patna	1542184	348.93	181	279.14
2	Gaya	429180	97.1	181	77.68
3	Bhagalpur (M.Corp)	381190	86.25	181	69
4	Begusarai	112050	12.89	92	10.31
5	Bagaha	109660	12.61	92	10.09
6	Muzaffarpur	342120	77.4	181	61.92
7	Darbhanga	298850	67.61	181	54.09
8	Bihar	259810	58.79	181	47.03
9	Arrah	227800	51.54	181	41.23
10	Munger	209790	47.46	181	37.97
11	Jamalpur	115990	13.34	92	10.67
12	Chapra	200300	45.31	181	36.25
13	Katihar	196190	44.39	181	35.51
14	Kishanganj	102590	14.36	112	11.49
15	Purnia	191780	43.39	181	34.71
16	Sasaram	146770	33.21	181	26.57
17	Dinapur Nizamat	145980	33.03	181	26.42
18	Saharsa	138900	31.43	181	25.14
19	Hajipur	133590	30.23	181	24.18
20	Dehri	133290	30.16	181	24.13
21	Bettiah	130700	29.58	181	23.66
22	Siwan	121150	27.41	181	21.93
23	Motihari	113690	25.73	181	20.58
	Total	5783554	1262.15		1009.7
	Chandigarh				
1	Chandigarh	994820	72.867	58.6	58.2936

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
	Chhatisgarh				
1	Raipur	683800	98.3	115	78.64
2	Bhilai Nagar	625840	162.71	208	130.17
3	Korba	356740	51.29	115	41.03
4	Bilaspur	299650	46.86	125.1	37.49
5	Durg	261240	37.55	115	30.04
6	Rajnandgaon	162410	23.35	115	18.68
7	Raigarh	125420	18.03	115	14.42
	Total	2515100	438.09		350.47
	Delhi				
1	Delhi	14701150	4346	258.48	3800
	Goa				
	Mormugao	122330	12.24	80.03	9.79
	Gujarat				
1	Ahmedabad	4323890	590	109.16	472
2	Surat	2993560	540	144.31	432
3	Vadodara	1606420	40	19.92	32
4	Rajkot	1188970	136	91.51	108.8
5	Bhavnagar	628480	108.41	138	86.73
6	Jamnagar	550710	95	138	76
7	Gandhinagar	240950	50	166.01	40
8	Nadiad	237140	40.91	138	32.73
9	Junagadh	207480	35.79	138	28.63
10	Surendranagar Dudhrej	192390	33.19	138	26.55
11	Bharuch	182520	31.49	138	25.19
12	Veraval	173680	29.96	138	23.97
13	Navsari	164830	29.4	142.7	23.52
14	Porbandar	163690	28.24	138	22.59
15	Anand	160470	27.68	138	22.14
16	Godhra	149880	25.85	138	20.68
17	Vejalpur	139360	24.04	138	19.23
18	Patan	137810	23.78	138	19.02
19	Palanpur	135770	23.43	138	18.74
20	Ghatlodiya	130700	22.55	138	18.04
21	Jetpur Navagadh	128300	32.7	203.9	26.16
22	Botad	123070	21.23	138	16.98
23	Kalol	123030	21.23	138	16.98
24	Valsad	132000	23.26	141	18.61
25	Vapi	137980	20.7	120	16.56
26	Mahesana	112850	16.93	120	13.54
27	Gondal	109430	16.41	120	13.13
28	Amreli	102880	13	101.09	10.4
	Total	14678240	2101.18		1680.92

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
Haryana					
1	Faridabad	1392570	205	117.77	164
2	Rohtak	378540	46.38	98	37.1
3	Panipat	345400	44.04	102	35.23
4	Hisar	338990	41.53	98	33.22
5	Sonipat	285400	34.96	98	27.97
6	Karnal	277830	47.23	136	37.78
7	Yamunanagar	250250	30.65	98	24.52
8	Gurgaon	229080	28.06	98	22.45
9	Bhiwani	223640	28.96	103.6	23.17
10	Sirsa	211370	20	75.7	16
11	Panchkula Urban Estate	186110	80	343.88	64
12	Ambala	183770	15.9	69.22	12.72
13	Jind	179640	22	98	17.6
14	Thanesar	158500	22.22	112.15	17.776
15	Bahadurgarh	158190	19.38	98	15.5
16	Kaithal	154740	17.53	90.63	14.024
17	Ambala Sadar	140420	30.59	174.28	24.472
18	Jagadhri	133720	16.38	98	13.1
19	Rewari	133250	16.33	98	13.06
20	Palwal	132700	16.25	98	13
	Total	5494110	783.39		626.692
Himachal Pradesh					
1	Shimla	163490	36.18	177	28.94
Jammu & Kashmir					
1	Srinagar	1342410	187.94	112	150.35
2	Jammu	567650	79.48	112	63.58
	Total	1910060	267.42		213.93
Jharkhand					
1	Jamshedpur	1101804	249.29	181	199.43
2	Dhanbad	1064357	240.81	181	192.65
3	Ranchi	1041140	235.56	181	188.45
4	Bokaro Steel City	484830	109.69	181	87.75
5	Mango	204290	46.23	181	36.98
6	Hazaribag	156510	35.41	181	28.33
7	Adityapur	146640	33.18	181	26.54
8	Phusro	100160	11.51	92	9.21
9	Chas	116310	13.38	92	10.7
10	Deoghar	118050	13.58	92	10.86
11	Jorapokhar	102260	11.76	92	9.41
12	Bhuli	107500	12.36	92	9.89
13	Giridih	118280	13.6	92	10.88
14	Saunda	102040	11.74	92	9.39
	Total	4964171	1038.1		830.47

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
	Karnataka				
1	Bangalore	6125003	964.69	126	771.75
2	Hubli-Dharwad	966800	152.28	126	121.82
3	Mysore	912980	99	86.75	79.2
4	Gulbarga	526350	82.9	126	66.32
5	Belgaum	491510	77.41	126	61.93
6	Mangalore	490460	125.44	204.6	100.35
7	Davanagere	447450	63	112.64	50.4
8	Bellary	389910	61.41	126	49.13
9	Shimoga	337150	32.6	77.35	26.08
10	Dasarahalli	324270	51.08	126	40.86
11	Tumkur	305770	48.16	126	38.53
12	Bijapur	302510	27.94	73.89	22.352
13	Raichur	252930	39.84	126	31.87
14	Bommanahalli	247500	38.99	126	31.19
15	Krishnarajapura	230570	36.31	126	29.05
16	Byatarayanapura	222550	35.05	126	28.04
17	Bidar	211930	6.64	25.06	5.312
18	Hospet	200840	38.28	152.48	30.624
19	Bhadravati	197280	31.08	126	24.86
20	Gadag-Betigeri	190460	19.07	80.1	15.256
21	Robertson Pet	173790	27.38	126	21.9
22	Mahadevapura	166780	9.5	45.57	7.6
23	Mandya	161390	34	168.54	27.2
24	Chitradurga	150790	7.5	39.79	6
25	Hassan	144380	22.74	126	18.19
26	Kolar	139360	13.62	78.19	10.896
27	Udupi	139040	9	51.78	7.2
28	Chikmagalur	124260	26.7	171.9	21.36
29	Bagalkot	104420	13.11		10.488
30	Yelahanka	106320	6		4.8
31	Pattanagere	109180	12.83	94	10.26
32	Ranibennur	102140	12	94	9.6
33	Gangawati	106300	12.49	94	9.99
	Total	15102373	2238.04		1790.408
	Kerala				
1	Kochi	1355406	235.5	139	188.4
2	Trivandrum	796870	225	225.88	180
3	Kozhikode	467080	81.15	139	64.92
4	Kollam	386740	29	59.99	23.2
5	Thrissur	339700	91.09	214.5	72.87
6	Alappuzha	189470	32.93	139	26.34
7	Palakkad	139890	24.3	139	19.44
8	Thalassery	103360	17.19	133	13.75
	Total	3778516	718.97		575.17

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
	Madhya Pradesh				
1	Indore	1885510	255	108.19	204
2	Bhopal	1878380	417.94	178	334.35
3	Jabalpur	1246420	179.18	115	143.34
4	Gwalior	1083260	186.86	138	149.49
5	Ujjain	563210	80.96	115	64.77
6	Sagar	304340	55.5	145.89	44.4
7	Dewas	302160	14.55	38.52	11.64
8	Satna	295360	19.5	52.82	15.6
9	Ratlam	289860	41.66	115	33.33
10	Burhanpur	254610	16.12	50.65	12.896
11	Murwara (Katni)	244630	35.16	115	28.13
12	Singrauli	243110	34.95	115	27.96
13	Rewa	240030	4	13.33	3.2
14	Khandwa	225290	32.39	115	25.91
15	Bhind	201440	28.96	115	23.17
16	Morena	197670	28.41	115	22.73
17	Shivpuri	192390	27.65	115	22.12
18	Guna	179640	10.52	46.85	8.416
19	Vidisha	164350	9.08	44.2	7.264
20	Chhindwara	160220	16	79.89	12.8
21	Mandsaur	152590	25.85	135.5	20.68
22	Damoh	146930	23.04	125.4	18.43
23	Neemuch	140820	6.35	36.07	5.08
24	Chhatarpur	102500	2.25	17.56	1.8
25	Hoshangabad	100280	9.03	72	7.22
	Total	10795000	1560.91		1248.726
	Maharashtra				
1	Greater Mumbai	14654710	3000	163.77	2400
2	Pune	3124280	749.83	192	599.86
3	Nagpur	2523120	500	158.53	400
4	Thane	1551670	362	186.64	289.6
5	Kalyan-Dombivali	1467720	255.73	139.39	204.584
6	Nashik	1324670	284.8	172	227.84
7	Pimpri Chinchwad	1237890	239.85	155.01	191.88
8	Solapur	1073840	116	86.42	92.8
9	Aurangabad	1073380	230.78	172	184.62
10	Navi Mumbai	865850	2.37	2.19	1.896
11	Bhiwandi	736400	158.33	172	126.66
12	Amravati	675730	62	73.4	49.6
13	Mira-Bhayandar	639970	86.5	108.13	69.2
14	Kolhapur	596780	99	132.71	79.2
15	Ulhasnagar	581720	108	148.53	86.4
16	Sangli-Miraj & Kupwad	537070	60	89.37	48
17	Nanded-Waghala	529640	44.8	67.67	35.84

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
18	Malegaon	503300	22	34.97	17.6
19	Akola	491970	45	73.18	36
20	Jalgaon	453350	55.33	97.64	44.264
21	Dhule	420010	37	70.47	29.6
22	Ahmadnagar	378170	3.5	7.4	2.8
23	Latur	368790	3000	6507.77	2400
24	Chandrapur	366060	1078.5	2356.99	862.8
25	Parbhani	318780	19	47.68	15.2
26	Ichalkaranji	316810	55	138.88	44
27	Jalna	289700	23	63.51	18.4
28	Ambarnath	250670	30	95.74	24
29	Nala Sopara	227140	20	70.44	16
30	Bhusawal	212010	22	83.01	17.6
31	Bid	169850	1402	6603.47	1121.6
32	Yavatmal	151170	44	232.85	35.2
33	Gondiya	148680	31.96	172	25.57
34	Virar	146300	15	82.02	12
35	Navghar-Manikpur	143540	28.25	157.45	22.6
36	Wardha	136620	12.4	72.61	9.92
37	Satara	132890	13.5	81.27	10.8
38	Achalpur	131980	10	60.62	8
39	Barshi	128890	27.71	172	22.17
40	Parli	100900	5.15	40.83	4.12
41	Khamgaon	101080	7.22	57.14	5.776
42	Ballarpur	102590	15	116.97	12
43	Chalisgaon	103850	10	77.03	8
44	Amalner	104260	10.5	80.57	8.4
45	Udgir	104780	9.56	73	7.65
46	Nandurbar	107580	5	37.18	4
47	Pandharpur	104170	14	107.52	11.2
48	Badlapur	111630	22	157.66	17.6
49	Hinganghat	105250	15.3	116.29	12.24
50	Panvel	127960	14	87.53	11.2
	Total	40255170	12482.87		9986.29
	Manipur				
1	Imphal	249870	33.43	107	26.74
	Meghalaya				
1	Shillong	186030	26.05	112	20.84
	Mizoram				
1	Aizawl	282550	7.14	20.22	5.712
	Nagaland				

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
1	Dimapur	171810	17.03	79.3	13.624
2	Kohima	126520	1.7	10.75	1.36
	Total	298330	18.73		14.984
	Orissa				
1	Bhubaneswar	796180	284.64	286	227.71
2	Cuttack	658220	158.8	193	127.04
3	Brahmapur	356360	82.85	186	66.28
4	Raurkela	276260	64.23	186	51.38
5	Raurkela Ind. Township	254080	59.08	186	47.26
6	Puri	193860	45.08	186	36.06
7	Sambalpur	189620	44.09	186	35.27
8	Baleswar	130420	30.33	186	24.26
9	Balasore	156600	13	66.41	10.4
10	Balangir	101390	11.41	90	9.13
11	Bhadrak	109950	12.38	90	9.9
12	Baripada	112990	20.05	142	16.04
	Total	3335930	825.94		660.73
1	Pondicherry	253860	35.54	112	28.43
2	Ozhukarai	250270	35.04	112	28.03
	Total	504130	70.58		56.46
	Punjab				
1	Ludhiana	1715920	294	137.07	235.2
2	Amritsar	1200100	240	159.99	192
3	Jalandhar	862500	158.49	147	126.79
4	Patiala	372530	59.4	127.56	47.52
5	Bathinda	267390	19.65	58.79	15.72
6	Pathankot	196260	99	403.55	79.2
7	Hoshiarpur	182340	33.5	147	26.8
8	Batala	155770	28.63	147	22.9
9	Moga	153290	14.21	74.16	11.368
10	Abohar	152890	16	83.72	12.8
11	S.A.S. Nagar (Mohali)	151640	55.57	293.17	44.456
12	Malerkotla	131370	24.14	147	19.31
13	Khanna	126760	23.29	147	18.63
14	Fiozpur	117400	150	1022.15	120
15	Kapurthala	103760	150	1156.52	120
16	Phagwara	117620	150	1020.23	120
17	Muktsar	102210	150	1174.05	120
18	Rajpura	101540	150	1181.8	120
19	Barnala	118570	94.46	637.33	75.568
	Total	6329860	1815.88		1528.262
	Rajasthan				
1	Jaipur	2858910	564.64	158	451.71

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
2	Jodhpur	1041080	205.61	158	164.49
3	Kota	855960	222.98	208.4	178.38
4	Bikaner	650680	128.51	158	102.81
5	Ajmer	596790	117.86	158	94.29
6	Udaipur	478860	94.58	158	75.66
7	Bhilwara	344630	26	60.35	20.8
8	Alwar	320100	63.23	158	50.58
9	Ganganagar	259270	35	108	28
10	Bharatpur	251480	49.66	158	39.73
11	Pali	230710	45.56	158	36.45
12	Sikar	227430	44.91	158	35.93
13	Tonk	166870	32.96	158	26.37
14	Hanumangarh	159470	31.5	158	25.2
15	Beawar	152150	30.05	158	24.04
16	Kishangarh	142870	10.5	58.79	8.4
17	Jhunjhunun	123590	24.41	158	19.53
18	Bundi	100680	8.81	70	7.05
19	Chittaugarh	109470	3.5	25.58	2.8
20	Churu	111290	10.85	78	8.68
21	Nagaur	102670	8.48	66	6.78
22	Dhaulpur	105040	10.5	79.97	8.4
23	sawai-Madhopur	111140	9.18	66	7.34
24	Gangapur City	110350	9.1	66	7.28
	Total	9611490	1727.96		1382.37
	Tamil Nadu				
1	Chennai	5523310	197.5	81	158
2	Coimbatore	1209240	150	99.24	120
3	Madurai	1209020	122.41	81	97.93
4	Tiruchirappalli	977340	89	72.85	71.2
5	Salem	908140	91.95	81	73.56
6	Tirunelveli	538800	36.7	54.49	29.36
7	Tiruppur	453980	40.5	71.37	32.4
8	Ambattur	396260	40.13	81	32.1
9	Avadi	302500	30.63	81	24.5
10	Thoothukkudi	283040	28.66	81	22.93
11	Thanjavur	282600	28.61	81	22.89
12	Tiruvottiyur	277420	28.09	81	22.47
13	Nagercoil	272680	27.61	81	22.09
14	Dindigul	257570	26.08	81	20.86
15	Vellore	232410	23.54	81	18.83
16	Cuddalore	207730	21.04	81	16.83
17	Kancheepuram	200410	18	71.85	14.4
18	Erode	198050	0.83	3.35	0.664
19	Alandur	191460	19.39	81	15.51
20	Pallavaram	188620	19.1	81	15.28

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
21	Kumbakonam	183430	18.58	81	14.86
22	Tambaram	180270	18.25	81	14.6
23	Tiruvannamalai	170690	17.29	81	13.83
24	Neyveli	167850	60	285.97	48
25	Rajapalayam	159800	54.27	271.69	43.416
26	Pudukkottai	142720	14.45	81	11.56
27	Pollachi	107720	12	89.12	9.6
28	Valparai	115850	16.23	112	12.98
29	Hosur	102860	5.66	44	4.53
30	Mayiladuthurai	102830	5.65	44	4.52
31	Nagapattinam	112880	5.85	41.46	4.68
32	Paramakudi	100330	5.51	44	4.41
33	Karaikkudi	105430	5.8	44	4.64
34	Udhagaman-dalam	114580	6.3	44	5.04
35	Theni Allinagaram	104220	9.3	71.39	7.44
36	Kovilpatti	106700	5.86	44	4.69
37	Vaniyambadi	104260	14.6	112	11.68
38	Gudiyatham	111480	6.14	44	4.91
39	Ambur	121820	6.7	44	5.36
40	Viluppuram	116440	6.4	44	5.12
41	Aruppukkottai	102480	6	46.84	4.8
42	Pollachi	107720	5.93	44	4.74
	Total	16852940	1346.54		1077.21
	Tripura				
1	Agartala	214327	30	112	24
	Uttar Pradesh				
1	Kanpur	3114530	521.69	134	417.35
2	Lucknow	2715030	454.76	134	363.81
3	Agra	1549770	325.45	168	260.36
4	Varanasi	1353920	287.71	170	230.17
5	Meerut	1321300	221.31	134	177.05
6	Allahabad	1218070	220	144.49	176
7	Ghaziabad	1191280	199.54	134	159.63
8	Bareilly	860800	143	132.9	114.4
9	Aligarh	821310	137.58	134	110.06
10	Moradabad	788730	132.11	134	105.69
11	Gorakhpur	768220	128.68	134	102.94
13	Jhansi	471400	78.96	134	63.17
14	Muzaffarnagar	389240	89.04	183	71.23
15	Mathura	367560	34	74	27.2
16	Shahjahanpur	366460	61.39	134	49.11
17	Noida	361510	235	520.04	188
18	Rampur	346310	58.01	134	46.41

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
19	Firozabad	342930	57.44	134	45.95
20	Farrukhabad-cum-Fatehgarh	280290	46.95	134	37.56
21	Hapur	260740	43.68	134	34.94
22	Etawah	260100	48.05	147.8	38.44
23	Maunath Bhanjan	258390	43.28	134	34.62
24	Mirzapur-cum-Vindhyachal	252470	42.29	134	33.83
25	Sambhal	225000	37.69	134	30.15
26	Bulandshahr	216790	14.52	53.58	11.616
27	Rae Bareli	208220	18	69.16	14.4
28	Bahraich	207100	34.69	134	27.75
29	Amroha	202810	9	35.5	7.2
30	Jaunpur	196800	32.96	134	26.37
31	Sitapur	186750	24.04	102.98	19.232
32	Fatehpur	186660	31.26	134	25.01
33	Budaun	182210	30.53	134	24.42
34	Faizabad	178260	29.86	134	23.89
35	Unnao	178250	29.86	134	23.89
36	Orai	171520	28.73	134	22.98
37	Banda	165830	27.78	134	22.22
38	Pilibhit	152620	25.56	134	20.45
39	Hathras	151590	25.39	134	20.31
40	Gonda	150260	13	69.21	10.4
41	Loni	148410	24.86	134	19.89
42	Lakhimpur	148300	24.84	134	19.87
43	Modinagar	138890	23.26	134	18.61
44	Hardoi	138340	23.18	134	18.54
45	Lalitpur	137530	23.04	134	18.43
46	Etah	131730	24.34	147.8	19.47
47	Basti	131590	22.04	134	17.63
48	Azamgarh	129080	21.63	134	17.3
49	Deoria	128190	21.48	134	17.18
50	Chandausi	127620	21.38	134	17.1
51	Ballia	125740	1.48	9.42	1.184
52	Sultanpur	123100	20.63	134	16.5
53	Khurja	114550	13.75	96	11
54	Mughalsarai	102880	23.15	180	18.52
55	Kasganj	107650	13.46	100	10.77
56	Shikohabad	102520	12.3	96	9.84
57	Behta Hajipur	119900	14.39	96	11.51
58	Ghazipur	110860	14.1	101.75	11.28
59	Mainpuri	104220	14.59	112	11.67
60	Meerut	108450	13.01	96	10.41
61	Shamli	104600	12.55	96	10.04
	Total	25205180	4406.25		3524.952

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
	Uttarakhand				
1	Dehradun	550800	95.09	138.1	76.07
2	Hardwar	215260	63.6	236.37	50.88
3	Haldwani-cum-Kathgodam	158840	27	135.99	21.6
4	Roorkee	112980	15.96	113	12.77
5	Rudrapur	103270	5.9	45.71	4.72
	Total	1141150	207.55		166.04
	West Bengal				
1	Kolkata	5267630	1625	134	705.86
2	Haora	1160010	195.75	135	156.6
3	Asansol	1090171	183.96	135	147.17
4	Durgapur	566950	272.6	135	76.54
5	Siliguri	540820	91.26	135	73.01
6	Bhatpara	508250	8.6	135	68.61
7	South Dumdum	450970	25.65	135	60.88
8	Maheshtala	447600	9	16.09	7.2
9	Panihati	400640	38.4	76.68	30.72
10	Rajpur Sonarpur	386850	42	86.86	33.6
11	Kamarhati	361480	61	135	48.8
12	Kulti	333570	56.29	135	45.03
13	Barddhaman	328750	29.48	71.74	23.584
14	Rajarhat Gopalpur	312550	52.74	135	42.19
15	Bally	300810	8.042	21.39	6.4336
16	Baranagar	288210	21.46	59.57	17.168
17	Barasat	266240	44.93	135	35.94
18	North Dumdum	253040	14.61	46.19	11.688
19	Naihati	247750	25.63	82.76	20.504
21	Kharagpur	239180	40.36	135	32.29
22	Uluberia	232410	4.5	15.49	3.6
23	Serampore	227650	21.32	74.92	17.056
24	Haldia	196300	3.5	14.26	2.8
25	Hugli-Chinsurah	195730	39.57	161.73	31.656
26	Bidhan Nagar	193030	32.58	135	26.06
27	Raiganj	190010	32.06	135	25.65
28	Chandannagar	186490	20.76	89.06	16.608
29	English Bazar	185670	31.34	135	25.07
30	Baharampur	184190	36	156.36	28.8
31	Madhyamgram	178830	14	62.63	11.2
32	Medinipur	176350	16.5	74.85	13.2
33	Uttarpara Kotrung	172730	29.15	135	23.32
34	Barrackpur	165980	24.08	116.06	19.264
35	Krishnanagar	159930	7.65	38.27	6.12
36	Santipur	158920	26.81	135	21.45
37	Balurghat	155840	26.3	135	21.04
38	Jamuraia	148870	25.13	135	20.1

Total water supply in Class-I cities

SL. No.	City/Town	Population in Year 2008	Total Water Supply (in MLD)	Per Capita sewage (LPCD)	Total Sewage (in MLD)
39	Bankura	148130	9	48.61	7.2
40	Habra	146850	24.78	135	19.82
41	Kanchrapara	145040	24.48	135	19.58
42	Halisahar	143150	24.16	135	19.33
43	Titagarh	142830	13	72.81	10.4
44	North Barrackpur	142050	23.98	135	19.18
45	Raniganj	141320	81.82	463.18	65.456
46	Khardaha	133690	16.5	98.74	13.2
47	Nabadwip	132290	22.33	135	17.86
48	Puruliya	130830	22.08	135	17.66
49	Rishra	130250	16.9	103.8	13.52
50	Basirhat	130090	21.95	135	17.56
51	Ashoknagar Kalyangarh	128200	21.64	135	17.31
52	Baidyabati	124470	21	135	16.8
53	Darjiling	123660	20.86	135	16.69
54	Bhadreswar	121840	23.6988	155.61	18.96
55	Bansberia	120120	16.2	107.89	12.96
56	Bangaon	117430	19.81	135	15.85
57	Dumdum	116520	12.12	83.21	9.696
58	Jalpaiguri	115240	6.23	43.21	4.98
59	Bally	105260	11.31	86	9.05
60	Kharagpur Rly. Settlement	100090	10.76	86	8.61
	Total	19699751	3702.6208		2328.48

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
	Andhra Pradesh				
1	Kaghnagar	59760	3.66	49	2.93
2	Mandamarri	66410	4.24	51	3.39
3	Bellampalle	67030	4.1	49	3.28
4	Mancherial	70480	7.5	85.13	6
5	Nirmal	74280	4.7	50.62	3.76
6	Rayadurg	54320	7	103.09	5.6
7	Kadiri	76530	4.4	46	3.52
8	Tadpatri	86940	9.35	86.04	7.48
9	Srikalahasti	71120	6	67.49	4.8
10	Madanapalle	98310	9.46	77	7.57
11	Chinnachowk	64280	3.94	49	3.15
12	Rayachoti	72450	5	55.21	4
13	Tuni	50390	3.09	49	2.47
14	Pitapuram	50480	3.09	49	2.47
15	Amalapuram	51070	3.13	49	2.5
16	Samalkota	53590	3.29	49	2.63
17	Sattenapalle	51530	3.5	54.34	2.8
18	Vinukonda	52770	3.24	49	2.59
19	Ponnur	56700	4.8	67.72	3.84
20	Mangalagiri	59650	10.3	138.14	8.24
21	Bapatla	68340	5.5	64.38	4.4
22	Chilakaluripet	90200	5.53	49	4.42
23	Narasaraopet	95330	5.84	49	4.67
24	Koratla	54210	3.33	49	2.66
25	Sirsilla	65240	4	49	3.2
26	Jagtial	89750	5.5	49	4.4
27	Palwancha	68800	6.36	73.98	5.09
28	Kothagudem	80010	4.9	49	3.92
29	Nuzvid	50510	3.546	56.23	2.84
30	Kallur	53070	3.25	49	2.6
31	Yemmiganur	76700	27	219.04	16.8
32	Wanaparthy	50440	3.09	49	2.47
33	Gadwal	51610	3.16	49	2.53
34	Ramachandrapuram	52770	3.24	49	2.59
35	Sangareddy	56890	3.49	49	2.79
36	Siddipet	61870	3.79	49	3.03
37	Miryalguda	90560	4.19	36.99	3.35
38	Suryapet	95130	5.83	49	4.66
39	Gudur	69550	6.18	71	4.94
40	Kavali	78630	4.81	49	3.85

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
41	Kamareddy	64450	13.06	162.11	10.448
42	Bodhan	71600	2.16	24.13	1.728
43	Kandukur	50260	3.08	49	2.46
44	Markapur	58660	3.4	46.37	2.72
45	Chirala	85750	5.25	49	4.2
46	Gaddi annaram	53810	3.3	49	2.64
47	Tandur	58150	3.56	49	2.85
48	Anakapalle	84820	5.2	49	4.16
49	Bobbili	50320	5	79.49	4
50	Palacole	57370	10	139.45	8
51	Narsapur	58710	3.6	49	2.88
52	Tanuku	67010	4.1	49	3.28
	Total	3448610	272.04		217.596
	Assam				
1	Bongaigaon	75080	12.58	134	10.06
2	Dhubri	79320	1.17	11.8	0.936
3	Jorhat	82400	13.8	134	11.04
4	Diphu	64560	10.81	134	8.65
5	Karimganj	64870	10.86	134	8.69
6	North Lakhimpur	67280	11.28	134	9.02
7	Sibsagar	67560	2.98	35.29	2.384
8	Tezpur	72220	12.1	134	9.68
	Total	573290	75.58		60.46
	Bihar				
1	Araria	72710	8.36	92	6.69
2	Aurangabad	95220	10.95	92	8.76
3	Buxar	99570	11.45	92	9.16
4	Gopalganj	65300	7.51	92	6.01
5	Jamui	80100	9.21	92	7.37
6	Jehanabad	98070	11.28	92	9.02
7	Lakhisarai	93410	10.74	92	8.59
8	Madhubani	79540	9.15	92	7.32
9	Nawada	98750	11.36	92	9.09
10	Phulwari Sharif	63800	7.34	92	5.87
11	Mokameh	67680	12.01	142	9.61
12	Samastipur	66710	7.68	92	6.14
13	Sitamarhi	68120	9.79	115	7.83

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
14	Supaul	64820	7.45	92	5.96
	Total	1113800	134.28		107.42
	Chhatisgarh				
1	Jagdalpur	83270	10.01	96.17	8.008
2	Dhamtari	92770	6.07	52.34	4.856
3	Dalli-Rajhara	57190	5.15	72	4.12
4	Bhilai Charoda	98500	4.82	39.15	3.856
5	Chirmiri	103180	9.29	72	7.43
6	Bhatapara	56590	5.09	72	4.07
7	Ambikapur	74580	10.6	113.7	8.48
	Total	566080	51.03		40.82
	Goa				
1	Panaji	74070	7.41	80	5.93
2	Margao	98780	9.88	80	7.9
	Total	172850	17.29		13.83
	Gujarat				
1	Viramgam	60530	9.39	124	7.51
2	Dholka	61320	5.4	70.45	4.32
3	Chandlodiya	63990	7.5	93.76	6
4	Ranip	99830	14.98	120	11.98
5	Savarkundla	84010	12.6	120	10.08
6	Petlad	58310	8	109.76	6.4
7	Borsad	64460	5.54	68.76	4.432
8	Khambhat	91700	9	78.52	7.2
9	Deesa	95010	15	126.3	12
10	Anklesvar	77470	8	82.61	6.4
11	Palitana	59200	18	243.24	14.4
12	Mahuva	80520	12.08	120	9.66
13	Dohad	90270	13.54	120	10.83
14	Chandkheda	63240	4	50.6	3.2
15	Una	58440	4	54.76	3.2
16	Mangrol	62810	9.43	120	7.54
17	Keshod	72110	10.81	120	8.65
18	Unjha	61410	9.21	120	7.37
19	Kadi	64110	9.5	118.55	7.6
20	Visnagar	75040	11.25	120	9
21	Bilimora	58240	5	68.68	4

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
22	Vijalpor	61460	3.45	44.91	2.76
23	Sidhpur	61080	9.16	120	7.33
24	Upleta	63090	20	253.61	16
25	Dhoraji	92120	7	60.79	5.6
26	Modasa	61620	9.24	120	7.39
27	Himatnagar	66420	6	72.27	4.8
28	Bardoli	59240	8.89	120	7.11
29	Wadhwan	70380	3	34.1	2.4
30	Dhrangadhra	80540	6.1	60.59	4.88
31	Dabhoi	62620	9.39	120	7.51
	Total	2180590	284.46		227.552
	Haryana				
1	Ambala Cantt.	80730	7.26	72	5.81
2	Tohana	67490	6.08	72	4.86
3	Fatehabad	78420	7.5	76.51	9.79
4	Hansi	99210	9.18	74	7.34
5	Narwana	66360	5.98	72	4.78
6	Narnaul	81340	7.33	72	5.86
7	Mandi Dabwali	70490	6.35	72	5.08
	Total	544040	49.68		43.52
	Jammu & Kashmir				
1	Anantnag	65340	9.68	118.52	7.744
2	Sopore	54840	7.68	112	6.14
3	Baramula	63800	8.94	112	7.15
4	Udhampur	61010	8.54	112	6.83
	Total	244990	34.84		27.864
	Jharkhand				
1	Katras	61420	7.06	92	5.65
2	Tisra	64260	7.39	92	5.91
3	Sindri	92190	10.6	92	8.48
4	Jharia	98370	11.31	92	9.05
5	Ramgarh Cantonment	88150	10.8	98	8.64
6	Jhumri Tilaiya	83330	11.66	112	9.33
7	Daltonganj	85570	9.84	92	7.87
8	Chaibasa	76340	8.78	92	7.02
9	Bagbera	80520	9.26	92	7.41
10	Sahibganj	96150	11.06	92	8.85
	Total	826300	97.76		78.21

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
	Karnataka				
1	Ilkal	59230	9.99	134.93	7.992
2	Jamkhandi	65990	4.47	54.19	3.576
3	Rabkavi Banhatti	80080	62.89	628.27	50.312
4	Rajrajeshwari	92438	4.72	40.85	3.776
5	Channapatna	72460	8.51	94	6.81
6	Rama-nagaram	90480	8	70.73	6.4
7	Dod Ballapur	81520	1.87	18.35	1.496
8	Nipani	66190	7.78	94	6.22
9	Gokak	76570	13.64	142.51	10.912
10	Basavakalyan	66970	7.88	94	6.3
11	Kollegal	59790	7.03	94	5.62
12	Chamrajnagar	69320	2	23.08	1.6
13	Harihar	85550	10.05	94	8.04
14	Shahabad	57670	70	971.04	56
15	Yadgir	67030	7.88	94	6.3
16	Haveri	63730	7.49	94	5.99
17	Chik Ballapur	62630	3.64	46.5	2.912
18	Chintamani	74620	8.76	94	7.01
19	Koppal	64010	7.53	94	6.02
20	Sindhur	69870	8.21	94	6.57
21	Sagar	57130	6.7	93.82	5.36
22	Sira	57060	6.7	94	5.36
23	Tiptur	60470	4.15	54.9	3.32
24	Dandeli	60750	8.5	112	6.8
25	Sirsi	66930	2.9	34.66	2.32
26	Karwar	71770	0.45	5.02	0.36
	Total	1800258	291.74		233.376
	Kerala				
1	Kayamkulam	67910	2.28	26.86	1.824
2	Thrippunithura	62280	10.35	133	8.28
3	Kalamassery	65700	10.93	133	8.74
4	Edathala	69820	11.61	133	9.29
5	Kannur	66350	30	361.72	24
6	Taliparamba	70140	0.65	7.41	0.52
7	Payyannur	71460	11.88	133	9.5
8	Kasaragod	54790	9.11	133	7.29
9	Kanhangad	68120	11.33	133	9.06
10	Changanassery	54040	8.99	133	7.19
11	Kottayam	63150	18	228.03	14.4
12	Pala	0	0	133	0
13	Vaikam	0		133	0

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
14	Cheruvannur	59400	9.88	133	7.9
15	Beypore	69560	11.56	133	9.25
16	Quilandy	71730	11.93	133	9.54
17	Vadakara	78770	13.1	133	10.48
18	Tirur	55800	9.28	133	7.42
19	Malappuram	60830	10.11	133	8.09
20	Manjeri	87050	14.48	133	11.58
21	Ponnani	90850	15.1	133	12.08
22	Thiruvalla	59100	9.83	133	7.86
23	Nedumangad	58380	12	164.44	9.6
24	Neyyattinkara	72210	12	133	9.6
25	Kunnamkulam	53650	8.93	133	7.14
26	Vatakara	78770	13.1	133	10.48
	Total	1609860	151.3		221.114
	Madhya Pradesh				
1	Balaghat	77310	10	103.48	8
2	Betul	85790	3.39	31.61	2.712
3	Sarni	97870	8.81	72	7.05
4	Datia	85220	7.68	72	6.14
5	Pithampur	70090	6.31	72	5.05
6	Dhar	77740	7	72	5.6
7	Ashok Nagar	59410	5.35	72	4.28
8	Dabra	58360	2.02	27.69	1.616
9	Harda	63560	4.14	52.11	3.312
10	Itarsi	96600	8.7	72	6.96
11	Mhow Cantt.	87570	17.74	162	14.19
12	Jabalpur Cantt.	68480	2.01	23.48	1.608
13	Jaora	65650	4.4	53.62	3.52
14	Bina Etawa	52720	9.23	140	7.38
15	Sehore	93660	7.2	61.5	5.76
16	Seoni	92490	12	103.8	9.6
17	Shahdol	80940	7.13	70.47	5.704
18	Shajapur	51590	4.5	69.78	3.6
19	Sheopur	56680	5.1	72	4.08
20	Tikamgarh	70630	6.36	72	5.09
21	Nagda	99420	4.65	37.42	3.72
22	Basoda	64230	5.78	72	4.62
23	Khargone	89040	14.14	127	11.31
	Total	1745050	163.64		130.902

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
	Maharashtra				
1	Kopargaon	68400	11	128.65	8.8
2	Sangamner	70630	6.5	73.62	5.2
3	Shrirampur	92650	4	34.54	3.2
4	Akot	92110	8.4	73	6.72
5	Anjangaon	58330	33.9	464.94	27.12
6	Bhandara	96940	9	74.27	7.2
7	Ambejogai	78980	7	70.9	5.6
8	Shegaon	59760	3.7	49.53	2.96
9	Malkapur	69560	3	34.5	2.4
10	Buldana	71800	12.4	138.16	9.92
11	Bhadravati	64610	5.9	73	4.72
12	Shirpur-Warwade	70320	4.35	49.49	3.48
13	Basmath	65390	2.2	26.92	1.76
14	Hingoli	79290	7.24	73	5.79
15	Chopda	69390	5.5	63.41	4.4
16	Kamptee	96150	6.25	52	5
17	Deolali	57700	6.05	83.88	4.84
18	Manmad	82550	7	67.84	5.6
19	Osmanabad	91900	9.95	86.62	7.96
20	Baramati	58530	5.5	75.18	4.4
21	Lonavala	63440	20	252.21	16
22	Kirkee	87330	7.98	73	6.38
23	Pune	91420	8.34	73	6.67
24	Khopoli	66870	4.8	57.42	3.84
25	N.Mumbai (Panvel,Raigarh)	93350	8.51	73	6.81
26	Ratnagiri	80180	7.31	73	5.85
27	Uran Islampur	66500	6	72.18	4.8
28	Phaltan	57910	5.29	73	4.23
29	Karad	64010	5.84	73	4.67
30	Palghar	60080	3	39.95	2.4
31	Karanja	68580	4	46.66	3.2
32	Washim	71660	13.34	148.93	10.672
33	Wani	60210	5.5	73.08	4.4
34	Pusad	76550	8.43	88	6.74
	Total	2503080	267.18		213.732
	Meghalaya				
1	Tura	81750	14.07	137.69	11.256

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
	Orissa				
1	Bargarh	75740	8.53	90	6.82
2	Dhenkanal	68600	7.71	90	6.17
3	Paradip	87620	9.86	90	7.89
4	Jharsuguda	89930	10.11	90	8.09
5	Brajarajnagar	91560	10.3	90	8.24
6	Bhawanipatna	72290	8.14	90	6.51
7	Kendujhar	61680	6.94	90	5.55
8	Barbil	62580	7.04	90	5.63
9	Jatani	64910	7.3	90	5.84
10	Sunabeda	69790	7.85	90	6.28
11	Jeypur	91110	10.25	90	8.2
12	Rayagada	68700	4	46.58	3.2
	Total	904510	98.03		78.42
	Pondicherry				
1	Karaikal	79690	9.98	100.19	7.984
	Punjab				
1	Tarn Taran	68370	12.83	150	10.26
2	Faridkot	88540	16.6	150	13.28
3	Kot Kapura	99310	10.5	84.58	8.4
4	Sirhind -Fategarh	62470	11.71	150	9.37
5	Gobindgarh	68160	12.78	150	10.22
6	Firozpur Cantt.	70620	5.98	67.74	4.784
7	Fazilka	82930	15.55	150	12.44
8	Gurdaspur	82970	6.24	60.17	4.992
9	Jagraon	73930	13.86	150	11.09
10	Mansa	89310	16.75	150	13.4
11	Malout	87280	20	183.32	16
12	Nabha	76200	14.29	150	11.43
13	Sunam	62760	5.67	72.28	4.536
14	Sangrur	96820	34	280.93	27.2
	Total	1109670	196.76		157.402
	Rajasthan				
1	Banswara	97630	8.05	66	6.44
2	Baran	89340	7	62.68	5.6
3	Balotra	70370	5.8	66	4.64

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
4	Barmer	95210	18	151.24	14.4
5	Nimbahera	60790	5.01	66	4.01
6	Ratangarh	72350	5.98	66	4.78
7	Sardarshahar	92770	7.65	66	6.12
8	Sujangarh	95540	7.89	66	6.31
9	Dausa	70210	12.5	142.43	10
10	Bari	57540	4.75	66	3.8
11	Suratgarh	66210	6.55	79.14	5.24
12	Chomu	57820	40	553.44	32
13	Jaisalmer	66450	5.49	66	4.39
14	Nawalgarh	64390	5.31	66	4.25
15	Karauli	75440	6.23	66	4.98
16	Hindaun	96650	7.98	66	6.38
17	Kuchaman City	57650	4.75	66	3.8
18	Ladnu	65030	5.36	66	4.29
19	Makrana	94950	7.84	66	6.27
20	Rajsamand	63460	5.24	66	4.19
21	Fatehpur	89460	7.38	66	5.9
	Total	1599260	184.76		147.79
	Tamil Nadu				
1	Kuniamuthur	69420	3.81	44	3.05
2	Udumalaipettai	71850	8.8	97.98	7.04
3	Mettupalayam	80900	12.5	123.61	10
4	Kurichi	93690	5.15	44	4.12
5	Panruti	67590	5.6	66.28	4.48
6	Chidambaram	71940	5.04	56	4.03
7	Virudhachalam	72350	3.98	44	3.18
8	Dharmapuri	78620	5.31	54	4.25
9	Krishnagiri	79330	4.3	43.36	3.44
10	Palani	81950	6.15	60	4.92
11	Kasipalayam (E)	64050	7.8	97.42	6.24
12	Gobichet-tipalayam	67280	6	71.34	4.8
13	Dharapuram	79470	9	90.6	7.2
14	Veerappan-chatram	88580	4.88	44	3.9
15	Chengalpattu	76410	4.96	52	3.97
16	Karur	93120	5.13	44	4.1
17	Avaniapuram	62940	3.46	44	2.77
18	Namakkal	64710	4.41	54.52	3.528
19	Kumara-palayam	80080	4.4	44	3.52
20	Tiruchengode	97820	7.09	58	5.67

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
21	Ramanatha-puram	75610	1.5	15.87	1.2
22	Mettur	65620	3.61	44	2.89
23	Attur	70940	4.2	47.36	3.36
24	Pattukkottai	79850	7.5	75.14	6
25	Coonoor	61100	4.4	57.61	3.52
26	Kambam	71630	3.94	44	3.15
27	Bodinayak-kanur	89580	8.63	77	6.9
28	Madavaram	93690	5.15	44	4.12
29	Thiruvarur	68660	3.78	44	3.02
30	Mannargudi	75140	4.6	48.98	3.68
31	Sankarankoil	65410	5.08	62.13	4.064
32	Puliyankudi	73370	4.04	44	3.23
33	Tenkasi	76650	4.21	44	3.37
34	Kadayanallur	92240	5.65	49	4.52
35	Arani	74280	8.96	96.5	7.168
36	Arcot	61330	8.59	112	6.87
37	Tirupathur	74180	5.5	59.32	4.4
38	Arakonam	94490	5.2	44	4.16
39	Tindivanam	82750	3.9	37.7	3.12
40	Sivakasi	88050	4.84	44	3.87
41	Virudhunagar	89060	4.9	44	3.92
42	Srivilliputhur	89220	4.91	44	3.93
	Total	3254950	230.86		184.67
	Uttar Pradesh				
1	Agra	65410	7.85	96	6.28
2	Tanda	96700	11.6	96	9.28
3	Auraiya	75190	15.03	159.91	12.024
4	Mubarakpur	59460	9.14	123	7.31
5	Baraut	99900	11.99	96	9.59
6	Balrampur	84060	5.3	50.44	4.24
7	Nawabganj	87400	10.89	99.68	8.712
8	Baheri	68180	8.19	96	6.55
9	Faridpur	71030	8.53	96	6.82
10	Sherkot	61540	7.39	96	5.91
11	Kiratpur	64380	7.73	96	6.18
12	Chandpur	79570	1.66	16.69	1.328
13	Nagina	83000	9.96	96	7.97
14	Najibabad	92060	11.05	96	8.84
15	Bijnor	92380	11.09	96	8.87
16	Ujhani	59420	45	605.86	36

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
17	Sahaswan	67740	8.13	96	6.5
18	Jahangirabad	59790	7.18	96	5.74
19	Sikandrabad	81370	9.76	96	7.81
20	Dadri	66880	8.03	96	6.42
21	Pilkhuwa	78210	9.39	96	7.51
22	Muradnagar	86230	1.26	11.69	1.008
23	Rath	65110	7.81	96	6.25
24	Shahabad	78760	9.45	96	7.56
25	Jalaun	58240	6.99	96	5.59
26	Konch	59050	7.09	96	5.67
27	Mauranipur	59230	7.11	96	5.69
28	Hasanpur	62090	7.45	96	5.96
29	Chhibramau	58520	7.03	96	5.62
30	Kannauj	83260	9.99	96	7.99
31	Gola Gokarannath	62660	7.53	96	6.02
32	Mahoba	91730	11.01	96	8.81
33	Vrindavan	65900	7.91	96	6.33
34	Mawana	80550	9.66	96	7.73
35	Khatauli	68090	8.18	96	6.54
36	Kairana	85030	10.2	96	8.16
37	Bisalpur	70630	8.48	96	6.78
38	Bela Pratapgarh	83620	11.71	112	9.37
39	Gangoh	62790	7.54	96	6.03
40	Deoband	95110	11.41	96	9.13
41	Bhadohi	86650	10.4	96	8.32
42	Tilhar	61590	7.39	96	5.91
23	Laharpur	58290	7	96	5.6
44	Obra	60990	7.33	96	5.86
45	Renukoot	62300	7.48	96	5.98
46	Gangaghat	82430	9.89	96	7.91
	Total	3382520	432.19		345.702
	Uttarakhand				
1	Rishikesh	69460	11.34	130.61	9.072
	Total	69460	11.34		9.072
	West Bengal				
1	Bishnupur	70180	7.55	86	6.04
2	Kalna	59120	6.35	86	5.08

Water Supply in Class-II Towns

S. No.	City/Town	Population in year 2008	Total Water Supply (MLD)	Per capita water supply (LPCD)	Total sewage (MLD)
3	Katwa	81090	2.728	26.91	2.1824
4	Rampurhat	57340	6.16	86	4.93
5	Suri	70040	8.4	96	6.72
6	Bolpur	74390	8	86	6.4
7	Gangarampur	60670	12.5	164.83	10
8	Arambag	63590	6.84	86	5.47
9	Konnagar	81820	11.8	115.38	9.44
10	Alipurduar	82760	8.9	86	7.12
11	Koch Bihar	87030	12	110.31	9.6
12	Old Maldah	71320	2.8	31.41	2.24
13	Ghatal	58450	6.29	86	5.03
14	Jhargram	60230	6.48	86	5.18
15	Contai	87800	9.44	86	7.55
16	Kandi	57040	0.454	6.37	0.3632
17	Dhulian	82600	8.88	86	7.1
18	Jangipur	84370	4.5	42.67	3.6
19	Phulia	56940	6.13	86	4.9
20	Gayespur	62350	7	89.82	5.6
21	Ranaghat	77900	10	102.7	8
22	Kalyani	92890	23	198.08	18.4
23	Chakdaha	98530	11.83	96	9.46
24	Garulia	86460	11.77	108.91	9.416
25	New Barrackpur	94250	10.14	86	8.11
26	Budge Budge	85500	9.19	86	7.35
27	Islampur	59780	6.43	86	5.14
	Total	2004440	225.56		180.422

Methods used for water treatment in Class-I cities

S.No.	City/Town	Population in Year 2008	Population covered by organised water supply	Percent of population covered by water supply	Method used for Treatment of water
	Andman & Nicobar				
1	Port Blair	118770	118770	100	Sedimentation, aeration with rapid sand filter disinfections
	Andhra Pradesh				
1	Visakhapatnam	1493200	1493200	100	N/A
2	Vijayawada	1271170			Filtration & Chlorination
3	Warangal	814000	N/A	N/A	Rapid gravity filtration disinfected by chlorine gas duly maintaining 2.0 PPM at source and 0.2 PPM at the consumer end.
4	Guntur	792650	792650	100	Rapid Gravity Filtration
5	Nellore	583580	N/A	N/A	Chlorination
6	Kakinada	446480	446480	100	Mechanical Filtration
7	Nizamabad	441910	N/A	N/A	Rapid Gravity filter
8	Kurnool	412320	N/A	N/A	Rapid Gravity filter
9	Quthbullapur	347760	N/A	N/A	Filtration & Chlorination
10	Anantapur	340260	N/A	N/A	Rapid gravity, slow sand filtration and chlorination
11	Karimnagar	313880	313880	100	Rapid Gravity filtration plant, Disinfected with chlorine gas
12	Eluru	292250	N/A	N/A	Alum treatment, filtration and Chlorination
13	Machilipatnam	282390	N/A	N/A	Filtration & Chlorination
14	Vizianagaram	268460	268460	100	N/A
15	Proddatur	254000	254000	100	N/A
16	Khammam	243350	243350	100	Rapid Gravity Filters with chlorination 2.00 PPM
17	Nandyal	233730	N/A	N/A	Chlorination, sedimentation, rapid filtration, disinfection by chlorine gas
18	Serilingampalle	231810	N/A	N/A	N/A
19	Tenali	230750	230750	100	Liquid chlorination
20	Ongole	230370	N/A	N/A	Rapid Gravitation
21	Rajendranagar	220500	N/A	N/A	N/A
22	Bhemavaram	211480	211480	100	Rapid Gravity filter & chlorination
	Assam				
1	Silchar	176570	N/A	N/A	Sedimentation followed by Aeration, filtration & disinfection
2	Tinsukia	85519	85519	85519	N/A
	Bihar				
1	Muzaffarpur	342120	342120	100	N/A
	Chandigarh				
1	Chandigarh	994820	994820	100	Sedimentation, filtration, chlorination in case of tube well.

Methods used for water treatment in Class-I cities

S.No.	City/Town	Population in Year 2008	Population covered by organised water supply	Percent of population covered by water supply	Method used for Treatment of water
	Chhatisgarh				
1	Bhilai Nagar	625840	625840	100	Chlorination
2	Korba	356740	356740	100	N/A
3	Bilaspur	299650			Sodium Hypochloride
4	Durg	261240	261240	100	Alum dozing & chlorination
	Delhi				
1	Delhi	14858800	14858800	100*	Pre-Chlorination followed by Alum/coagulant mixin, flocculation/coagulation, sand filtration, post chlorination
	Gujarat				
1	Ahmedabad	4323890	4323890	100	Pre-chlorination, Alum Mixing, clariflocculation, filtration Post-chlorination, Plain chlorination
2	Surat	2993560	2993560	100	Pre-chlorination, Alum Mixing, clariflocculation, filtration Post-chlorination, Plain chlorination
3	Vadodara	1606420	1606420	100	Chlorination
4	Rajkot	1188970	1188970	100	Filteration by rapid sand filter.
5	Bhavnagar	628480	628480	100	Screening, Pre-chlorination, Pre-settling, secondary, settling, Filatration, Post-chlorination
6	Jamnagar	550710	550710	100	Repid send Bed Filter Plant
7	Gandhinagar	240950	240950	100	Conventional WTP includes Foulution, clarification, filtration & Disinfection
8	Nadiad	237140	237140	100	At 23 point of water supply chlorination is done by liquid chlorine dozer type pump sets.
9	Junagadh	207480	207480	100	Bleching powder/Hypo chloride
10	Surendranagar Dudhrej	192390	192390	100	Yes
11	Bharuch	182520	182520	100	Chlorination
12	Veraval	173680	173680	100	Filter plant & Chlorination
13	Navsari	164830	164830	100	Chlorination
14	Porbandar	163690	163690	100	Owned by Gujarat WSGS Board
15	Anand	160470	160470	100	Chlorination
16	Godhra	149880	149880	100	Filteration & Chlorination
17	Patan	137810	137810	100	Chlorination
18	Jetpur Navagadh	128300	128300	100	Filter plant Aluminimu and Bleaching power
19	Botad	123070	123070	100	Chlorination
20	Kalol	123030	123030	100	N/A
21	Valsad	132000	132000	100	Water filter plant
22	Vapi	137980	137980	100	From GIDC
	Haryana				
1	Faridabad	1392570	N/A	N/A	Chlorination

Methods used for water treatment in Class-I cities

S.No.	City/Town	Population in Year 2008	Population covered by organised water supply	Percent of population covered by water supply	Method used for Treatment of water
2	Hisar	338990	338990	100	N/A
3	Sirsa	211370	N/A	N/A	By Partification Plant
4	Panchkula Urban Estate	186110	N/A	N/A	Chlorination
5	Ambala	183770	N/A	N/A	Chlorination
6	Thanesar	158500	158500	100	Chlorination
7	Kaithal	154740	N/A	N/A	Filtration & Disinfection
8	Ambala Sadar	140420	140420	100	Filtration plant (under construction)
	Karnataka				
1	Mysore	912980	912980	100	Aeration, Sedimentation , Filtration
2	Mangalore	490460	490460	100	Clarifire,Flourlator, Filtration
3	Davanagere	447450	447450	100	N/A
4	Bijapur	302510	302510	100	Alum and chlorination
5	Bommanahalli	247500	247500	100	N/A
6	Bidar	211930	N/A	N/A	Chlorination,sand bed filtration
7	Hospet	200840	200840	100	Sedimentation filtration, Chlorination
8	Gadag-Betigeri	190460	190460	100	Treatment plant by KUWS
9	Mahadevapura	166780	166780	100	No treatment is given
10	Mandya	161390	161390	100	Filtration
11	Chitradurga	150790	N/A	N/A	River water is cagulated using alum and clarried in flottulator then filtered through flow fand filter and disinspected by floring gap
12	Kolar	139360	N/A	N/A	Aeration, Sedimentation , Filtration and Chlorination
13	Chikmagalur	124260	124260	100	Rapid Sand filter
14	Bagalkot	104420	104420	100	BTOA
15	Yelahanka	106320	106320	80	N/A
	Kerala				
1	Trivandrum	796870	796870	100	Prechlorination, Lime treatment, Coagulation etc.
2	Kollam	386740	N/A	N/A	Chlorination
3	Thrissur	339700	339700	100	Treatment by KWA (56%)
4	Alappuzha	189470	N/A	N/A	N/A
5	Palakkad	139890	139890	100	N/A
6	Thalassery	103360	103360	60	Rapid sand filtration
	Madhya Pradesh				
1	Indore	1885510	1885510	100	Filtration by rapid gravity filter &Pre -post chlorination.
2	Jabalpur	1246420	1246420	100	Conventional
3	Sagar	304340	304340	100	Filloculation, sedimentation,filtration, disinjection

Methods used for water treatment in Class-I cities

S.No.	City/Town	Population in Year 2008	Population covered by organised water supply	Percent of population covered by water supply	Method used for Treatment of water
4	Dewas	302160	302160	100	Chlorination & Due to filtration
5	Burhanpur	254610	254610	100	N/A
6	Guna	179640	179640	100	Filtration & Chlorination
7	Vidisha	164350	N/A	N/A	Chemicals
8	Chhindwara	160220	160220	100	Alum & chlorine dosing treatment through low and rapid filter plant
9	Neemuch	140820	140820	100	Alum and liquid chlorination
	Maharashtra				
1	Greater Mumbai	14654710	14654710	100	Rapid sand filters by conventional method
2	Pune	3124280	3124280	100	Not applicable
3	Nagpur	2523120	2523120	100	N/A
4	Thane	1551670	1551670	100	N/A
5	Kalyan-Dombivali	1467720	1467720	100	Prechlorination & Alum dose
6	Nashik	1324670	1324670	100	Convention plant, aeration - chemical, Dosing- Flocculation, sedimentation, filtration, chlorination
7	Solapur	1073840	1073840	100	Airation-Alum close, Pre-chlorine close-Flash mixing-sedimentation -rapid sand filtration, post chlorination, pure water
8	Aurangabad	1073380	1073380	100	Attached separately
9	Bhiwandi	736400	736400	100	N/A
10	Amravati	675730	675730	100	N/A
11	Mira-Bhayandar	639970	639970	100	N/A
12	Kolhapur	596780	596780	100	Primary
13	Ulhasnagar	581720	581720	100	N/A
14	Sangli-Miraj & Kupwad	537070	N/A	N/A	Primary
15	Nanded-Waghala	529640	529640	100	2 Nos of full-fledged drinking water treatment plant having total capacity of 87 MLD is provided.
16	Malegaon	503300	503300	100	N/A
17	Akola	491970	491970	100	N/A
18	Jalgaon	453350	453350	100	Treated with Alum & insectified, chlorine gass & TCL
19	Dhule	420010	420010	100	Sedimentation, Pre-chlorination Post chlorination
20	Ahmadnagar	378170	378170	100	N/A
21	Latur	368790	368790	100	Chlorination & total filtration
22	Chandrapur	366060	366060	100	Rapid gravity sand filter, with Alam & chlorine dose
23	Parbhani	318780	318780	100	Filtration, chlorination, bleaching dosing , Allu.
24	Ichalkaranji	316810	316810	100	Primary & Secondary

Methods used for water treatment in Class-I cities

S.No.	City/Town	Population in Year 2008	Population covered by organised water supply	Percent of population covered by water supply	Method used for Treatment of water
25	Jalna	289700	289700	100	Sedimentation, filtration, chlorination
26	Ambarnath	250670	250670	100	N/A
27	Nala Sopara	227140	227140	100	Conventional, Settling, filtration, chlorine dosing
28	Bhusawal	212010	212010	100	N/A
29	Bid	169850	169850	100	6 MLD of 8 MLD capacity filter, cleration by bleaching powder
30	Yavatmal	151170	151170	100	Filter plant & TCL dosiag
31	Gondiya	148680	148680	100	Clorine gass through treatment plant
32	Virar	146300	146300	100	Conventional type WTP plant
33	Navghar-Manikpur	143540	143540	100	Conventional type
34	Wardha	136620	136620	100	
35	Satara	132890	132890	100	Aevaation, Alum, Screening, Filtration, Chlorination, Doses
36	Achalpur	131980	131980	100	N/A
37	Barshi	128890	128890	100	Alum, settling filtration chlorination
38	Panvel	127960	127960	100	Alum, Bleaching , Chlorination
39	Parli	100900	100900	70	Bleaching powder, Alum, lime purification
40	Khamgaon	101080	N/A	N/A	Conrentional water treatment plant
41	Ballapur	102590	N/A	N/A	Aeration Sedimentation Filtration and chlorination
42	Chalisgaon	103850	N/A	N/A	By TCL Powder
43	Amalner	104260	N/A	N/A	Collection, Filtration, Sedimentation, Pre & Post Chlorination
44	Nandurbar	107580	107580	100	N/A
45	Badlapur	111630	111630	75	N/A
46	Hinganghat	105250	105250	90	Rapid sand gravity filter At. WTP
	Meghalaya				
1	Shillong	186030	186030	100	N/A
	Mizoram				
1	Aizawl	282550	N/A	N/A	Conventional treatment including chlorination
	Nagaland				
1	Kohima	126520	88564	70	Filtration
	Orissa				
1	Balasore	156600	156600	100	N/A

Methods user for water treatment in Class-I cities

S.No.	City/Town	Population in Year 2008	Population covered by organised water supply	Percent of population covered by water supply	Method used for Treatment of water
	Punjab				
1	Ludhiana	1715920	1715920	100	Chlorination
2	Amritsar	1200100	1200100	100	N/A
3	Jalandhar	862500	862500	100	No treatment
4	Patiala	372530	372530	100	Chlorination
5	Bathinda	267390	267390	100	Sedimentation/after chemical sedimentation,filtration chlorination
6	Pathankot	196260	196260	100	Chlorination
7	Hoshiarpur	182340	182340	100	Drinking water is chlorinated,electronic chlorination. Some are treated manually by bleaching
8	Batala	155770	155770	100	Chlorination
9	Moga	153290	153290	100	Chlorination
10	Abohar	152890	152890	100	Rapid sand filtration chlorination
11	S.A.S. Nagar (Mohali)	151640	151640	100	Settling-Alum adding-Flocculation's settling-Filtration-chlorination
12	Malerkotla	131370	131370	100	Chlorination
13	Khanna	126760	126760	100	N/A
14	Barnala	96397	96397	92	Chlorination
	Rajasthan				
1	Jodhpur	855960	855960	100	N/A
2	Udaipur	344630	344630	100	Chlorination
3	Bhilwara	320100	320100	100	N/A
4	Beawar	142870	142870	100	Filtration &Chlorination
5	Alwar	259270	259270	100	PHED plant
	Tamil Nadu				
1	Chennai	1209240	1209240	100	Plaing sedimentation by filtration & Disinfection by TWAD board
2	Salem	538800	538800	100	Infiltration gallery
3	Tambaram	170690	N/A	N/A	N/A
4	Tiruvannamalai	167850	167850	100	N/A
	Uttar Pradesh				
1	Meerut	1218070	N/A	N/A	Sedimintation Filtration , Chlorine gas,
2	Ghaziabad	860800	860800	100	OHT
3	Aligarh	788730	788730	100	Chlorination
4	Muzaffarnagar	367560	367560	100	By Jal Nigam
5	Sambhal	216790	216790	100	N/A
6	Bulandshahr	208220	208220	100	Chlorination, bleaching powder
7	Jaunpur	186750	186750	100	Chlorination
8	Hathras	150260	150260	100	Chlorination
9	Loni	148300	148300	100	Chlorination

Methods used for water treatment in Class-I cities

S.No.	City/Town	Population in Year 2008	Population covered by organised water supply	Percent of population covered by water supply	Method used for Treatment of water
10	Deoria	127620	127620	100	Chlorination
11	Chandausi	125740	125740	100	Elec. Chloropower
	Uttarakhand				
1	Dehradun	215260	N/A	N/A	Disinfection
2	Hardwar	158840	158840	100	N/A
	West Bengal				
1	Kolkata	5267630	5267630	100	386 MLD,749,227,59 ,Slow sand filter, rapid amella, Pulsator amella o, Plate settler amella o etc.
2	Durgapur	566950	566950	100	Conventional type (Rapid sand filtration system)
3	Bhatpara	508250	N/A	N/A	Manual Chlorination time to time
4	South Dumdum	450970	N/A	N/A	N/A
5	Maheshtala	447600	447600	100	
6	Panihati	400640	400640	100	Ground water supplied direct to distribution
7	Rajpur Sonarpur	386850	386850	100	N/A
8	Barddhaman	328750	328750	100	Chlorination
9	Bally	300810	300810	100	Chlorination,Oxidation chamber
10	Baranagar	288210	N/A	N/A	Slow sand and rapid gravity filter and chlorination
11	North Dumdum	253040	253040	100	Chlorination
12	Naihati	247750	247750	100	N/A
13	Uluberia	232410	232410	100	N/A
14	Serampore	227650	N/A	N/A	Sedimentation amella on chloriantion
15	Haldia	196300	N/A	N/A	By PHE
16	Hugli-Chinsurah	195730	195730	100	Chlorination at treatment plant
17	Chandannagar	186490	186490	100	Chemical treatment ,Foculator & amella chamber , filtration
18	Baharampur	184190	184190	100	Pry. Ferrel Alum, filter ,chlorination
19	Madhyamgram	178830	178830	100	N/A
20	Medinipur	176350	176350	100	Chemical treatment by bleaching powder
21	Barrackpur	165980	165980	100	N/A
22	Krishnanagar	159930	159930	100	N/A
23	Santipur	158920	158920	100	Chlorination
24	Bankura	148130	148130	100	N/A
25	Habra	146850	146850	100	Deep tube wells sources
26	Raniganj	141320	141320	100	Through Flocculation tankd to clarified tank to sand filter bed & Gaseous chlorination
27	Khardaha	133690	133690	100	N/A
28	Rishra	130250	130250	100	Treated by CMWSA
29	Bhadreswar	121840	121840	100	N/A

Methods used for water treatment in Class-I cities

S.No.	City/Town	Population in Year 2008	Population covered by organised water supply	Percent of population covered by water supply	Method used for Treatment of water
30	Bansberia	120120	N/A	N/A	Chlorination
31	Champdani	118720	118720	100	Chlorination
32	Dumdum	116520	116520	100	Ground water partly surface
33	Jalpaiguri	115240	115240	100	Chlorination , Elimination 4
* Excluding unauthorized colonies					

Methods used for water treatment in Class-II Towns

S.No.	City/Town	population in year 2008	Population covered by organised water supply	Percent of population covered by water supply	Method used for Treatment of water
	Andhra Pradesh				
1	Kaghaznagar	59760	35856	60	Filtration wells
2	Mancherial	70480	42288	60	Chlorination
3	Nirmal	74280	44568	60	Filtration
4	Rayadurg	54320	38024	70	Pre Chlorination
5	Kadiri	76530	53571	70	Treatment 3%
6	Tadpatri	86940	86940	100	Disinfection
7	Srikalahasti	71120	56896	80	N/A
8	Madanapalle	98310	19662	20	Mixing chlorine liquid
9	Sattenapalle	51530	20612	40	Repaid gravity Sand Filter
10	Vinukonda	52770	32550	62	Slow Sand Filtration Plant
11	Ponnur	56700	23056	40	Filtration
12	Mangalagiri	59650	53685	90	Filtered and Chlorination
13	Bapatla	68340	42406	62	Slow sand filtration plant
14	Palwancha	68800	41991	60.78	Treatment through Galleries in the R. bed and then chlorination.
15	Nuzvid	50510	40408	80	Chlorination
16	Yemmiganur	76700	42039	55	Chlorine
17	Miryalguda	90560	54762	60	N/A
18	Kamareddy	64450	38670	60	Filtration plant
19	Bodhan	71600	57219	80	Filtration Plant
20	Markapur	58660	40923	70	Chlorine gas
21	Bobbili	50320	50320	100	Chlorination
22	Palacole	57370	51633	90	By means of Filtration & Chlorination
	Assam				
1	Dhubri	79320	13320	20	Filtration,disinfectant
2	Sibsagar	67560	21792	40	Sheet enclosed
	Bihar				
1	Jehanabad	98070	28603	35	Water tower
	Chhatisgarh				
1	Jagdapur	83270	49962	60	Couglution & Purification (Bleaching powder)
2	Dhamtari	92770	51729	63	Chlorination
3	Dalli-Rajhara	57190	22876	40	washing bleaching powder & chlorination

Methods used for water treatment in Class-II Towns

S.No.	City/Town	population in year 2008	Population covered by organized water supply	Percent of population covered by water supply	Method used for Treatment of water
4	Bhilai Charoda	98500	48171	55	N/A
5	Ambikapur	74580	67076	70	Rapids Filter
	Gujarat				
1	Viramgam	60530	35255	66.4	N/A
2	Dholka	61320	48444	90	Chlorination
3	Chandlodiya	63990	55767	100	Chlorination
4	Savarkundla	84010	73695	100	Clarination , no treatment plant
5	Petlad	58310	46032	90	Chlorination
6	Borsad	64460	45232	80	TCL Powder
7	Khambhat	91700	72383	90	Chlorination
8	Deesa	95010	95010	100	Chlorination Dosing System occupied for super chlorination.
9	Anklesvar	77470	50964	75	Chlorination
10	Palitana	59200	37440	72	Land gravity
11	Chandkheda	63240	33302	60	Chlorinated
12	Una	58440	N/A	N/A	Chlorination by bleaching powder
13	Keshod	72110	38600	62000	Chlorination
14	Unjha	61410	56000	100	Chlorination
15	Kadi	64110	53428	95	N/A
16	Visnagar	75040	65826	100	Chlorination
17	Bilimora	58240	40968	80	Chlorination for disinfection
18	Vijalpor	61460	43130	80	Chlorination
19	Sidhpur	61080	48472	90	Chlorination
20	Upleta	63090	56781	90	Filtration & Chlorination
21	Dhoraji	92120	64645	80	Filter
22	Modasa	61620	55458	90	By Filtration plant & Chlorination System
23	Himatnagar	66420	56464	100	Chlorination
24	Wadhwan	70380	61752	100	Alum Chlorination
25	Dhrangadhra	80540	63588	90	Chlorination
	Haryana				
1	Fatehabad	78420	53876	90	Filtration and Chlorination
	Jammu & Kashmir				
1	Anantnag	65340	53606	85	Rapid sand filtration plant with chlorination
2	Sopore	54840	43872	80	Filtration & Chlorination

Methods used for water treatment in Class-II Towns

S.No.	City/Town	population in year 2008	Population covered by organized water supply	Percent of population covered by water supply	Method used for Treatment of water
Jharkhand					
1	Ramgarh Cantonment	88150	18364	25	Treatment with lime and alum and chlorine through rapid gravity treatment plant.
Karnataka					
1	Ilkal	59230	36344	70	Physical, Chemical & Bacteriological
2	Jamkhandi	65990	43415	75	1 MGD cap. Sandbed treatment plant
3	Rabkavi Banhatti	80080	56193	80	Filtration & Chlorination
4	Rajrajeshwari	92438	67035	70	Bore well water supply
5	Rama-nagaram	90480	78588	99	Chlorination
6	Dod Ballapur	81520	67050	90	N/A
7	Nipani	66190	40642	70	Post chlorination
9	Gokak	76570	67170	100	Sand bed filter
10	Chamrajnagar	69320	48648	80	Rapid horizontal gravity filter
11	Shahabad	57670	40469	80	No treatment
12	Chik Ballapur	62630	43950	80	Rapid sand gravity filter
13	Sindhnur	69870	55135	90	Repaid filtration method
14	Sagar	57130	N/A	N/A	Slow sand filteratoin <i>system with chlorination</i>
15	Tiptur	60470	39828	75	Conventional
16	Dandeli	60750	53287	100	Alum, chlorine
17	Sirsi	66930	52831	90	Chlorination
18	Karwar	71770	25189	40	Aeration, Sedimentation, filtration, chlorinations
Kerala					
1	Kayamkulam	67910	64515	95	Chlorination
2	Kannur	66350	54865	86	Sedimentation, aeration, filtration, chlorination
3	Taliparamba	70140	64248	95	NA
4	Changanassery	54040	50920	98	Airation, coagulation, edimentation, filtration & chlorination
5	Kottayam	63150	63150	100	Conventional, treatment
6	Vaikam	53524	16977	75	Conventional treatment
7	Bey pore	69560	13912	20	Chlorination
8	Quilandy	71730	68982	96	N/A
9	Tirur	55800	53650	96	N/A
10	Malappuram	60830	58490	96	N/A
11	Manjeri	87050	25111	30	Floculation, coagulation, sedimentation , filtration, chlorination
12	Nedumangad	58380	43856	79	Sedimentation & filtration

Methods used for water treatment in Class-II Towns

S.No.	City/Town	population in year 2008	Population covered by organized water supply	Percent of population covered by water supply	Method used for Treatment of water
13	Neyyattinkara	72210		30	
14	Kunnamkulam	53650	49005	95	Slow based filtration
15	Vatakara	78770	70893	90	Chemical treatment, Sedimentation, Filtration, Chlorination
	Madhya Pradesh				
1	Balaghat	77310	60048	80	By Alumina Fero. Bleaching powder
2	Betul	85790	N/A	N/A	Through Alum Treatment and rapid sand filter, chlorination
3	Dabra	58360	42504	75	Rapid sand filter, liquid chlorine
4	Harda	63560	37027	60	Only one filter plant at Handia village
5	Jabalpur Cantt.	68480	39889	60	Chlorination
6	Jaora	65650	54175	85	Filtration, chlorination by bleaching powder
7	Sehore	93660	70245	75	Chlorination
8	Seoni	92490	73992	95	Bleaching powder, Sodium Hoppocorite
9	Shahdol	80940	62899	80	Proper filtration, Alum & bleaching
10	Shajapur	51590	40060	80	Chlorination, filtration
11	Basoda	64230	53012	85	N/A
	Maharashtra				
1	Kopargaon	68400	68400	100	Sand filter & Chlorination
2	Sangamner	70630	61958	100	Conventinal plant
3	Shrirampur	92650		95	Alum Dosing and Bleaching
4	Anjangaon	58330	48611	95	Purifiacion plant of cborin Gas & Chlorination at ESR
5	Bhandara	96940	76691	90	
6	Ambejogai	78980	N/A	N/A	Aeration Alumdosing clarifier, post chlorination sump and pump clarifier
7	Shegaon	59760	36692	70	Filtration
8	Malkapur	69560	69560	100	Primary
9	Buldana	71800	62979	100	Filter Plant
10	Bhadravati	64610	22613	35	Mediclore and bleaching powder

Methods used for water treatment in Class-II Towns

S.No.	City/Town	population in year 2008	Population covered by organized water supply	Percent of population covered by water supply	Method used for Treatment of water
11	Shirpur-Warwade	70320	61688	100	Filteration & Chlorination
12	Basmath	65390	40152	70	WTP 5.5 MLD
13	Chopda	69390	42605	70	Water treatment palnt
14	Kamptee	96150	75908	90	N/A
15	Deolali	57700	5062	10	Filter water
16	Manmad	82550	57929	80	Tratment Plant
17	Osmanabad	91900	64489	80	By water treatment plant
18	Baramati	58530	48774	95	Rapid gravity sand filteration, chlorination
19	Lonavala	63440	55650	100	50%(Population by conventional treatment plant 12 MLD & 50% population by TCL dose
20	Kirkee	87330	87330	100	Conventional Treatment
21	Pune	91420	79965	100	Not applicable
22	Ratnagiri	80180	70385	100	Sedimentation, filteration, Chlorination
23	Uran Islampur	66500	48962	83.94	Sedimentation & filteration with repaid sand filter bed with Alum & Chlorination
24	Phaltan	57910	50800	100	Water treatment plant of 2 cross galan capacity, 6MLD WTP setling tank
25	Karad	64010	56149	87	Aeration settling rabid sand filteration proper chlorination
26	Palghar	60080	54072	90	TCL Using
27	Karanja	68580	65151	95	N/A
28	Wani	60210	N/A	N/A	Chlorination
29	Pusad	76550	72722	95	
	Meghalaya				
1	Tura	81750	40873	70	Conventional T plant comprising, flocculator, Rapid sand filter & disinfection
	Orissa				
1	Paradip	87620	52572	60	General Traditimal water Treatment
2	Rayagada	68700	49095	85	Chloriantion
3	Bhawanipatna	72290	24298	40	N/A
	Pondicherry				

Methods used for water treatment in Class-II Towns

S.No.	City/Town	population in year 2008	Population covered by organized water supply	Percent of population covered by water supply	Method used for Treatment of water
1	Karaikal	79690	74439	100	Infiltration after chlorination
	Punjab				
1	Faridkot	88540	71986	93	N/A
2	Kot Kapura	99310	52481	65	Treatment and Alum, Chlorine dose
3	Sirhind -Fategarh	62470	30000	60	Chlorinated
4	Gobindgarh	68160	52628	95	Chlorination
5	Firozpur Cantt.	70620	51102	89	Chlorination
6	Gurdaspur	82970	66376	80	Regular Chlorination is made through Dozer eipped in water supply tube well
7	Mansa	89310	43200	60	Purification & Chlorination
8	Malout	87280	49643	70	Rapid sand filter treatment after sedimentation and gaseous chlorination
9	Sunam	62760	38292	75	NA
10	Sangrur	96820		80	Water to be supplied is being chlorinated with bleaching powder
11	Barnala	118570	109084	92	Chlorination
	Rajasthan				
1	Baran	89340	62697	80	RGF
2	Balotra	70370	67000	100	Bleaching powder (Chlorination)
3	Barmer	95210	71052	85	As He ground water is source of supply so no treatment is registered
4	Chittaurgarh	109470	87576	80	By Chlorination
5	Ratangarh	72350	57880	80	N/A
6	Dausa	70210	56168	80	Bleaching powder Dosing
7	Dhaulpur	105040	78236	80	Filteratation with chlorination
8	Suratgarh	66210	46460	80	Filteratation & chlorination by bleaching power
9	Chomu	57820	57820	100	Chlorination
10	Kuchaman City	57650	50587	100	N/A
11	GangapurCity	110350	27802	30	Depend on PHED

Methods used for water treatment in Class-II Towns

S.No.	City/Town	population in year 2008	Population covered by organized water supply	Percent of population covered by water supply	Method used for Treatment of water
12	Nagaur	100680	80544	80	Chlorination by bleaching powder
	Tamil Nadu				
1	Udumalaipettai	71850	56657	95	Slow sand filter beds and post chlorination
2	Mettupalayam	80900	76855	95	Treatment only chlorination iteration
3	Pollachi	107720	96948	90	N/A
4	Panruti	67590	57451	85	Chlorination
5	Krishnagiri	79330	54728	85	Water Infiltration gallery and in OHT's liquid chloride added
6	Palani	81950	99980	100	Rapid Sand filter used
7	Kasipalayam	64050	47132	90	Fitter Bed treatment
8	Gobichet-tipalayam	67280	46645	84.58	Chlorination
9	Dharapuram	79470	63576	80	Infiltration after chlorination
10	Nagapattinam	112880	95948	85	Chlorination
11	Namakkal	64710	42432	80	Chlorination
12	Ramanatha-puram	75610	49583	80	Chlorination
13	Attur	70940	51767	90	Chlorination
14	Pattukkottai	79850	79850	100	N/A
15	Coonoor	61100	50079	100	Slow sand filtration
16	TheniAllinagaram	104220	64922	76	Rapid sand filter
17	Mannargudi	75140	58404	95	Bleaching powder
18	Vaniyambadi	104260	85752	100	Chlorination
19	Tindivanam	82750	60963	90	Chlorination Bleaching powder
20	Aruppukkottai	102480	81984	80	Chlorination
1	Agra	65410	N/A	N/A	Chlorination
2	Auraiya	75190	54902	85	N/A
3	Balrampur	84060	50554	70	Chlorination
4	Nawabganj	87400	75491	100	By Chlorinator
5	Bijnor	92380	18476	20	N/A
6	Ujhani	59420	35730	70	Chlorination by bleaching powder
7	Muradnagar	86230	17246	20	Chlorination
8	Ghazipur	110860	66889	70	Chlorination by Dozas
9	Chhibramau	58520	40223	80	Bleaching powder & Chlorine
10	Kannauj	83260	64554	90	Chlorination
11	Mainpuri	104220	73652	80	Chlorination

Methods user for water treatment in Class-II Towns

S.No.	City/Town	population in year 2008	Population covered by organized water supply	Percent of population covered by water supply	Method used for Treatment of water
12	Meerut	108450	90521	100	Chlorination by bleaching powder
	Uttarakhand				
1	Rishikesh	69460	56630	95	N/A
2	Rudrapur	103270	68386	70	Chlorination
3	Shakti Garh	5560	4776	100	Chlorination
4	Kichha	35510	30503	100	Chlorination
5	Khatima	16690	14335	100	Chlorination
6	Sitargarh	25640	22027	100	Chlorination
	West Bengal				
1	Katwa	81090	46754	65.31	Chlorination
2	Bolpur	74390	59123	90	Physical, chemical , microbiological
3	Arambag	63590	37894	67.5	N/A
4	Konnagar	81820	61379	85	Serampore treatment plant
5	Koch Bihar	87030	38437	50	Chloriantion
6	Old Maldah	71320	15736	25	N/A
7	Ghatal	58450	28372	55	Chloriantion
8	Kandi	57040	28193	56	N/A
9	Jangipur	84370	44678	60	Chlorine& Ground Arsenice
10	Gayespur	62350	41271	75	Chlorination
11	Ranaghat	77900	41252	60	Chlorination
12	Kalyani	92890	77896	95	Chlorination
13	Garulia	86460	61047	80	N/A
14	New Barrackpur	94250	66546	80	N/A
15	Budge Budge	85500	45279	60	N/A

Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi**Water supply, Wastewater and Solid Waste Survey****(A) Municipal Body**

- 1) Name of Town/City :
 2) Population (2001 census) :
 3) District :
 4) State :
 5) PIN Code :
 6) Name of river basin :

(B) Water Supply

- 1) Source of piped Water Supply :
 a) River/Lake.....mld
 (Specify name:)
 b) Ground water..... mld
 c) Othermld
- 2) Percentage population covered by :
 piped water supply
- 3) Specify type of treatment given before :
 community water supply (For multiple
 source, information on treatment may be
 indicated separately)
- 4) Percentage population not covered by :
 piped water supply
- 5) Source of private Water Supply
 a) River/Lake.....mld
 (Specify name:)
 b) Ground water..... mld
 c) Othermld

(C) Wastewater (sewage) generation and collection

- 1) Total Wastewater generation : a) Domestic mld
 (Sewered + Unsewered)
 : b) Industrial mld
- 2) Percentage population covered by :
 underground sewerage
- 3) Volume of wastewater collected : a) Domestic mld
 (Sewered)
 : b) Industrial mld
- 4) Are there separate sewers for domestic : Yes/No
 and industrial wastewaters?
- 5) Are there separate storm water drains ? : Yes/No

(D) Wastewater (sewage) treatment and disposal

- 1) Total installed Sewage Treatment Capacity : mld
- Details of treatment technology in existing STPs
- | <u>Process</u> | <u>Capacity</u> | <u>Capital Cost</u> | <u>Comm. Yr</u> |
|-------------------------------------|-----------------|---------------------|-----------------|
| STP having activated sludge process | :mld | | |
| STP having trickling filter process | :mld | | |
| STP having UASB process | :mld | | |

- STP having other anaerobic process :mld
 STP having oxidation pond :mld
 STP having only primary settling :mld
 2) Total Under construction or proposed : mld
 Sewage Treatment capacity

Details of treatment technology in u/c or proposed STPs

- | <u>Process</u> | <u>Capacity</u> | <u>Stage of construction</u> |
|-------------------------------------|-----------------|------------------------------|
| STP having activated sludge process | :mld | |
| STP having trickling filter process | :mld | |
| STP having UASB process | :mld | |
| STP having other anaerobic process | :mld | |
| STP having oxidation pond | :mld | |
| STP having only primary settling | :mld | |
- 3) Mode of disposal of Sewage :
- | | <u>Treated sewage</u> | <u>Untreated sewage</u> |
|--|-----------------------|-------------------------|
| a) Disposal into River | : mld | mld |
| (Name of receiving River:: | River distance: |) |
| b) Disposal into Lake | : mld | mld |
| (Name of receiving Lake:: | Lake distance: |) |
| c) Disposal into Estuary | : mld | mld |
| (Name of receiving Estuary: | Estuary distance: |) |
| d) Disposal into Sea | : mld | mld |
| (Name of receiving Sea: | Sea distance: |) |
| e) Disposal on land for irrigation?farming : | mld | mld |
| f) Disposal on land predominantly | : mld | mld |
| for percolation | | |
- 4) If any sewage water cost charged from the farmers using sewage for farming : Rs.....per KL

(E) Solid Waste

- 1) Total Municipal Solid Waste(MSW)generated:MT/day
 2) Total Quantity of MSW collected :MT/day
 3) Method of collection :
 a) door to door
 b) dust bins
 c) hand carts/push cart/tricycle
- 4) Transportation facilities available :
 a) No.of trucks
 b) No.of loaders.....
 c) Other.....
- 5) MSW processing :Composting MT/day
 BiodigestingMT/day
 Vermicomposting MT/day
 Other..... MT/day
- 6) Mode of disposal :Sanitary land fill MT/day
 Open dumping..... MT/day

Date:
Place:

Name & Signature of Authorised Officer