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Assessment of Domestic Pollution Load from Urban Agglomeration in Ganga Basin: Uttarakhand and Himachal Pradesh

GRBMP: Ganga River Basin Management Plan

by

Indian Institutes of Technology

IIT Bombay | IIT Delhi | IIT Guwahati | IIT Kanpur | IIT Kharagpur | IIT Madras | IIT Roorkee

Preface

In exercise of the powers conferred by sub-sections (1) and (3) of Section 3 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government has constituted National Ganga River Basin Authority (NGRBA) as a planning, financing, monitoring and coordinating authority for strengthening the collective efforts of the Central and State Government for effective abatement of pollution and conservation of the river Ganga. One of the important functions of the NGRBA is to prepare and implement a Ganga River Basin Management Plan (GRBMP).

A Consortium of 7 Indian Institute of Technology (IIT) has been given the responsibility of preparing Ganga River Basin Environment Management Plan (GRBMP) by the Ministry of Environment and Forests (MoEF), GOI, New Delhi. Memorandum of Agreement (MoA) has been signed between 7 IITs (Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and MoEF for this purpose on July 6, 2010.

This report is one of the many reports prepared by IITs to describe the strategy, information, methodology, analysis and suggestions and recommendations in developing Ganga River Basin Management Plan (GRB EMP). The overall Frame Work for documentation of GRBMP and Indexing of Reports is presented on the inside cover page.

There are two aspects to the development of GRB EMP. Dedicated people spent hours discussing concerns, issues and potential solutions to problems. This dedication leads to the preparation of reports that hope to articulate the outcome of the dialog in a way that is useful. Many people contributed to the preparation of this report directly or indirectly. This report is therefore truly a collective effort that reflects the cooperation of many, particularly those who are members of the IIT Team. Lists of persons who have contributed directly and those who have taken lead in preparing this report is given on the reverse side.

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1. Introduction:

The scenic and beautiful state of Himachal Pradesh and Uttarakhand are the 18th and 27th state, respectively in the country of India. Both states are located at the foothills of the Himalayan mountain ranges, it is largely a hilly State, having international boundaries with Tibet and Nepal. These two state share boundaries with Uttar Pradesh, Haryana, Jammu & Kashmir and Panjab. Both states are rich in natural resources especially water and forests with many glaciers, rivers, dense forests and snow-clad mountain peaks.

Dehradun and Shimla are the Capital of Uttarakhand and Himachal Pradesh, respectively. Shimla is one of the best hill station in the country and Dehradun one of the most beautiful resort in the sub-mountain tracts of India, known for its scenic surroundings. The town lies in the Dun Valley, on the watershed of the Ganga and Yamuna rivers.

Table 1: The Salient Features of Tributaries of the Ganga River Basin Contributing to the River Ganga in the State of HP and Uttarakhand

Characteristics	Bhagirathi	Alaknanda	Yamuna
Position	Head stream	Head Stream	Right bank
Region of origin	Gaumukh (Gangotri)	Confluence of Satopanth Glacier and Bhagir athi Kharak Glacier	Yamunotri glacier at Bandar Punch
Mouth	Ganga	Ganga	Ganga
Total length (km)	205	190	1376
Total catchment area (sq km)	6,921	10,882	366,223
Catchment area in Uttarakhand and HP(sq km)	6,921	10,882	1,484
River bed/ Soil texture	Clay, silt and gravel of various grades	Clay, silt and gravel of various grades	Alluvial about 42% of the basin area, followed by medium black soil 25.5% and mixed red and black soil 15%

*** Rai et al. 2012; Gopal and Sah (1993); Dwivedi (2006)**

The total annual average rainfall in the state of HP and Uttarakhand are 1013 mm and 1757 mm, respectively and they contribute approximately 0.86% and 12.89% of the total rainfall in the catchment of the Ganga basin. Ganga basin, HP and Uttarakhand states boundaries are shown in Figure 1 and Figure 2.

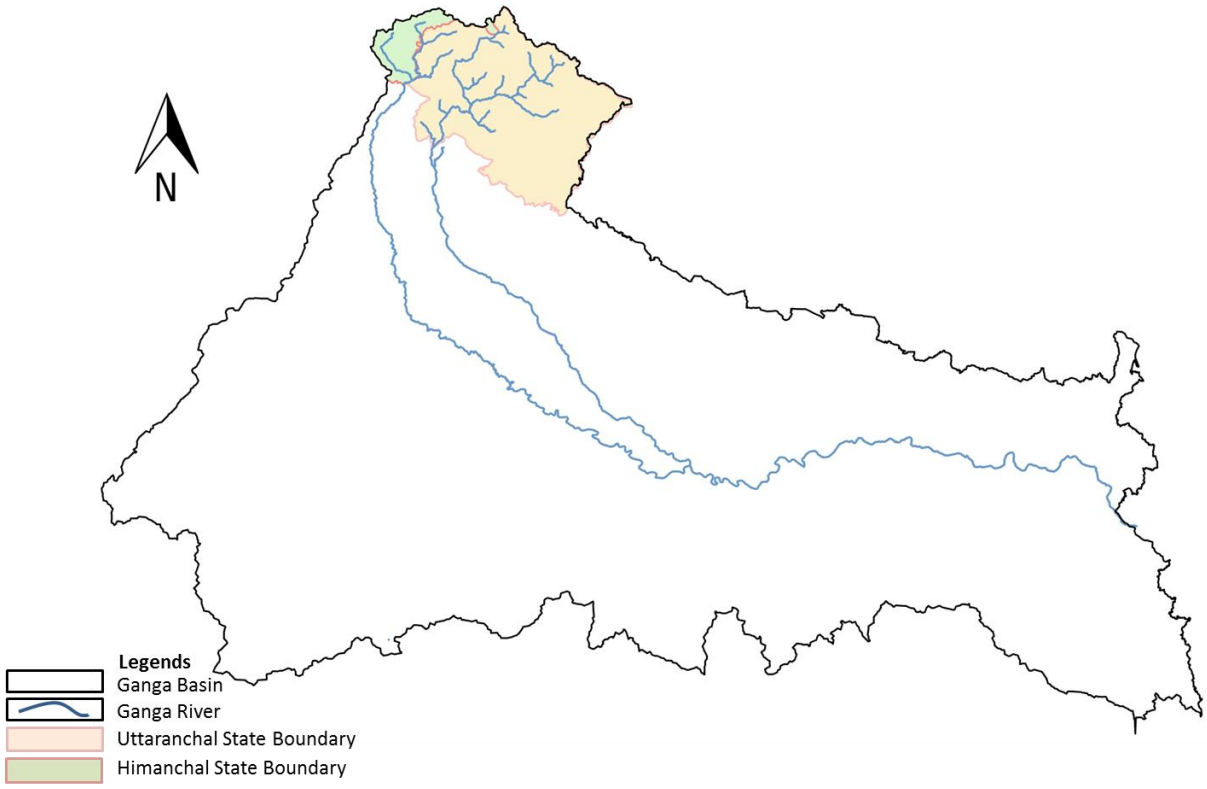

Figure 1: Ganga River Basin the Indian Territory, Uttarakhand and Himachal Pradesh.

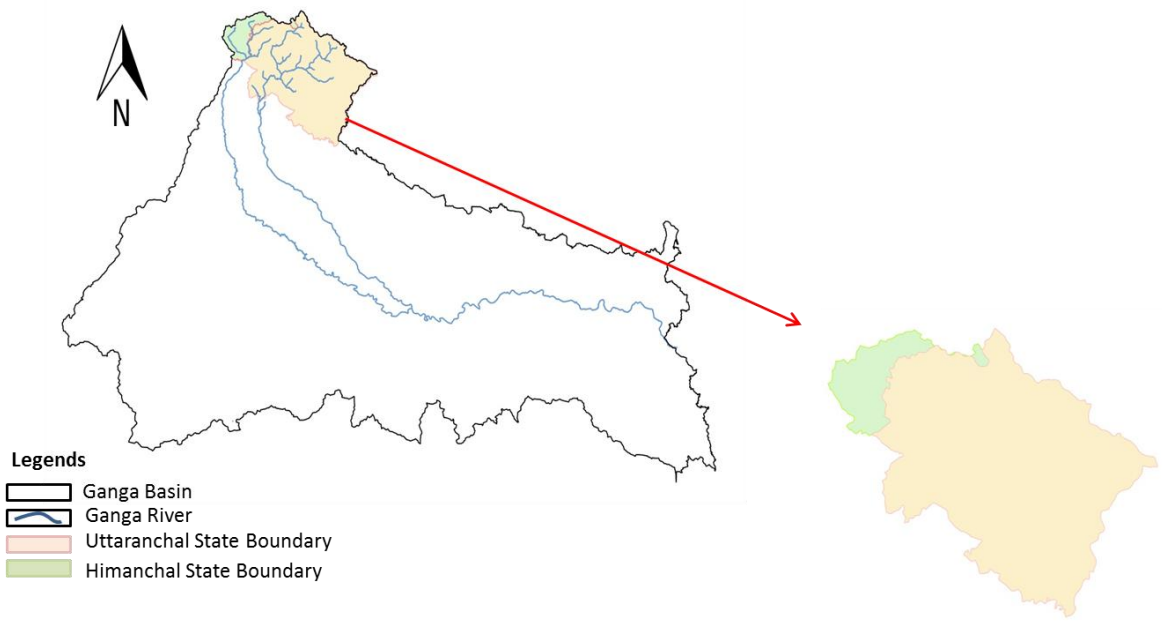

Figure 2: **Major Sub-Basins or their Portions under the Ganga River Basin in Uttarakhand and Himachal Pradesh.**

2. Major Obstruction and Abstraction Projects on the Tributaries of the River Ganga Executed in the States

The natural flow regime in the river Yamuna has been altered due to construction of two barrages in the HP and Uttarakhand state. These barrages are essentially for domestic water supplies. The list of the major dams on Yamuna and Ganga River in HP and Uttarakhand are mentioned underneath.

Table 2: Details of the Major Dams on the River Ganga and Her Tributaries in the Uttarakhand and HP (WRIS-wiki)

Projects	River	Year of Completion	Remark
Baigul Dam	Baigul and Sukhi	1968	Major Irrigation Project
Baur Dam	Baur	1967	Major Irrigation Project
Bhimtal Dam	Bhimtal Tal	1883	Major Irrigation Project
Dhauliganga Dam	Dhauli Ganga	-	Major Irrigation Project
Chora Dam	Kiccha	1960	Major Irrigation Project
Haripura Dam	Kiccha	1975	Major Irrigation Project
Ichari Dam	Tons	1972	Major Irrigation Project
Jamrani Dam	Gola	1990	Major Irrigation Project
Maneri Dam	Bhagirathi	1984	Major Irrigation Project
Ramganga Dam	Ramganga	1974	Major Irrigation Project
Tehri Dam	Bhagirathi	2005	Major Irrigation Project
Tumaria Dam	Phika	1970	Major Irrigation Project

3. Demographic Profile of Ganga Basin in the States

HP and Uttarakhand have 6 Class I cities, 5 Class II and 20 Class III towns under Ganga basin (Figure 4-6). The total population of the HP and Uttarakhand are 6.8 and 10.1 million (Census 2011). The density in the states are about 123 and 189 people per square kilometer (Census, 2011), respectively. According to the Population Census 2011, some of the Class I cities are Dehradun, Haldwani-cum-Kathgodam, Hardwar, Kashipur, Roorkee and Rudrapur under the Ganga basin. The details of the area, population and the major river systems of all the Class I, II and III cities are presented in Table 3-5, respectively.

Figure 3 shows the population distribution of Class I cities, Class II and III towns in the Ganga basin in the states. Map in the Figure 4, 5 and 6 showing the distribution of Class I cities, Class II, and Class III towns respectively in the state under Ganga River Basin. The average population of class I town in the states is 0.23 million, approximately 4 times and 8 times higher than the population of class II and class III towns, respectively. Dehradun is the highly populated class I city having the population of 11.04 million, while Roorkee is the least populated (0.12 million) class I city. Rishikesh and Jaspur are the towns having maximum and minimum population under class II towns, contains 0.071 and 0.051 million, respectively. In class III towns where the population is less than 0.05 million, the maximum population is in the BHEL Ranipur town (0.047 million), while minimum is in the Srinager (0.02 million). Approximately 61.59 % of class

I cites population lives outside of defined basin, and 12.63% of class II cities population lives outside of defined basin (Figure 3).

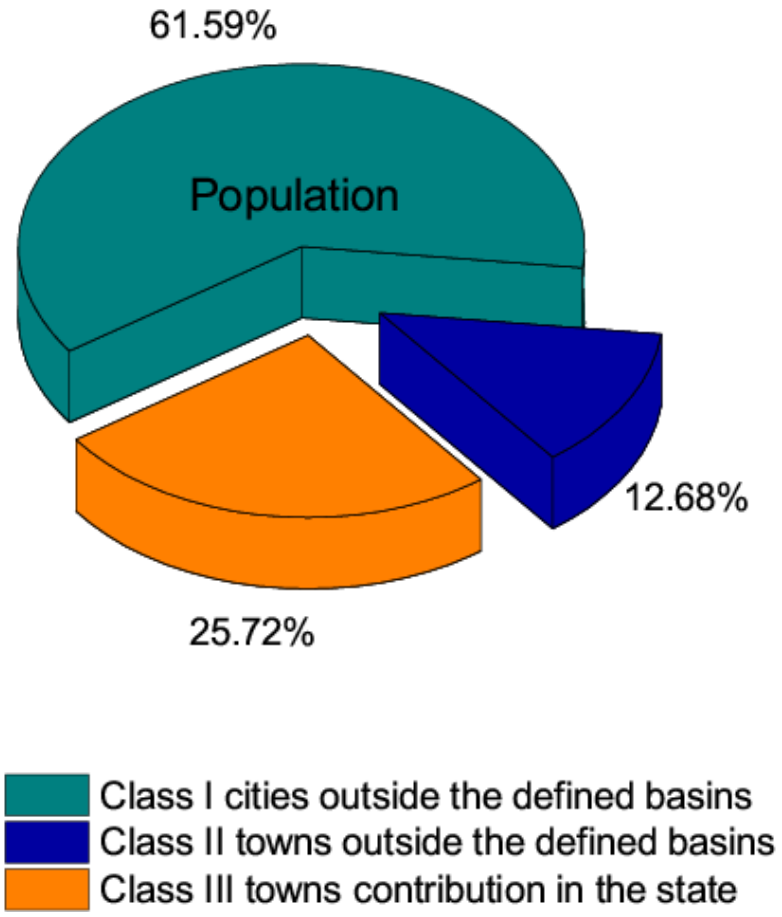

Figure 3: Population Distribution of Class I Cities and Class II, Class III Towns in HP and Uttarakhand states.

Table 3: Demographic details of Major urban centers (Class I) in HP and Uttarakhand.

SNo.	Name	River System	Population (as in 2011)
1	Dehradun	Ganga River	569578
2	Haldwani-cum-Kathgodam	Ganga River	201461
3	Hardwar	Ganga River	231338
4	Kashipur	Ganga River	121623
5	Roorkee	Ganga River	118200
6	Rudrapur	Ganga River	140857

Table 4: Demographic details of class II cites in HP and Uttarakhand.

SNo.	Name	River System	Population (as in 2011)
1	Jaspur	Ganga River	50523
2	Manglaur	Ganga River	52971
3	Pithoragarh	Ganga River	56044
4	Ramnagar	Ganga River	54787
5	Rishikesh	Ganga River	70499
6	Jaspur	Ganga River	50523

Table5: Demographic details of class III cites in HP and Uttarakhand.

SNo.	Name	River System	Population (as in 2011)
1	Almora	Ganga River	34122
2	Bajpur	Ganga River	25524
3	Bharat Heavy Electricals Limited Ranipur	Ganga River	46948
4	Chamoli Gopeshwar	Ganga River	21447
5	Dhandera	Ganga River	23276
6	Kichha	Ganga River	41965
7	Kotdwara	Ganga River	28859
8	Laksar	Ganga River	21760
9	Mukhani	Ganga River	22475
10	Mussoorie	Ganga River	30118
11	Nagla	Ganga River	22258
12	Nainital	Ganga River	41377
13	Paonta Sahib	Yamuna River	25183
14	Pauri	Ganga River	25440
15	Raipur	Ganga River	32900
16	Sitarganj	Ganga River	29965
16	Solan	Yamuna River	39256
17	Srinagar	Ganga River	20115
18	Tehri	Ganga River	24014
19	Umru Khurd	Ganga River	20593
20	Almora	Ganga River	34122

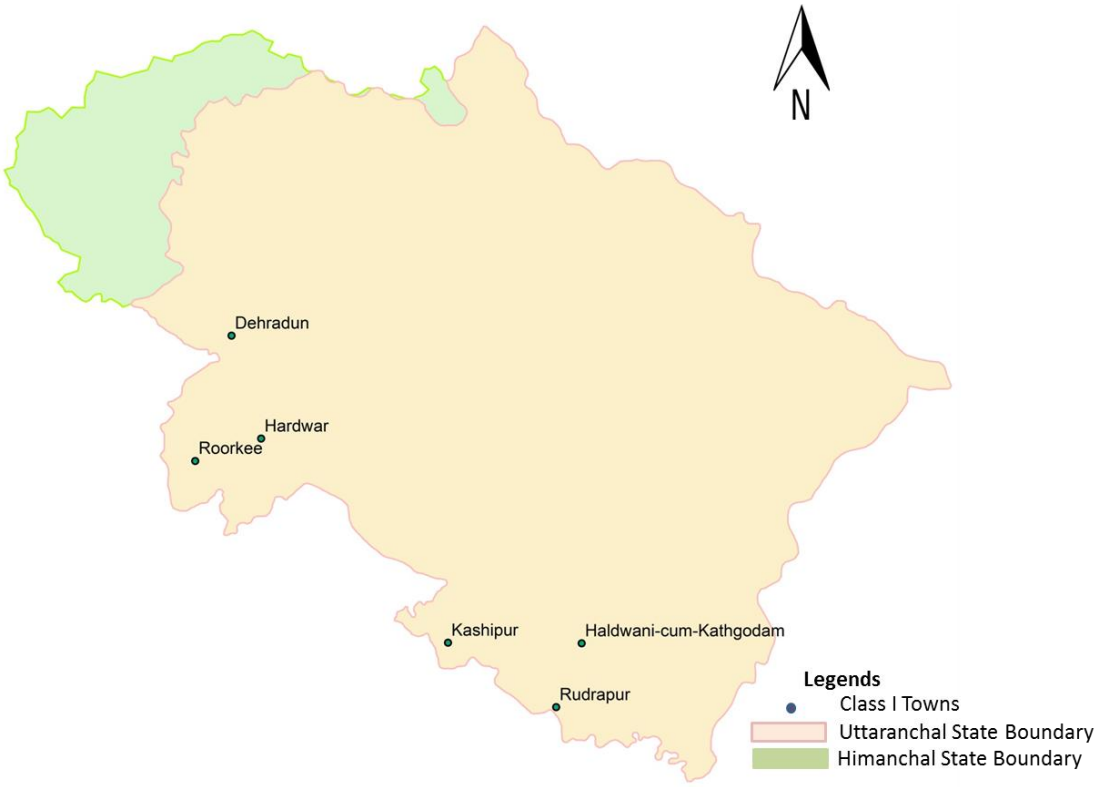

Figure 4: Class I Cities in the state of HP and Uttarakhand under Ganga River Basin

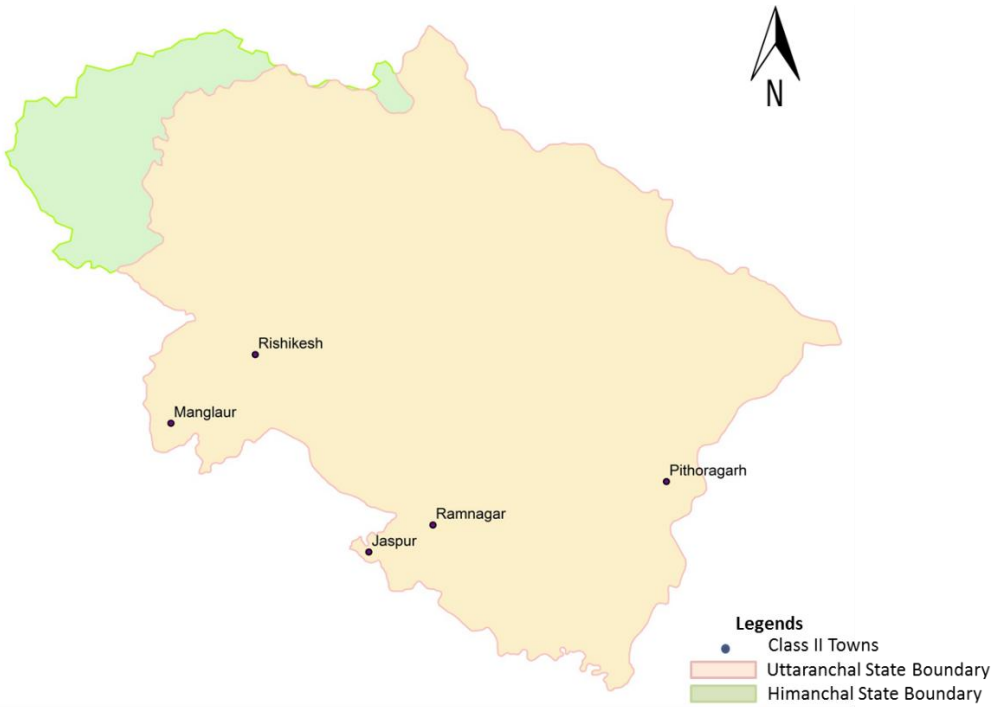

Figure 5: Class II Towns in the state of HP and Uttarakhand under Ganga River Basin

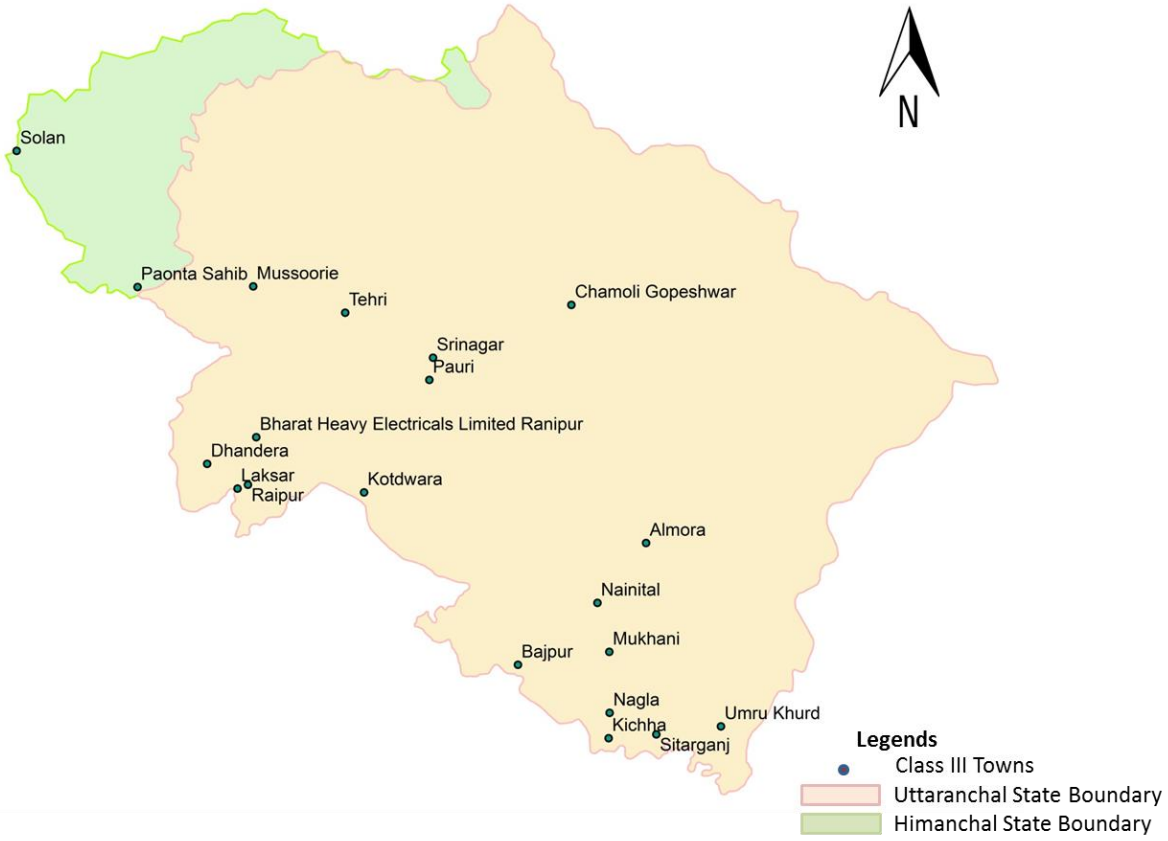

Figure 6: Class III Towns in the state of HP and Uttarakhand under Ganga River Basin

4. Pollution Load

The major pollution load in the area of basin under the state is due to point and nonpoint sources. Discharges of untreated/partially treated sewage from urban centers, discharge from open drain carrying sewage, and discharge of untreated/partially treated wastewater from industrial units are the major point sources that contribute to the pollution load in the state. The report published by CPCB in 2009 revealed that the total sewage generation of class I cities in whole Ganga basin is 15,305.55 MLD while its treatment capacity is only one third (32%) of

the total sewage generation (4,886.28 MLD). The situation getting more critical in the class II towns as the difference between the sewage generation (1,083.85 MLD) and its treatment capacity (91.82 MLD) increased.

There is no water supply and sewage generation data available for the class I, II, and Class III cities of HP and Uttarakhand, so all calculation has been done on average water consumption (**135 liters per capita per day**). The maximum sewage generated by class I cities and class II towns of are 149 and 31 MLD. The comparison of the total sewage generation and sewage treatment capacity of the class I cities and Class II towns of the states lying under Ganga basin has been represented in Figure 8. The trends of the data HP and Uttarakhand depicted that the maximum share of sewage generation (85.75%) is from class I cities followed by class II and III towns, 9.3 and 4.9%, respectively (Figure 7). The BOD and COD load for Class I cities, Class II and Class III towns are in the range of 61.59, 12.68 and 25.72%, respectively. The TKN load showing almost the same trend as BOD and COD load.

The assessment of the total water supply and total sewage generation of class I cities in the state revealed that the maximum sewage generation is in Dehradun, 61.5 MLD, approximately 80.0% of the water supply. In case of the class II towns the sewage generation in Rishikesh is maximum 7.6 MLD. The total BOD and COD load in Kg/day has been estimated on the per capita basis in Class I cities and its average are approximately 6.2 and 10.5 tons/day, respectively. The average BOD and COD load from the Class II towns is 1.5 and 2.6 tons/day, respectively whereas Class III towns contribute approximately 0.8 tons/day and 1.3 tons/day of BOD and COD, respectively. The maximum and minimum BOD and COD contributing cities in Class I towns are Dehradun and Roorkee, respectively. In Class II towns maximum BOD and COD is from Rishikesh, whereas minimum BOD and COD are from Jaspur. In class III towns maximum and minimum BOD and COD is from Bharat Heavy Electricals Limited Ranipur and Srinager respectively.

The total TKN in metric tons/day contributed by Class I, Class II and Class III towns are approximately 1.24, 0.31 and 0.16 tons/day, respectively. The maximum and minimum contribution of TKN from class I towns are from Deharadun and Roorkee, respectively. The maximum and minimum contribution of TKN from class II towns is from Rishikesh and Jaspur, respectively while the maximum and minimum contribution of TKN from class III towns is from Bharat Heavy Electricals Limited Ranipur and Srinager, respectively. The estimates of total water supplied, total sewage generated, BOD, COD and TKN loads are summarized and illustrated in Figures (8-10) for class I cities and class II towns. The comparative account of all the classes (I, II and III) for its population, sewage generation, water supply and BOD, COD and TKN load are presented in Figure 11.

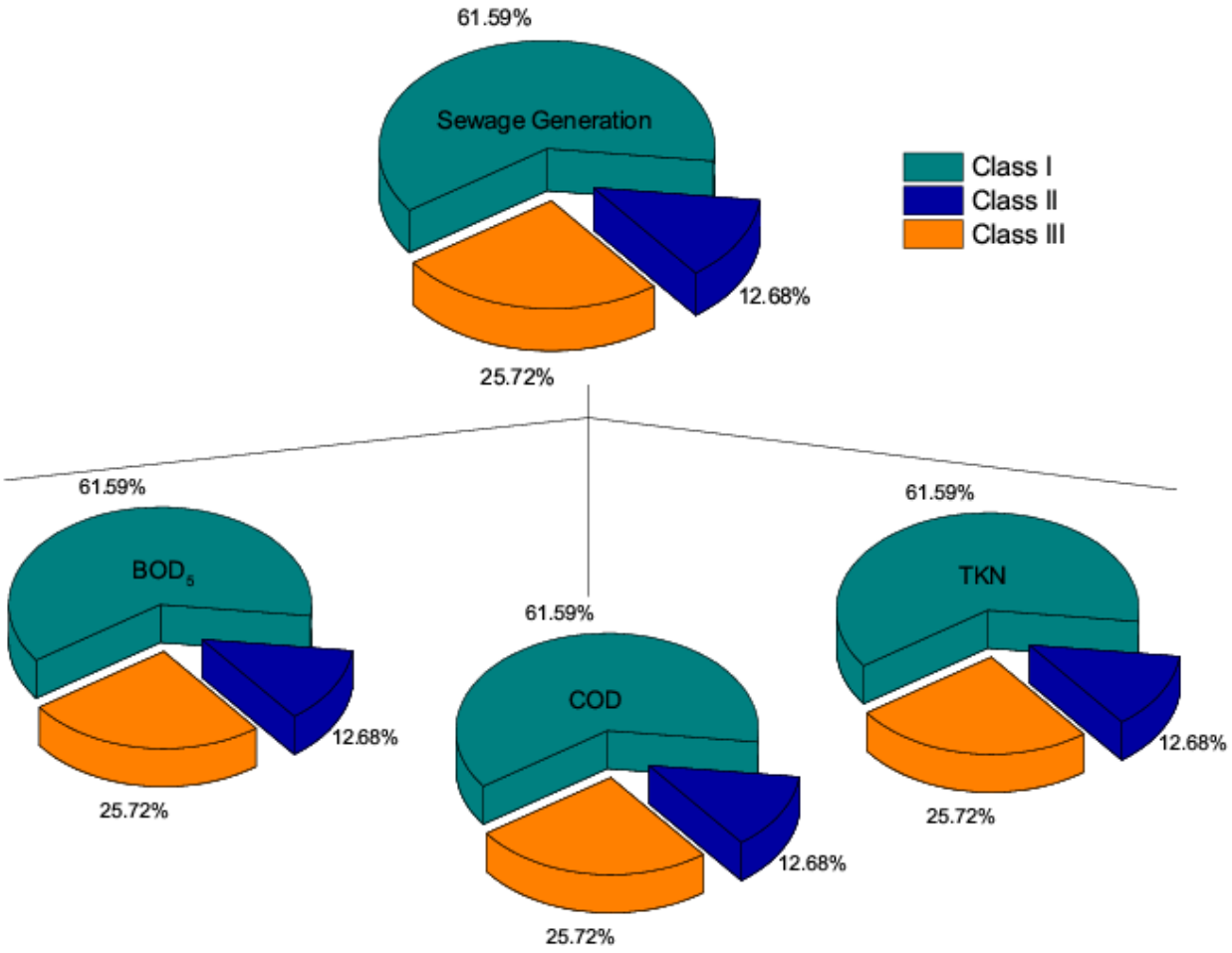

Figure 7: Distribution of Pollution Load of Class I Cities and Class II, Class III Towns in HP and Uttarakhand

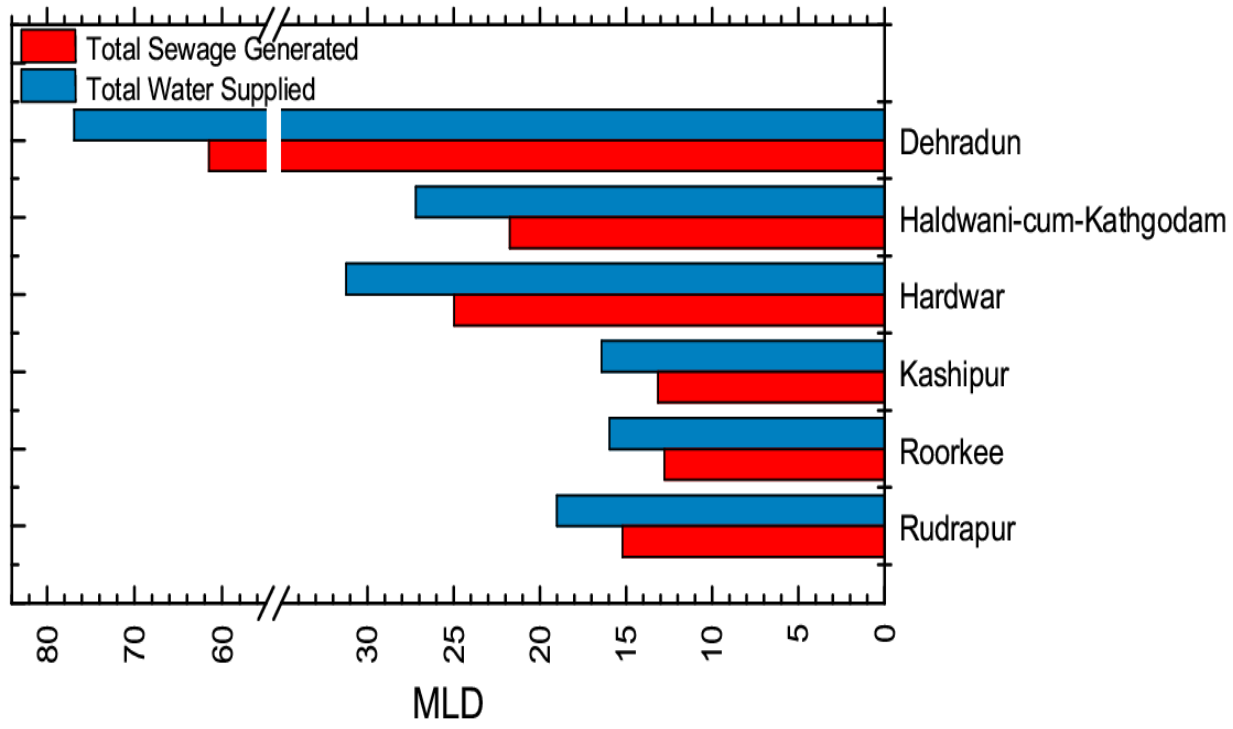

Figure 8a: Assessment of Water Supply and Sewage Generation (MLD) in Class I Cities in the HP and Uttarakhand

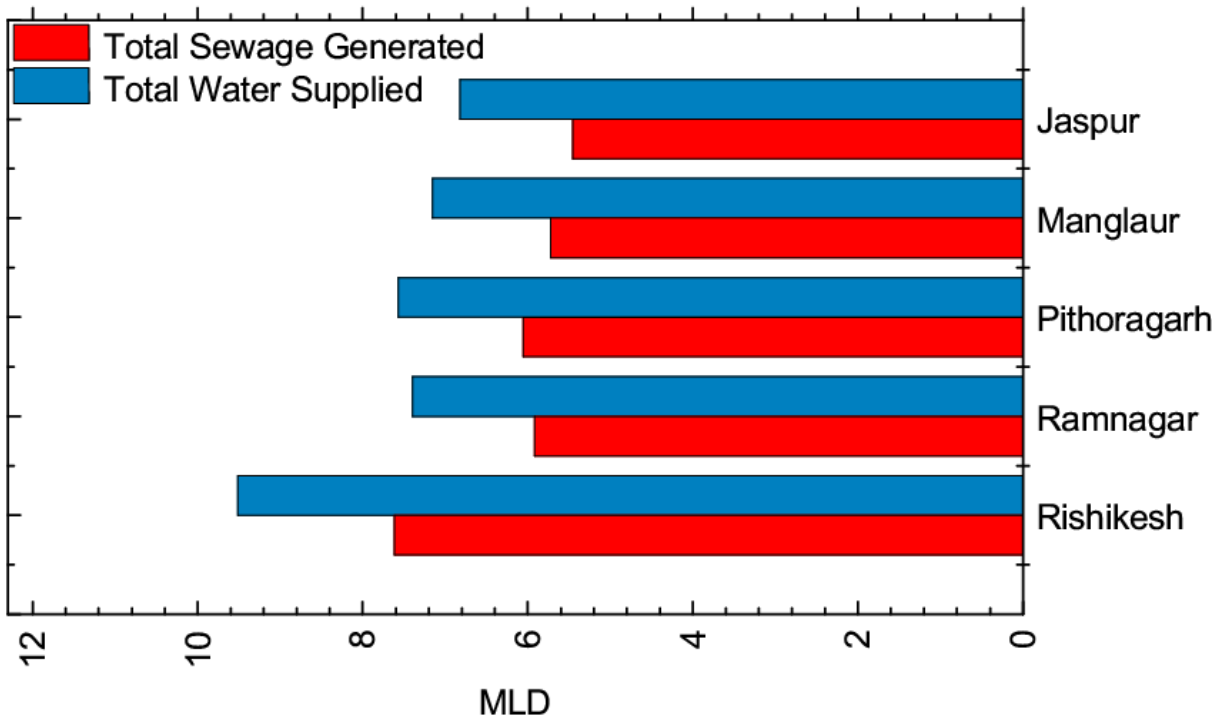

Figure 8b: Assessment of Water Supply and Sewage Generation (MLD) in Class II Towns in the HP and Uttarakhand

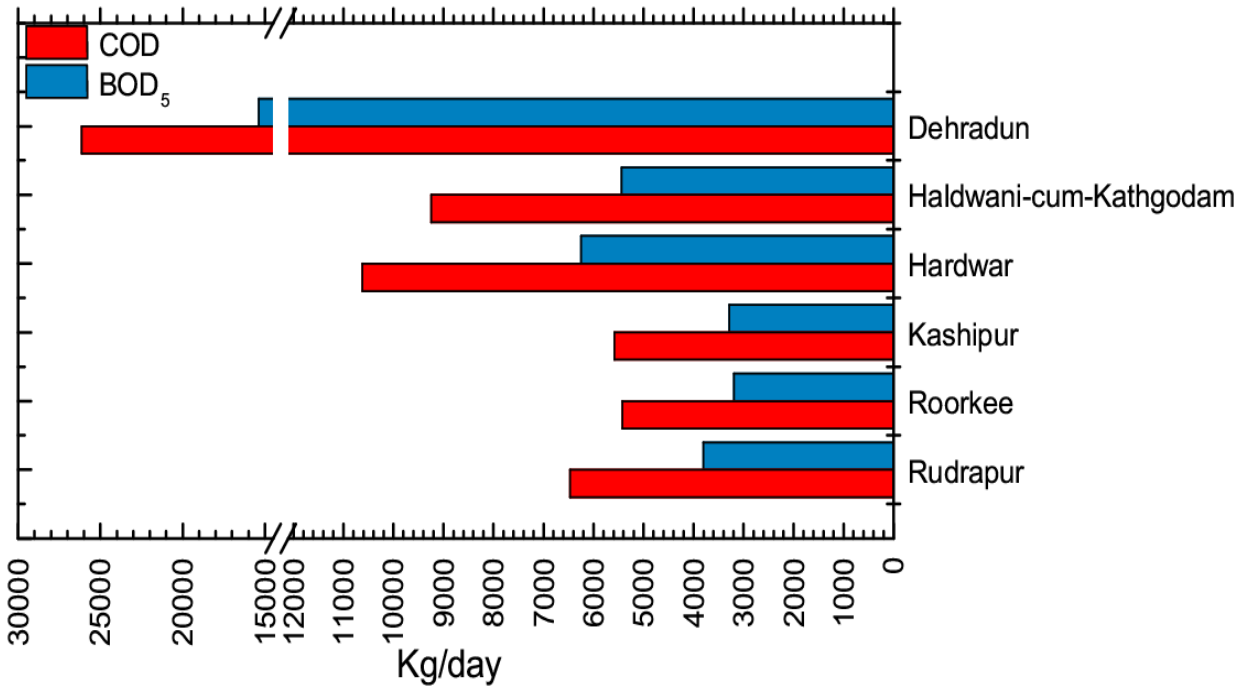

Figure 9a: Assessment of Pollution Load (kg/day) from Class I Cities in the in the HP and Uttarakhand

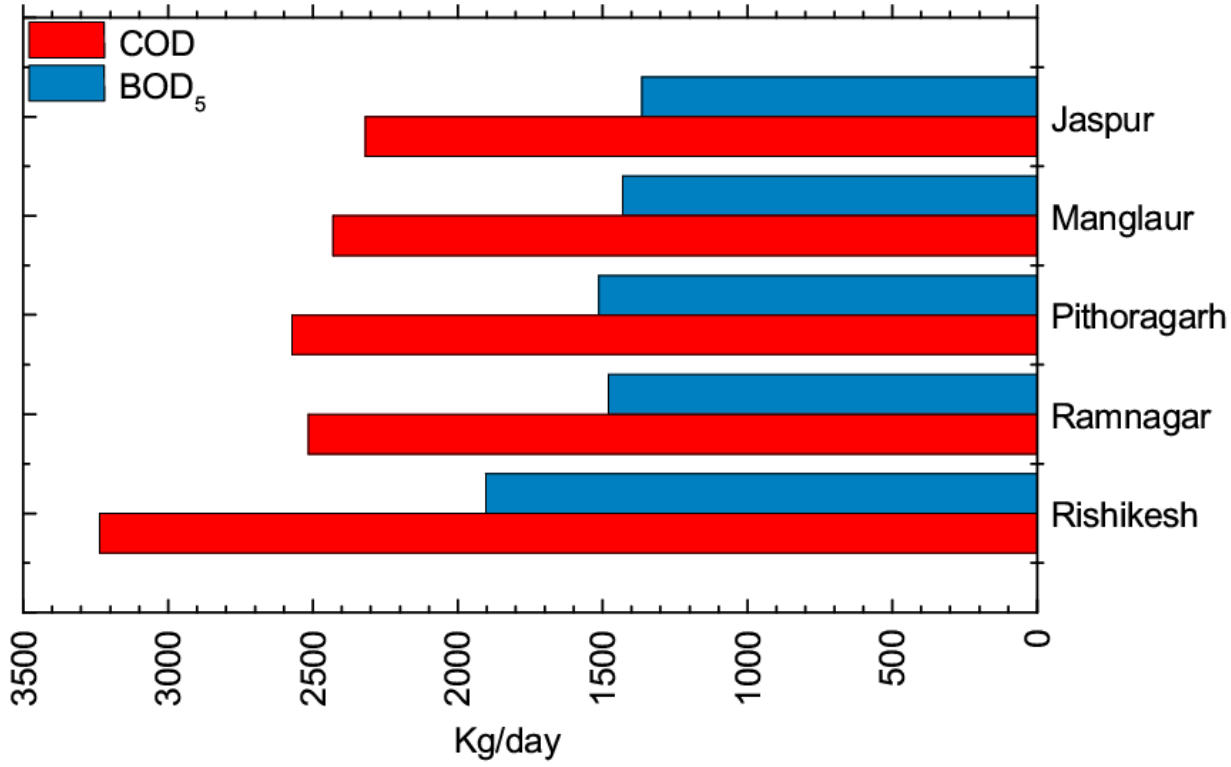

Figure 9b: Assessment of Pollution Load (kg/day) from Class II Towns in the HP and Uttarakhand

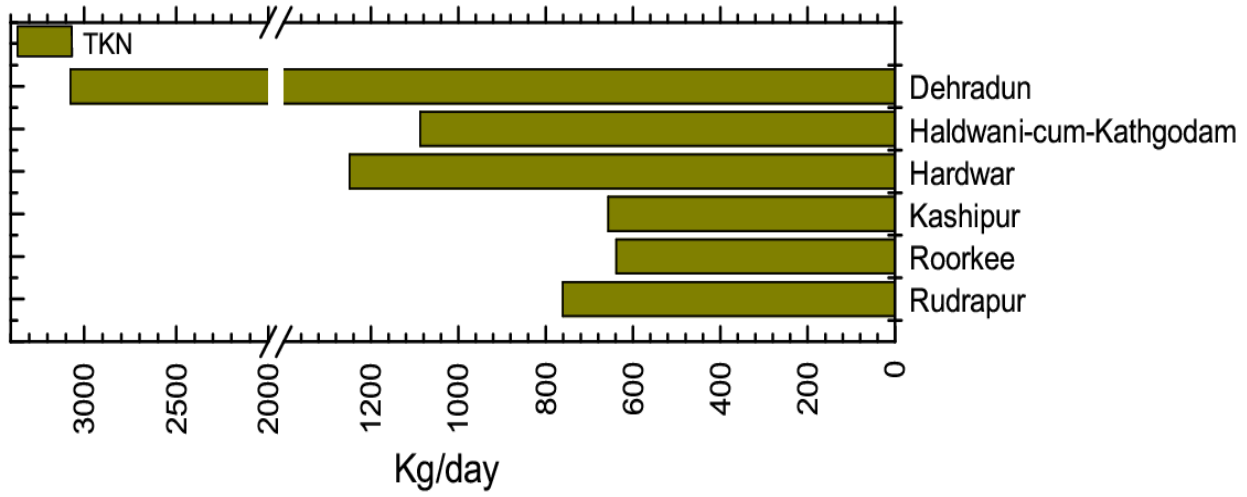

Figure 10a: Assessment of TKN Load (kg/day) from Class I Cities in the HP and Uttarakhand

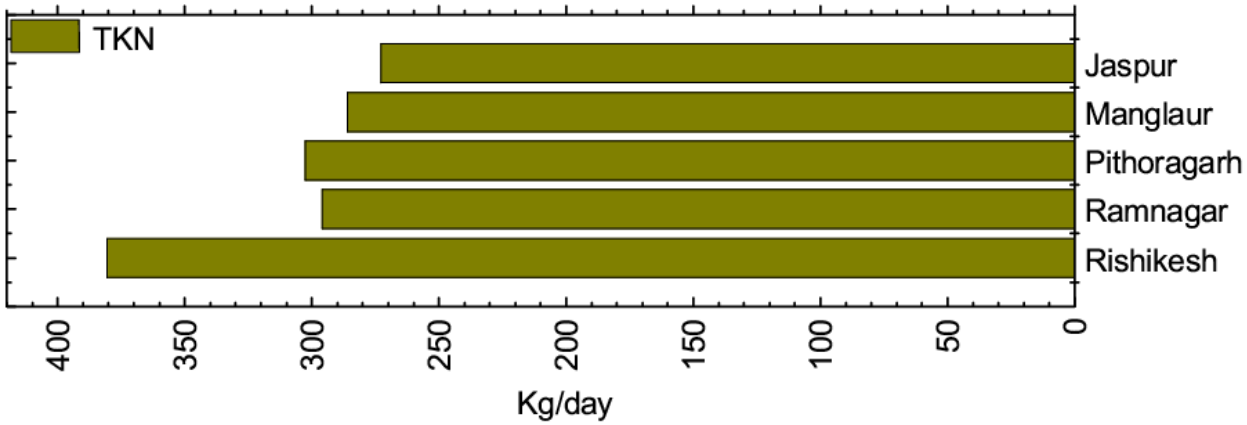

Figure 10a: Assessment of TKN Load (kg/day) from Class II Towns in the HP and Uttarakhand

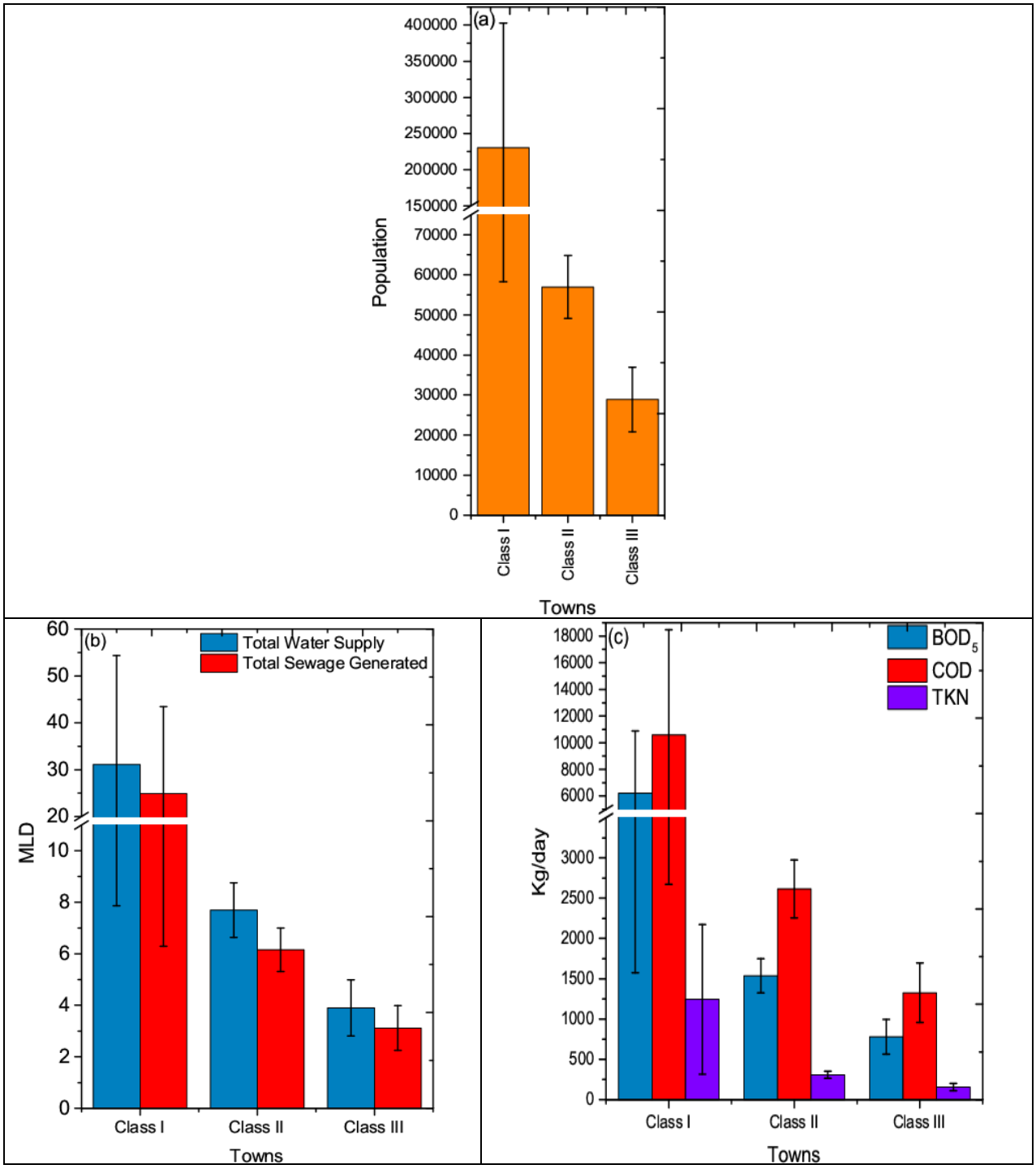

Figure 11: Comparative Analysis of Class I, Class II and Class III Cities/Towns Lying Under the State: (a) Population (b) Total Water Supply and Sewage Generation (c) Pollution Load

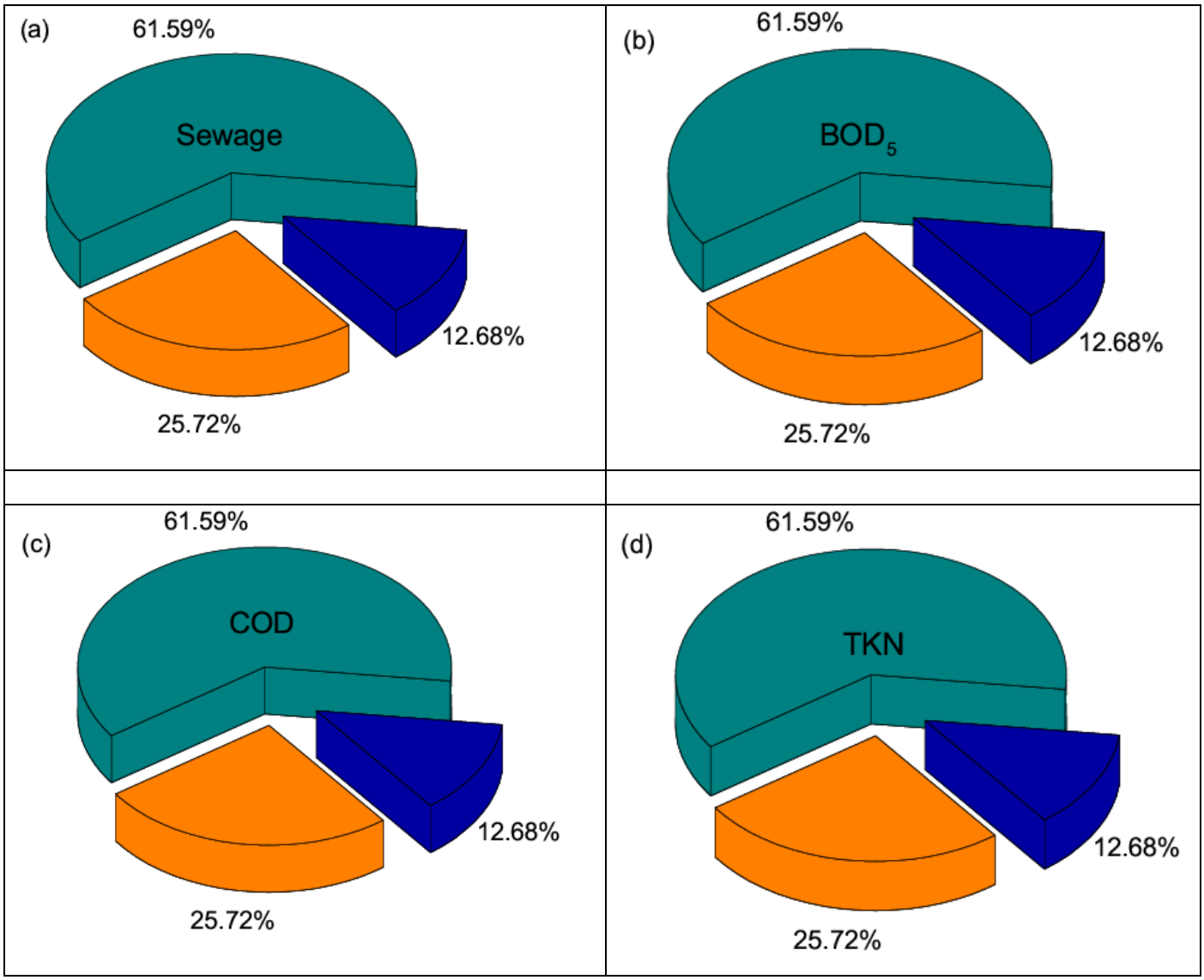

Figure 12 (a-d): Pollution load of Class I Cities and Class II, Class III Towns in the NCT HP and Uttarakhand: (a) Sewage Generation; (b) BOD_5 ; (c) COD; (d) TKN

The results of the pollution load of Class I cities, Class II and Class III towns under the major basins of river Ganga in the state has been evaluated (Figure 12a-d) and the results revealed that the percentage of the total sewage generation is maximum in the Class I cities situated outside of defined basins (61.59%). The Class II towns outside the major defined basins combinedly release 12.68% of waste water. The percentage sewage generation by Class III towns of the entire state is 25.72% of the total sewage generated by the state.
The BOD, COD and TKN load contributed by Class I cities of the outside the defined basin is 61.59%. The details of the BOD and COD load in the state are presented in Figure 12b and c.

5. Conclusions:

River Yamuna is the one of the main tributaries of River Ganga flows in the Indo-Gangetic plains. Yamuna flows from Yamunotri to Allahabad, and merge with river Ganga. During her course from Yamunotri to Allahabad, it passes through Himachal Pradesh, Uttarakhand, Haryana, Delhi and Uttar Pradesh. The catchment of the river addressed the load of 6 Class I cities, 5 Class II towns and 20 Class III towns, directly or indirectly in HP and Uttarakhand. The scenario of water quality in the system is varies from bad to worse base on the spatial and temporal alterations. The multitudinous problems are also arising during lean season due to the continuous discharge of untreated and/or partially treated sewage and industrial wastewater.

The maximum sewage generation is in the Class I cities (61.59%) followed by Class III (25.72%) and Class III towns (12.69%). Pollution load (BOD, COD and TKN load) also follows the same trend with maximum values for Class I cities. Dehradun and Rishikesh are the Class I and Class II towns showing maximum amount of sewage generation in comparison to their water supply. The maximum BOD, COD and TKN contributing Class I cities, Class II and III towns are Dehradun, Rishikesh and Bharat Heavy Electricals Limited Ranipur respectably. All calculations related to pollution load were done on per capita basis (135 liters per capita per day).

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Appendix-1

Compilation of Fact Sheets of Water Balance & Pollution Load (Domestic) of Major Class I Cities/Towns in HP and Uttarakhand

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Dehradun		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	71.62
2	Population as in 2011		:	569578
3	Population Growth Rate as in 2011 (%)		:	33.49
4	Total Number of Wards		:	60
5	Population per Ward (Thousands)		:	9,493
6	Total Number of Household as in 2011		:	125271
7	Number of Household per Ward		:	2088
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	76.9
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	61.5
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	15378.6
		COD	:	26143.6
		TKN	:	3075.7
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Song River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Haldwani-cum-Kathgodam		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	44.11
2	Population as in 2011		:	201461
3	Population Growth Rate as in 2011 (%)		:	26.79
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	8,058
6	Total Number of Household as in 2011		:	40599
7	Number of Household per Ward		:	1624
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	27.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	21.8
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	5439.4
		COD	:	9247.1
		TKN	:	1087.9
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gauia River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Hardwar		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	23.56
2	Population as in 2011		:	231338
3	Population Growth Rate as in 2011 (%)		:	31.94
4	Total Number of Wards		:	33
5	Population per Ward (Thousands)		:	7,010
6	Total Number of Household as in 2011		:	47251
7	Number of Household per Ward		:	1432
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	31.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	25.0
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	6246.1
		COD	:	10618.4
		TKN	:	1249.2
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Kashipur		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.50
2	Population as in 2011		:	121623
3	Population Growth Rate as in 2011 (%)		:	30.82
4	Total Number of Wards		:	20
5	Population per Ward (Thousands)		:	6,081
6	Total Number of Household as in 2011		:	22908
7	Number of Household per Ward		:	1145
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	16.4
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	13.1
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	3283.8
		COD	:	5582.5
		TKN	:	656.8
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Dandi River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Roorkee		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	8.11
2	Population as in 2011		:	118200
3	Population Growth Rate as in 2011 (%)		:	21.14
4	Total Number of Wards		:	20
5	Population per Ward (Thousands)		:	5,910
6	Total Number of Household as in 2011		:	22806
7	Number of Household per Ward		:	1140
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	16.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	12.8
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	3191.4
		COD	:	5425.4
		TKN	:	638.3
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Rudrapur		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	27.65
2	Population as in 2011		:	140857
3	Population Growth Rate as in 2011 (%)		:	58.84
4	Total Number of Wards		:	23
5	Population per Ward (Thousands)		:	6,124
6	Total Number of Household as in 2011		:	29662
7	Number of Household per Ward		:	1290
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	19.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	15.2
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	3803.1
		COD	:	6465.3
		TKN	:	760.6
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kalyani River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Appendix-2

Compilation of Fact Sheets of Water Balance & Pollution Load (Domestic) of Major Class II Cities/Towns in HP and Uttarakhand

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Jaspur		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.02
2	Population as in 2011		:	50523
3	Population Growth Rate as in 2011 (%)		:	29.76
4	Total Number of Wards		:	13
5	Population per Ward (Thousands)		:	3,886
6	Total Number of Household as in 2011		:	8624
7	Number of Household per Ward		:	663
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.8
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	5.5
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1364.1
		COD	:	2319.0
		TKN	:	272.8
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Fica River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Manglaur		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	1.32
2	Population as in 2011		:	52971
3	Population Growth Rate as in 2011 (%)		:	24.39
4	Total Number of Wards		:	15
5	Population per Ward (Thousands)		:	3,531
6	Total Number of Household as in 2011		:	8737
7	Number of Household per Ward		:	582
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	5.7
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1430.2
		COD	:	2431.4
		TKN	:	286.0
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Pithoragarh		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	9.00
2	Population as in 2011		:	56044
3	Population Growth Rate as in 2011 (%)		:	24.64
4	Total Number of Wards		:	15
5	Population per Ward (Thousands)		:	3,736
6	Total Number of Household as in 2011		:	14036
7	Number of Household per Ward		:	936
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.6
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	6.1
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1513.2
		COD	:	2572.4
		TKN	:	302.6
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sarda River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Ramnagar		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.43
2	Population as in 2011		:	54787
3	Population Growth Rate as in 2011 (%)		:	18.57
4	Total Number of Wards		:	15
5	Population per Ward (Thousands)		:	3,652
6	Total Number of Household as in 2011		:	10620
7	Number of Household per Ward		:	708
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.4
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	5.9
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1479.2
		COD	:	2514.7
		TKN	:	295.8
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kosi River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Rishikesh		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.00
2	Population as in 2011		:	70499
3	Population Growth Rate as in 2011 (%)		:	6.51
4	Total Number of Wards		:	20
5	Population per Ward (Thousands)		:	3,525
6	Total Number of Household as in 2011		:	14975
7	Number of Household per Ward		:	749
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	9.5
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	7.6
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1903.5
		COD	:	3235.9
		TKN	:	380.7
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Appendix-3

Compilation of Fact Sheets of Water Balance & Pollution Load (Domestic) of Major Class III Cities/Towns in HP and Uttarakhand

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Almora		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.35
2	Population as in 2011		:	34122
3	Population Growth Rate as in 2011 (%)		:	13.16
4	Total Number of Wards		:	11
5	Population per Ward (Thousands)		:	3,102
6	Total Number of Household as in 2011		:	8014
7	Number of Household per Ward		:	729
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.6
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	3.7
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	921.3
		COD	:	1566.2
		TKN	:	184.3
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kosi River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Bajpur		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.40
2	Population as in 2011		:	25524
3	Population Growth Rate as in 2011 (%)		:	17.13
4	Total Number of Wards		:	11
5	Population per Ward (Thousands)		:	2,320
6	Total Number of Household as in 2011		:	4784
7	Number of Household per Ward		:	435
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	3.4
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	2.8
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	689.1
		COD	:	1171.6
		TKN	:	137.8
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ramganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Bharat Heavy Electricals Limted Ranipur		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	26.48
2	Population as in 2011		:	46948
3	Population Growth Rate as in 2011 (%)		:	8.53
4	Total Number of Wards		:	13
5	Population per Ward (Thousands)		:	3,611
6	Total Number of Household as in 2011		:	10381
7	Number of Household per Ward		:	799
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.3
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	5.1
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1267.6
		COD	:	2154.9
		TKN	:	253.5
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Chamoli Gopeshwar		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	14.08
2	Population as in 2011		:	21447
3	Population Growth Rate as in 2011 (%)		:	8.14
4	Total Number of Wards		:	9
5	Population per Ward (Thousands)		:	2,383
6	Total Number of Household as in 2011		:	5513
7	Number of Household per Ward		:	613
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	2.9
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	2.3
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	579.1
		COD	:	984.4
		TKN	:	115.8
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Alakananda River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Dhandera		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.41
2	Population as in 2011		:	23276
3	Population Growth Rate as in 2011 (%)		:	52.25
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	23,276
6	Total Number of Household as in 2011		:	4490
7	Number of Household per Ward		:	4490
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	3.1
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	2.5
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	628.5
		COD	:	1068.4
		TKN	:	125.7
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Song River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Kichha		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.02
2	Population as in 2011		:	41965
3	Population Growth Rate as in 2011 (%)		:	37.58
4	Total Number of Wards		:	13
5	Population per Ward (Thousands)		:	3,228
6	Total Number of Household as in 2011		:	7999
7	Number of Household per Ward		:	615
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	5.7
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	4.5
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1133.1
		COD	:	1926.2
		TKN	:	226.6
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gaula River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Kotdwara		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.00
2	Population as in 2011		:	28859
3	Population Growth Rate as in 2011 (%)		:	15.68
4	Total Number of Wards		:	12
5	Population per Ward (Thousands)		:	2,405
6	Total Number of Household as in 2011		:	7005
7	Number of Household per Ward		:	584
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	3.9
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	3.1
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	779.2
		COD	:	1324.6
		TKN	:	155.8
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Khoh River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Laksar		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.00
2	Population as in 2011		:	21760
3	Population Growth Rate as in 2011 (%)		:	19.29
4	Total Number of Wards		:	9
5	Population per Ward (Thousands)		:	2,418
6	Total Number of Household as in 2011		:	4131
7	Number of Household per Ward		:	459
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	2.9
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	2.4
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	587.5
		COD	:	998.8
		TKN	:	117.5
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Mukhani		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.76
2	Population as in 2011		:	22475
3	Population Growth Rate as in 2011 (%)		:	#DIV/0!
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	22,475
6	Total Number of Household as in 2011		:	5106
7	Number of Household per Ward		:	5106
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	3.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	2.4
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	606.8
		COD	:	1031.6
		TKN	:	121.4
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gaula River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Mussoorie		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	64.75
2	Population as in 2011		:	30118
3	Population Growth Rate as in 2011 (%)		:	15.51
4	Total Number of Wards		:	11
5	Population per Ward (Thousands)		:	2,738
6	Total Number of Household as in 2011		:	6245
7	Number of Household per Ward		:	568
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.1
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	3.3
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	813.2
		COD	:	1382.4
		TKN	:	162.6
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Nagla		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	28.00
2	Population as in 2011		:	22258
3	Population Growth Rate as in 2011 (%)		:	-3.00
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	22,258
6	Total Number of Household as in 2011		:	3798
7	Number of Household per Ward		:	3798
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	3.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	2.4
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	601.0
		COD	:	1021.6
		TKN	:	120.2
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gaula River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Nainital		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	11.73
2	Population as in 2011		:	41377
3	Population Growth Rate as in 2011 (%)		:	7.11
4	Total Number of Wards		:	13
5	Population per Ward (Thousands)		:	3,183
6	Total Number of Household as in 2011		:	9329
7	Number of Household per Ward		:	718
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	5.6
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	4.5
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1117.2
		COD	:	1899.2
		TKN	:	223.4
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Nainital Lake
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Pauri		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	42.00
2	Population as in 2011		:	25440
3	Population Growth Rate as in 2011 (%)		:	2.82
4	Total Number of Wards		:	11
5	Population per Ward (Thousands)		:	2,313
6	Total Number of Household as in 2011		:	6127
7	Number of Household per Ward		:	557
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	3.4
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	2.7
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	686.9
		COD	:	1167.7
		TKN	:	137.4
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Alakananda River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Raipur		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	14.59
2	Population as in 2011		:	32900
3	Population Growth Rate as in 2011 (%)		:	32.02
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	32,900
6	Total Number of Household as in 2011		:	7471
7	Number of Household per Ward		:	7471
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.4
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	3.6
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	888.3
		COD	:	1510.1
		TKN	:	177.7
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Rispana River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Sitargang		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.00
2	Population as in 2011		:	29965
3	Population Growth Rate as in 2011 (%)		:	36.04
4	Total Number of Wards		:	11
5	Population per Ward (Thousands)		:	2,724
6	Total Number of Household as in 2011		:	5597
7	Number of Household per Ward		:	509
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	3.2
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	809.1
		COD	:	1375.4
		TKN	:	161.8
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Srinagar		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	9.00
2	Population as in 2011		:	20115
3	Population Growth Rate as in 2011 (%)		:	2.32
4	Total Number of Wards		:	9
5	Population per Ward (Thousands)		:	2,235
6	Total Number of Household as in 2011		:	4669
7	Number of Household per Ward		:	519
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	2.7
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	2.2
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	543.1
		COD	:	923.3
		TKN	:	108.6
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Alakananda River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Tehri		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	37.05
2	Population as in 2011		:	24014
3	Population Growth Rate as in 2011 (%)		:	-5.54
4	Total Number of Wards		:	13
5	Population per Ward (Thousands)		:	1,847
6	Total Number of Household as in 2011		:	6175
7	Number of Household per Ward		:	475
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	3.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	2.6
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	648.4
		COD	:	1102.2
		TKN	:	129.7
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Bhagirathi River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Fact Sheet				
City: Umru Khurd		**State: Uttarakhand**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.71
2	Population as in 2011		:	20593
3	Population Growth Rate as in 2011 (%)		:	#DIV/0!
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	20,593
6	Total Number of Household as in 2011		:	3529
7	Number of Household per Ward		:	3529
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	NA
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	NA
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	2.8
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	2.2
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	556.0
		COD	:	945.2
		TKN	:	111.2
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sharda River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1