Ganga River Basin Management Plan-2015

Volume 9: Thematic Studies – Agricultural Practices and Trends

Centre for Ganga River Basin Management and Studies
Indian Institute of Technology Kanpur

VOLUME 9 OF 12

NATIONAL MISSION FOR CLEAN GANGA (NMCG)

NMCG is the implementation wing of National Ganga Council which was setup in October 2016 under the River Ganga Authority order 2016. Initially NMCG was registered as a society on 12th August 2011 under the Societies Registration Act 1860. It acted as implementation arm of National Ganga River Basin Authority (NGRBA) which was constituted under the provisions of the Environment (Protection) Act (EPA) 1986. NGRBA has since been dissolved with effect from the 7th October 2016, consequent to constitution of National Council for Rejuvenation, Protection and Management of River Ganga (referred to as National Ganga Council).

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cGanga is a think tank formed under the aegis of NMCG, and one of its stated objectives is to make India a world leader in river and water science. The Centre is headquartered at IIT Kanpur and has representation from most leading science and technological institutes of the country. cGanga's mandate is to serve as think-tank in implementation and dynamic evolution of Ganga River Basin Management Plan (GRBMP) prepared by the Consortium of 7 IITs. In addition to this it is also responsible for introducing new technologies, innovations and solutions into India.

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ACKNOWLEDGEMENT

This document is a collective effort of a number of experts, institutions and organisations, in particular those who were instrumental in preparing the Ganga River Basin Management Plan which was submitted to the Government of India in 2015. Contributions to the photographs and images for this vision document by individuals are gratefully acknowledged.

SUGGESTED CITATION

GRBMP by cGanga and NMCG

CONTACTS

Centre for Ganga River Basin Management and Studies (cGanga)
Indian Institute of Technology Kanpur, Kanpur 208 016, Uttar Pradesh, India

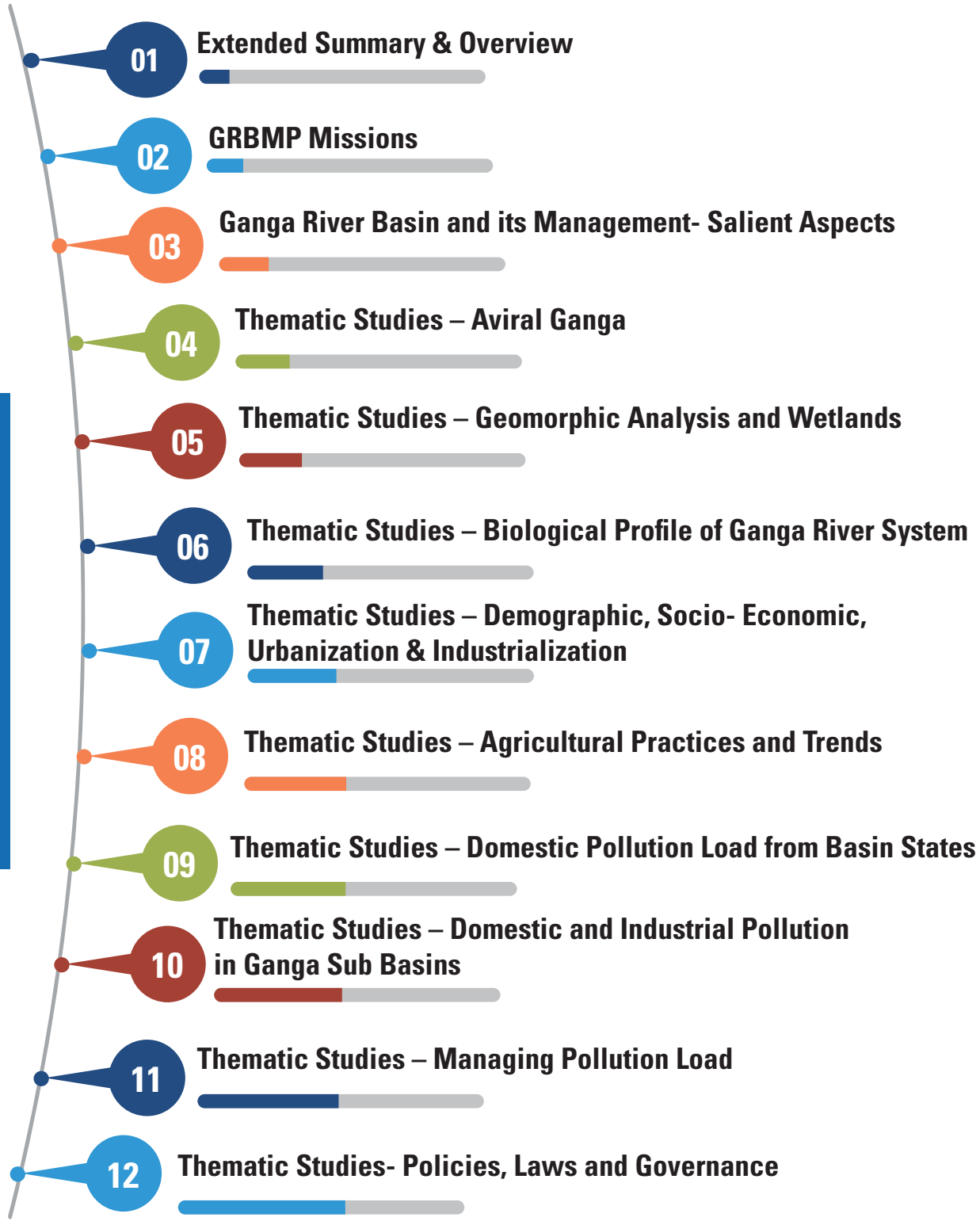
or

National Mission for Clean Ganga (NMCG)
Major Dhyan Chand National Stadium, New Delhi 110 002, India

GANGA RIVER BASIN MANAGEMENT PLAN - 2015

Volume 9: Thematic Studies – Domestic Pollution Load from Basin States

12 VOLUMES



Ganga river in Himalayas mountains

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

GRBMP: Ganga River Basin Management Plan

by

Consortium of 7 "Indian Institute of Technology"s (IITs)

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 (GRBMP). 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 GRBMP. 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.

Dr. Vinod Tare
Professor and Coordinator
Development of GRBMP
IIT Kanpur

The Team

1. A A Kazmi, IIT Roorkee *kazmifce@iitr.ernet.in*
2. A K Gupta, IIT Kharagpur *akgupta18@rediffmail.com, akgupta@iitkgp.ac.in*
3. A K Mittal, IIT Delhi *akmittal@civil.iitd.ernet.in*
4. A K Nema, IIT Delhi *aknema@gmail.com*
5. Ajay Kalmhad, IIT Guwahati *kajay@iitg.ernet.in*
6. Anirban Gupta, BESU Shibpur *guptaanirban@hotmail.com*
7. Arun Kumar, IIT Delhi *arunku@civil.iitd.ac.in*
8. G J Chakrapani, IIT Roorkee *gjcurfes@iitr.ernet.in*
9. Gazala Habib, IIT Delhi *gazalahabib@gmail.com*
10. Himanshu Joshi, IIT Roorkee *himanshujoshi58@gmail.com*
11. Indu Mehrotra, IIT Roorkee *indumfce@iitr.ernet.in*
12. I M Mishra, IIT Roorkee *imishfch@iitr.ernet.in*
13. Ligy Philip, IIT Madras *ligy@iitm.ac.in*
14. M M Ghangrekar, IIT Kharagpur *ghangrekar@civil.iitkgp.ernet.in*
15. Mukesh Doble, IIT Bombay *mukeshd@iitm.ac.in*
16. P K Singh, IT BHU *dr_pksingh1@rediffmail.com*
17. Purnendu Bose, IIT Kanpur *pbose@iitk.ac.in*
18. R Ravi Krishna, IIT Madras *rrk@iitm.ac.in*
19. Rakesh Kumar, NEERI Nagpur *r_kumar@neeri.res.in*
20. S M Shiva Nagendra, IIT Madras *snagendra@iitm.ac.in*
21. Saumyen Guha, IIT Kanpur *sguha@iitk.ac.in*
22. Shyam R Asolekar, IIT Bombay *asolekar@iitb.ac.in*
23. Sudha Goel, IIT Kharagpur *sudhagoel@civil.iitkgp.ernet.in*
24. Suparna Mukherjee, IIT Bombay *mitras@iitb.ac.in*
25. T R Sreekrishnan, IIT Delhi *sree@dbeb.iitd.ac.in*
26. Vinod Tare, IIT Kanpur *vinod@iitk.ac.in*
27. Vivek Kumar, IIT Roorkee *vivekfpt@iitr.ernet.in*

Lead Authors

1. Vinod Tare, IIT Kanpur
2. Purnendu Bose, IIT Kanpur
3. Abhishek Gaur, IIT Kanpur
4. Suresh Gurjar, IIT Kanpur
5. Vishal Kapoor, IIT Kanpur
6. Shashikant Patel, IIT Kanpur
7. Swatantra Pratap Singh, IIT Kanpur

Contents

1. Introduction:

Uttarakhand and Himachal Pradesh are the 27th and 18th state respectively and among the most scenic and beautiful states in India. Both states are situated at the foothills of the Himalayan mountain ranges, identified as "Dev Bhumi" and is believed to be the abode of Gods and Goddesses. Both states are rich in natural resources especially water and forests with many glaciers, rivers, dense forests and snow-clad mountain peaks. Several small streams originated from these states join and contribute to watershed of Ganga and Yamuna rivers. These states share boundaries with Uttar Pradesh, Haryana, Jammu & Kashmir, Panjab, Nepal and Tibet (China).

The Ganga River Basin (GRB) has a total catchment area of 1,086,000 sq km across India, Tibet (China), Nepal and Bangladesh. The river basin in India, nearly covers 26% (861,404 sq km; about 80% of total catchment area of Ganga river basin) of the total geographical area. The sprawling Ganga basin, spread across 11 states, is the world's most populous river basin and home to more than 492 million Indians. Uttarakhand and Himachal Pradesh are two states out of the 11 states (Uttarakhand, Uttar Pradesh, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh, Jharkhand and West Bengal) of the GRB in India through which the originating streams of Ganga and Yamuna rivers flow approximately in the direction of North West. The geographical area of the states contributing in GRB where Ganga and Yamuna Rivers traverses is depicted in Figures 1 and 2. A comparison of state-wise distribution of GRB area within the geographical areas of different states is presented in Table 1.

Table 1: State-wise Distribution of the Ganga River Basin Area

State/ Union Territory	*Total Geographical Area (sq km)	#Area contributing to Ganga Basin (sq km)	Percentage of the Basin Area (%)
Uttarakhand	**53,483**	**53,436**	**6.2**
Himachal Pradesh	**55,673**	**4,317**	**0.5**
Uttar Pradesh	240,928	240,928	28.0
Bihar	94,163	94,163	10.9
Jharkhand	79,716	49,798	5.8
Madhya Pradesh	308,252	198,962	23.1
Chhattisgarh	135,192		
Delhi	1,484	1,484	0.17
Haryana	44,212	34,341	4.0
Rajasthan	342,239	112,490	13.1
West Bengal	88,752	71,485	8.3

Source: *Census 2011; #https://nmcg.nic.in/location.aspx

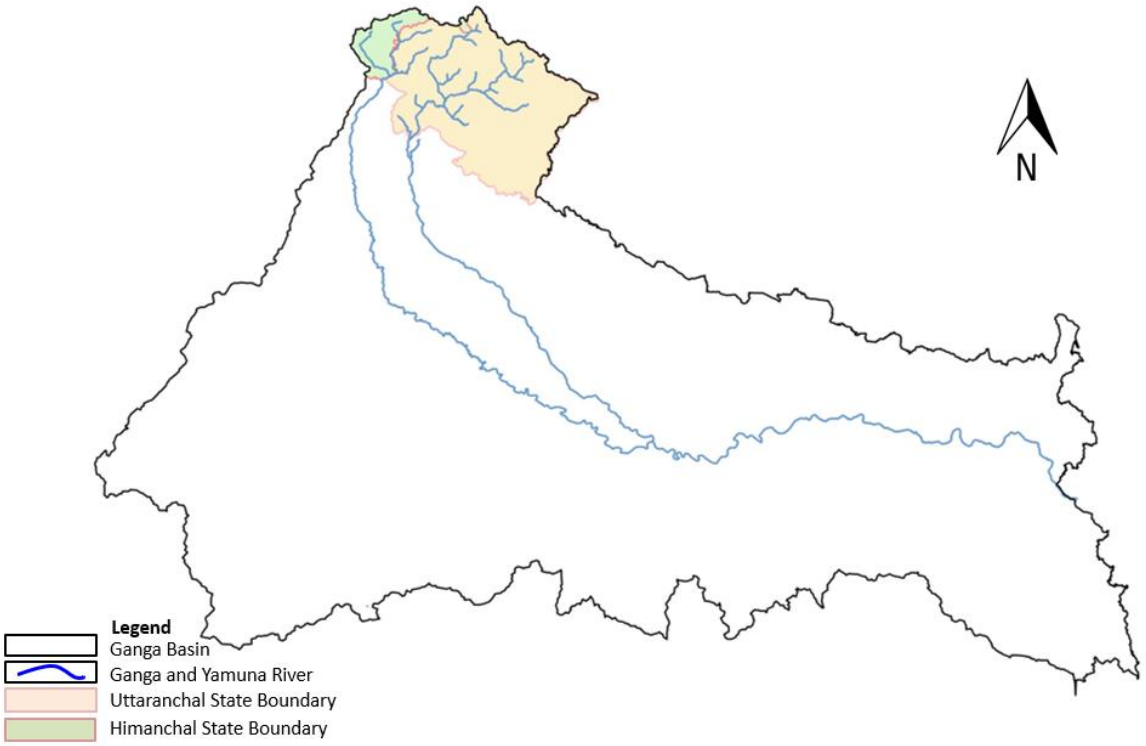


Figure 1: Uttarakhand and Himachal Pradesh in Indian Boundaries of Ganga River Basin

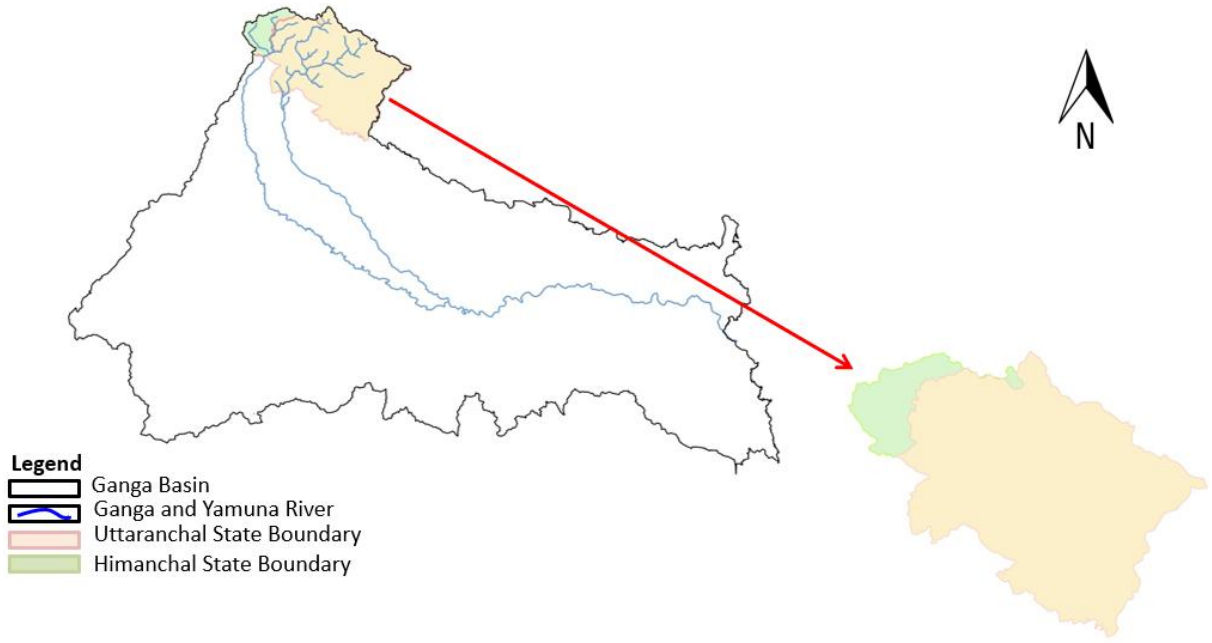


Figure 2: Uttarakhand and Himachal Pradesh State Boundaries in Ganga River Basin

Table 2: The Salient Features of Tributaries of the Ganga River Basin Contributing to the River Ganga in the State of Uttarakhand and Himachal Pradesh

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%

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

The total annual average rainfall in the state of Himachal Pradesh and Uttarakhand are 1251 mm and 1285 mm, respectively.

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

The natural flow regime in the river Ganga and her tributaries have been altered due to construction of a number of dams and barrages in the mountainous reaches of Uttarakhand and Himachal Pradesh state. The mountainous region of the main stem river Ganga is obstructed due to the ongoing hydroelectric projects *i.e.,* Maneri Bhali I, Maneri Bhali II, Tehri and Koteshwar. Further downstream, Bhimgauda barrage diverts nearly all water during non-monsoon season to upper Ganga canal through Har ki Pauri, Haridwar. These dams and barrages are essentially made for domestic/irrigation water supplies. The list of the major dams on Yamuna and Ganga River in HP and Uttarakhand are mentioned underneath. These barrages are essentially for domestic water supplies. The list of the major dams on Yamuna and Ganga River in Himachal Pradesh and Uttarakhand are mentioned in Table 2.

Table 2: Details of the Major Dams on the River Ganga and Her Tributaries in the Uttarakhand and Himachal Pradesh

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

Uttarakhand and Himachal Pradesh have 6 Class I cities, 5 Class II and 20 Class III towns under Ganga basin (Figure 4-6). The total population of the Himachal Pradesh 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. 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).

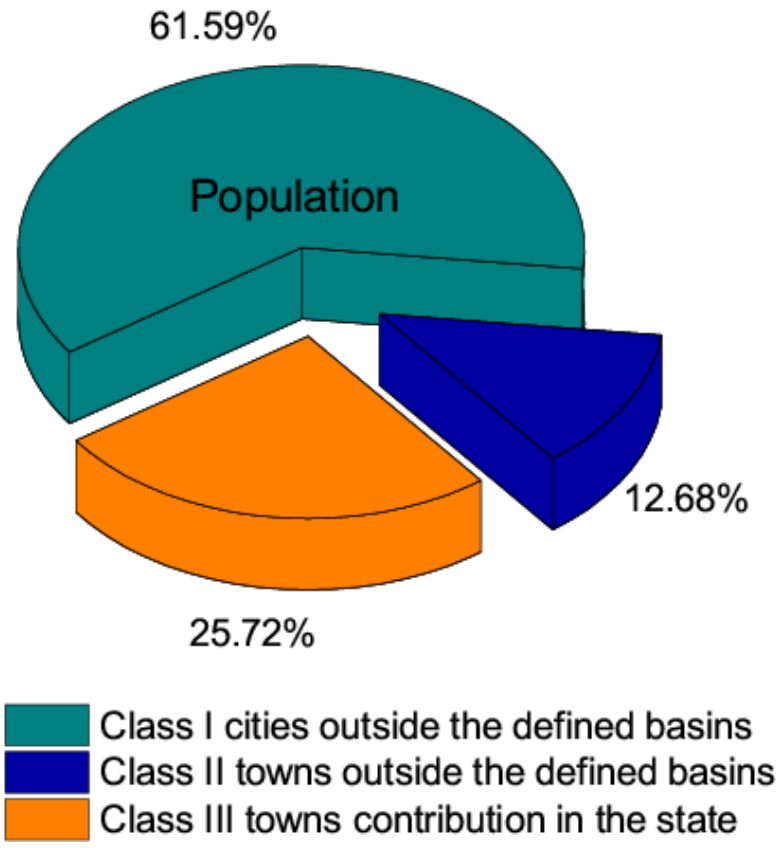


Figure 3: Population Distribution of Class I Cities and Class II, Class III Towns in Himachal Pradesh and Uttarakhand states.

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

S No.	Name	River System	Area (sq km)	Population (Census 2011)
1	Dehradun	Ganga River	71.62	569578
2	Haldwani-cum-Kathgodam	Ganga River	44.11	201461
3	Haridwar	Ganga River	23.56	231338
4	Kashipur	Ganga River	5.50	121623
5	Roorkee	Ganga River	8.11	118200
6	Rudrapur	Ganga River	27.65	140857

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

S No.	Name	River System	Area (sq km)	Population (Census 2011)
1	Jaspur	Ganga River	4.02	50523
2	Manglaur	Ganga River	1.32	52971
3	Pithoragarh	Ganga River	9.00	56044
4	Ramnagar	Ganga River	2.43	54787
5	Rishikesh	Ganga River	10.00	70499

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

S No.	Name	River System	Area (sq km)	Population (Census 2011)
1	Almora	Ganga River	7.35	34122
2	Bajpur	Ganga River	2.40	25524
3	Bharat Heavy Electricals Limited Ranipur	Ganga River	26.48	46948
4	Chamoli Gopeshwar	Ganga River	14.08	21447
5	Dhandera	Ganga River	4.41	23276
6	Kichha	Ganga River	4.02	41965
7	Kotdwara	Ganga River	3.00	28859
8	Laksar	Ganga River	5.00	21760
9	Mukhani	Ganga River	3.76	22475
10	Mussoorie	Ganga River	64.75	30118
11	Nagla	Ganga River	28.00	22258
12	Nainital	Ganga River	11.73	41377
13	Paonta Sahib	Yamuna River	NA	25183
14	Pauri	Ganga River	42.00	25440
15	Raipur	Ganga River	14.59	32900
16	Sitarganj	Ganga River	2.00	29965
16	Solan	Yamuna River	NA	39256
17	Srinagar	Ganga River	9.00	20115
18	Tehri	Ganga River	37.05	24014
19	Umru Khurd	Ganga River	4.71	20593
20	Almora	Ganga River	7.60	34122

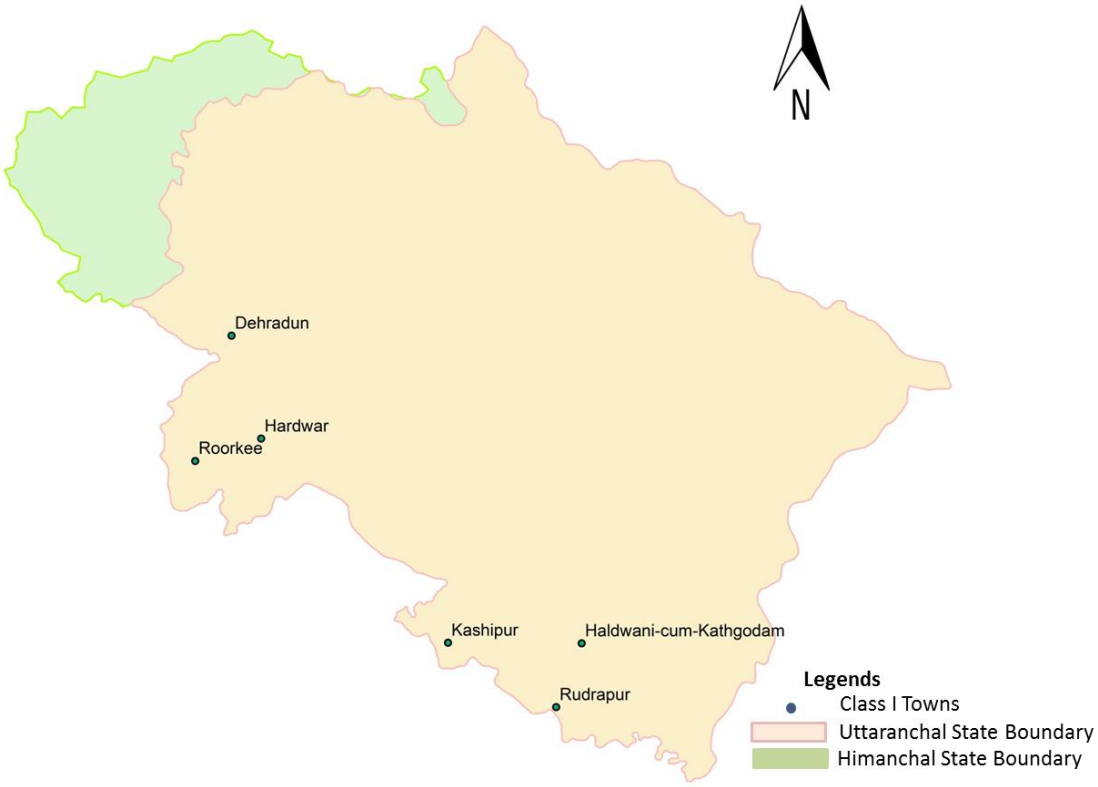


Figure 4: Class I Cities in Himachal Pradesh and Uttarakhand in Ganga River Basin

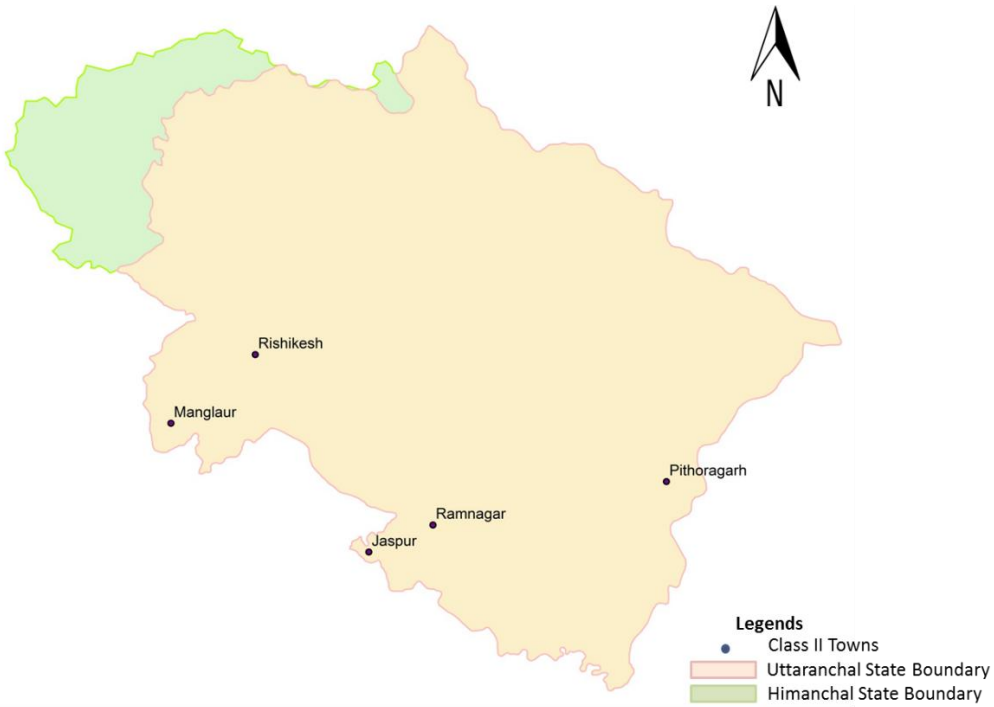


Figure 5: Class II Towns in Himachal Pradesh and Uttarakhand in Ganga River Basin

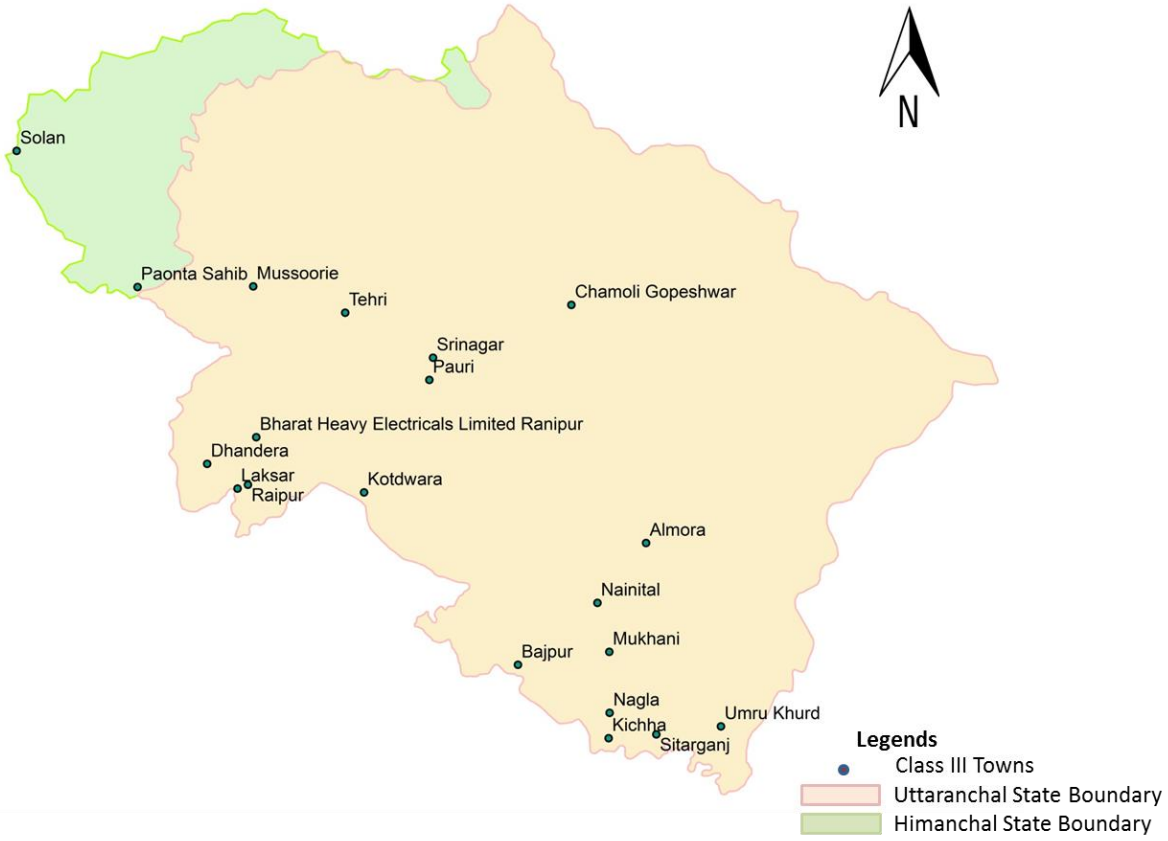


Figure 6: Class III Towns in Himachal Pradesh and Uttarakhand in Ganga River Basin

5. Pollution Load

The major pollution load in the area of basin in 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 Himachal Pradesh 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 in Himachal Pradesh 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.

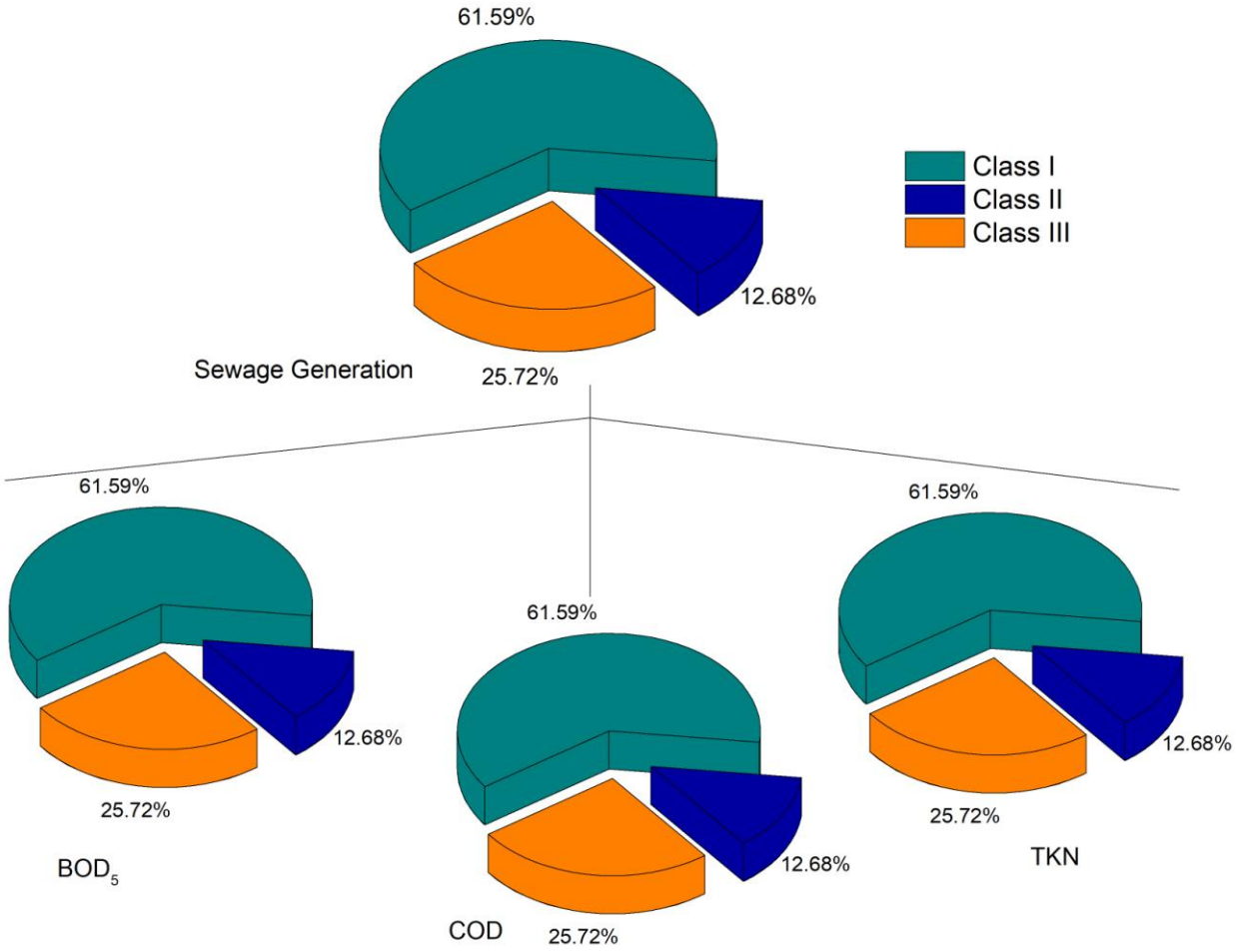


Figure 7: Distribution of Pollution Load of Class I Cities and Class II, Class III Towns in Himachal Pradesh and Uttarakhand

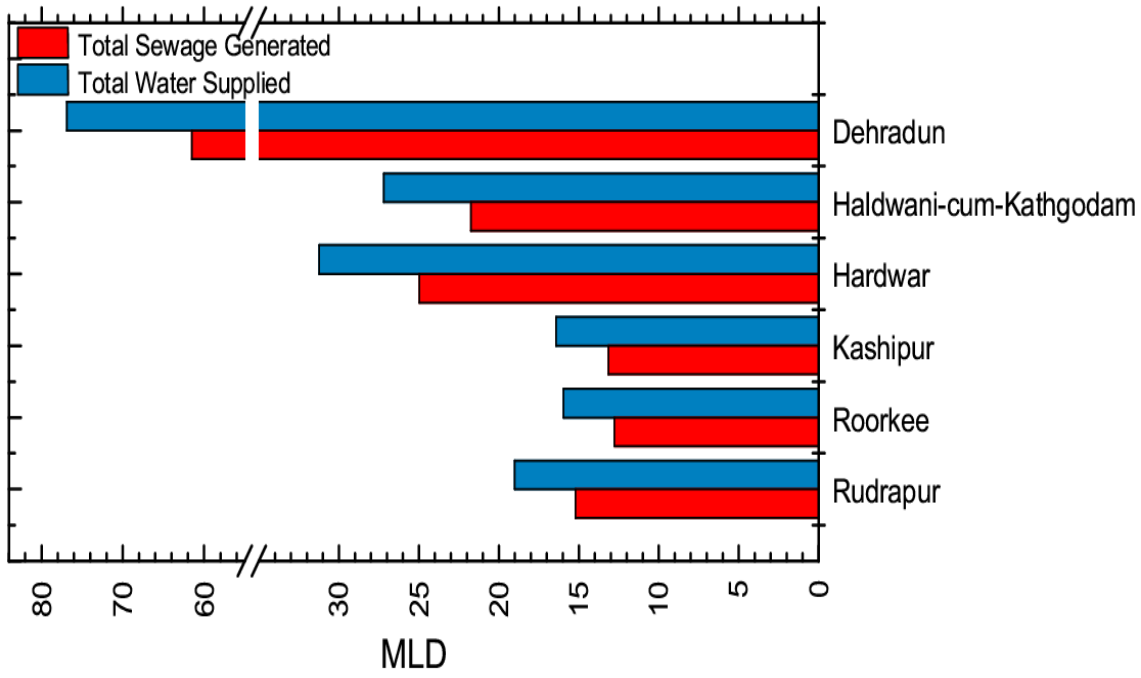


Figure 8a: Assessment of Water Supply and Sewage Generation (MLD) in Class I Cities in Himachal Pradesh and Uttarakhand

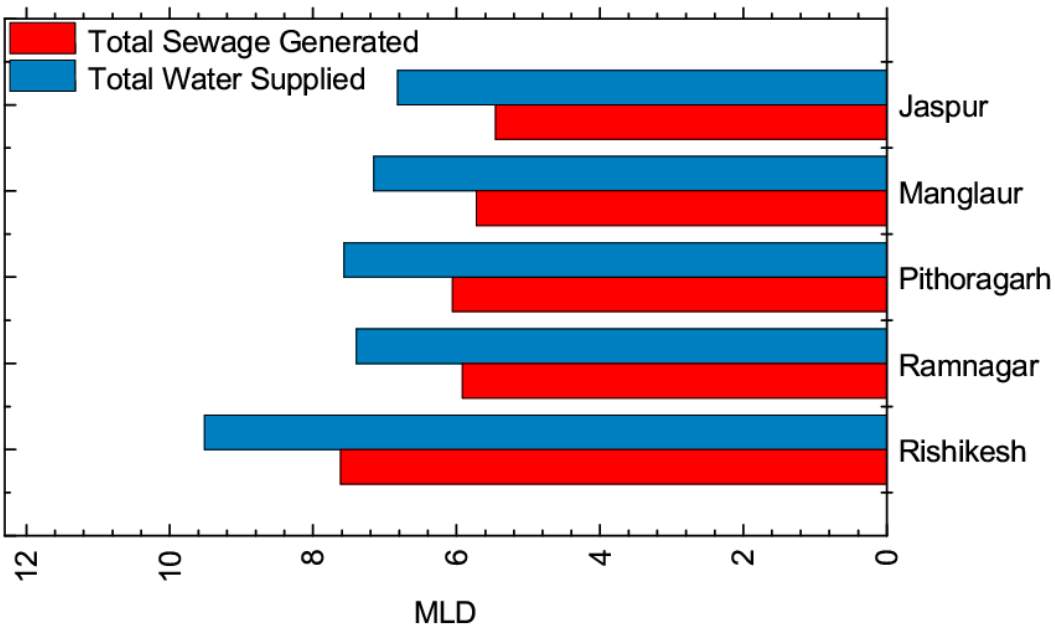


Figure 8b: Assessment of Water Supply and Sewage Generation (MLD) in Class II Towns in Himachal Pradesh and Uttarakhand

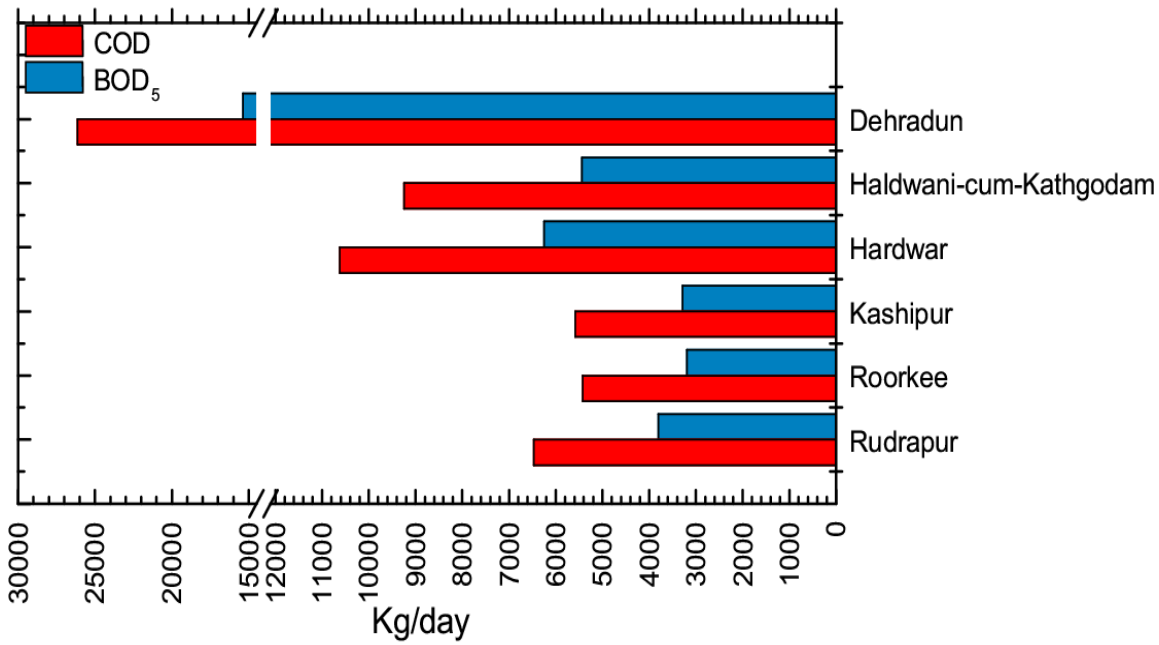


Figure 9a: Assessment of Pollution Load (kg/day) from Class I Cities in Himachal Pradesh and Uttarakhand

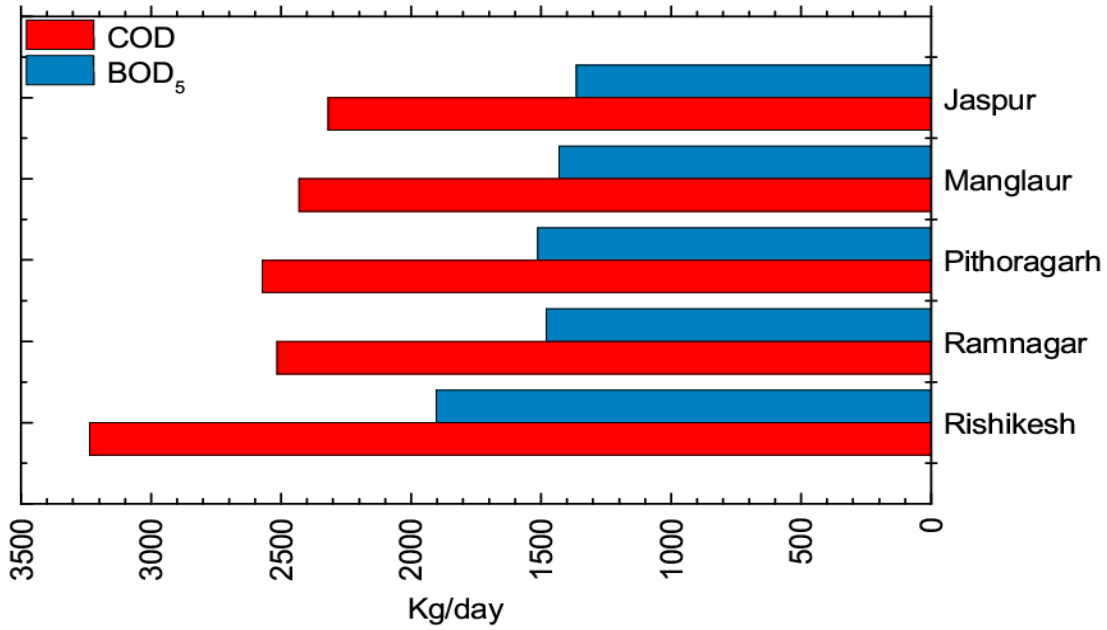


Figure 9b: Assessment of Pollution Load (kg/day) from Class II Towns in Himachal Pradesh and Uttarakhand

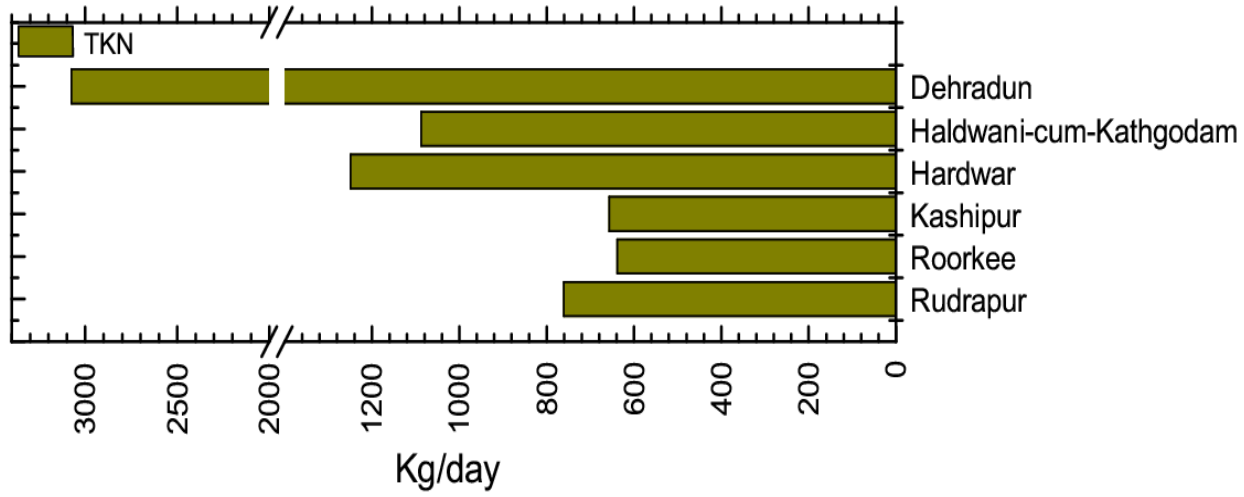


Figure 10a: Assessment of TKN Load (kg/day) from Class I Cities in Himachal Pradesh and Uttarakhand

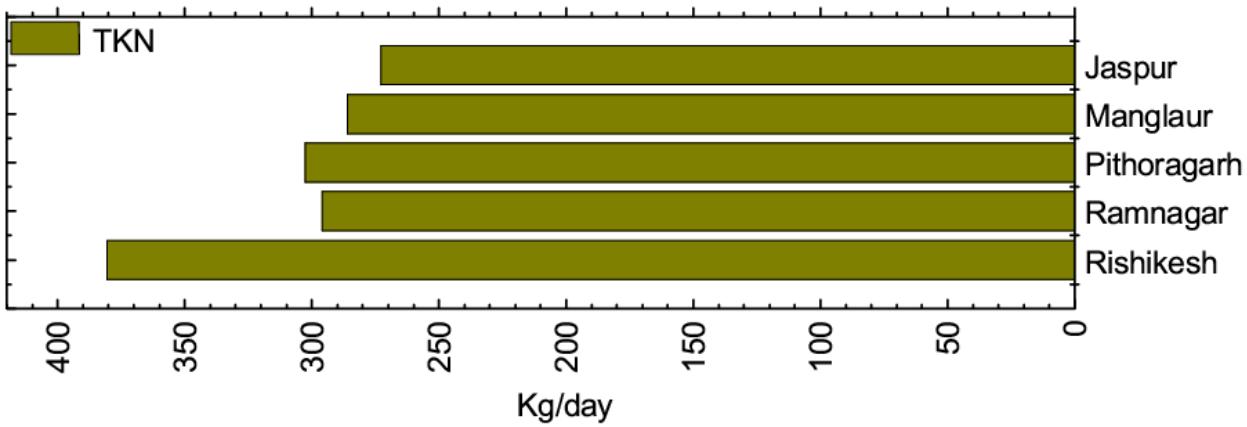


Figure 10a: Assessment of TKN Load (kg/day) from Class II Towns in Himachal Pradesh and Uttarakhand

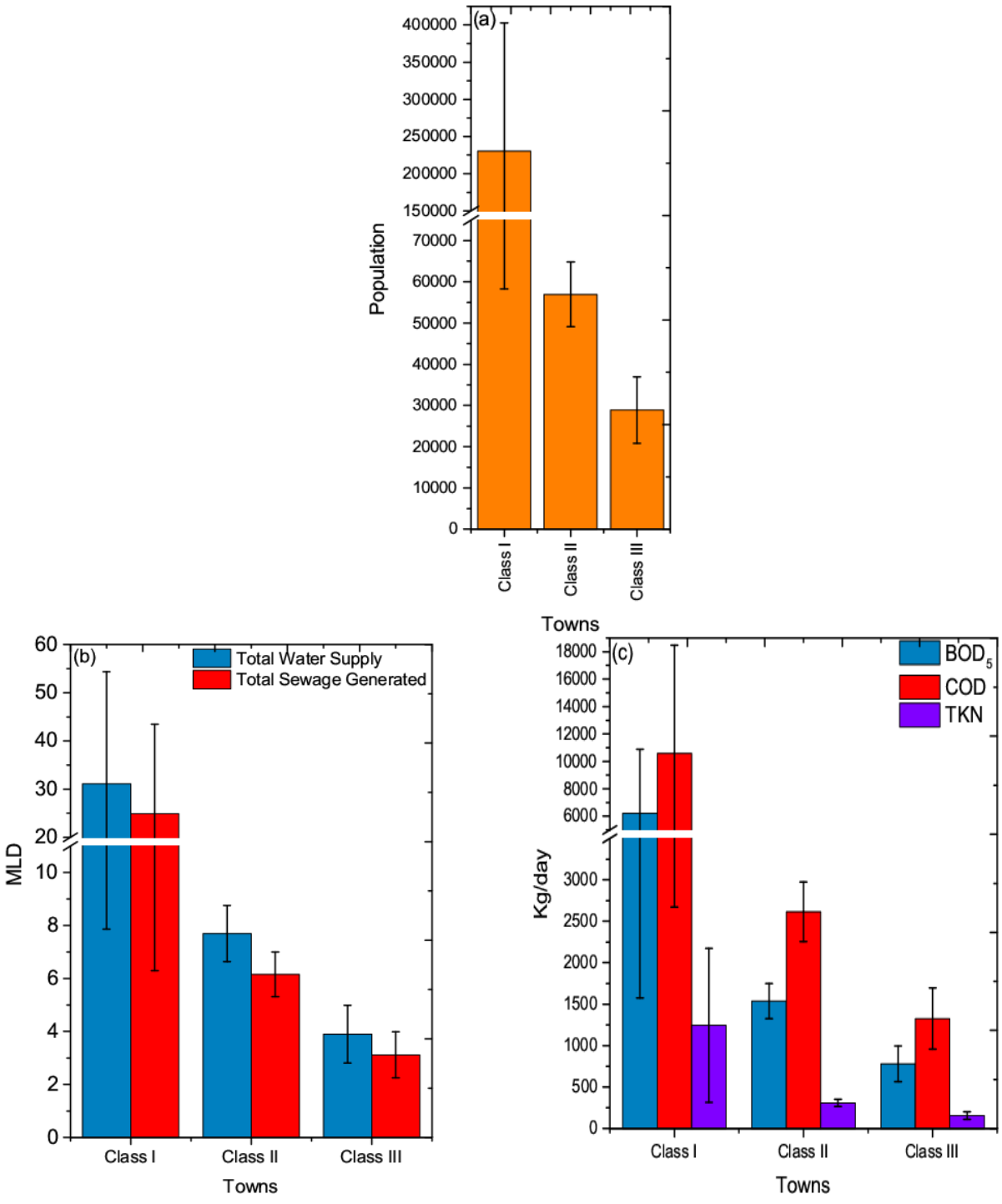


Figure 11: Comparative Analysis of Class I, Class II and Class III Cities/Towns Lying in States: (a) Population (b) Total Water Supply and Sewage Generation (c) Pollution Load

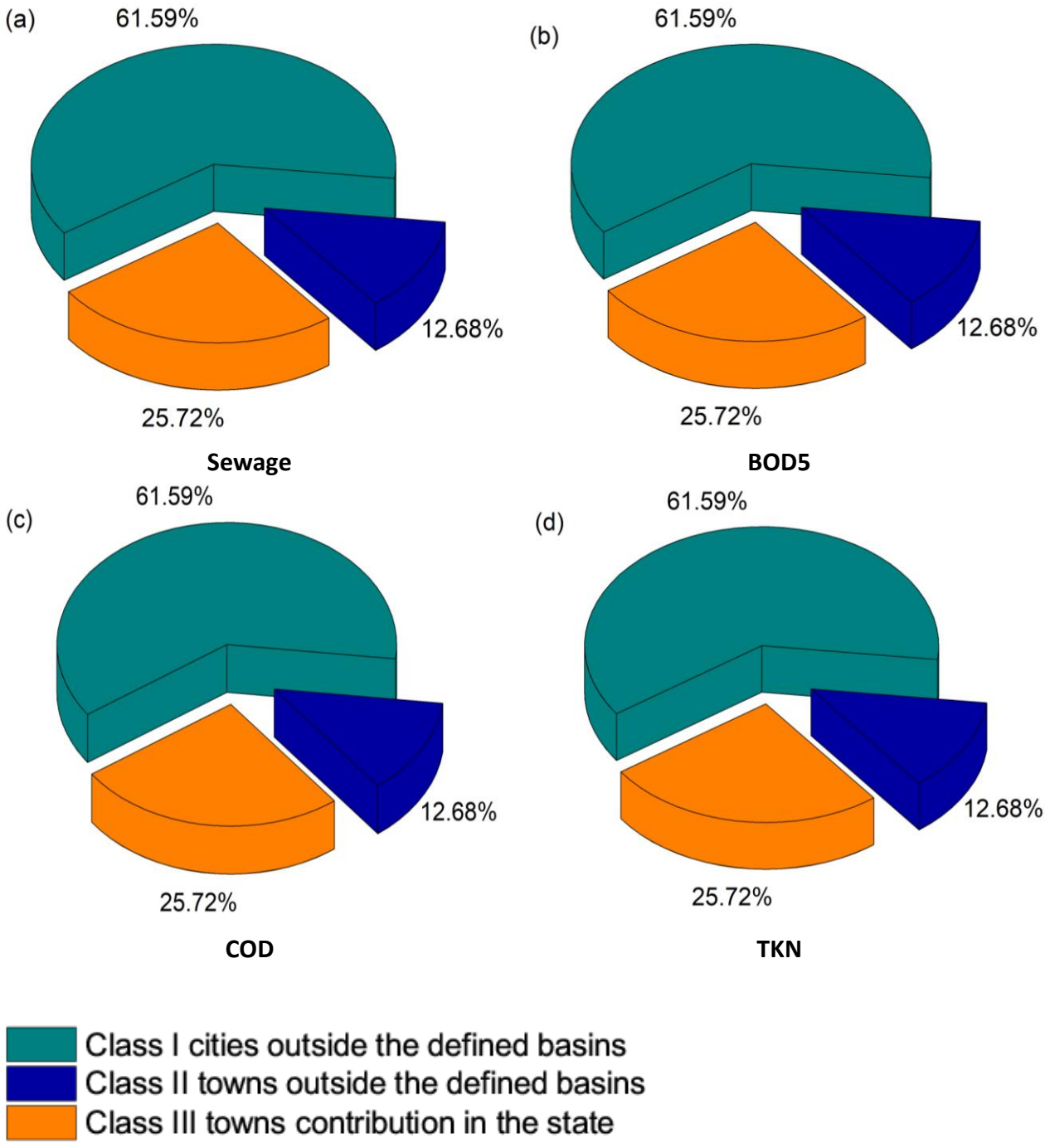


Figure 12 (a-d): Pollution load of Class I Cities and Class II, Class III Towns in Himachal Pradesh and Uttarakhand: (a) Sewage Generation; (b) $BOD_{5;}$ (c) COD; (d) TKN

The results of the pollution load of Class I cities, Class II and Class III towns in the major basins of river Ganga in states 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. While Alaknanda and Bhagirathi are major head streams which merge at Devprayag to form River Ganga. 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 Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class I Cities/Towns in Uttarakhand and Himachal Pradesh

Water Balance & Pollution Load (Domestic) Data 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) Data 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) Data Sheet				
City: Haridwar		**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) Data 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) Data 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) Data 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 Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class II Cities/Towns in Uttarakhand and Himachal Pradesh

Water Balance & Pollution Load (Domestic) Data 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) Data 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) Data 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) Data 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) Data 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 Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class III Cities/Towns in Uttarakhand and Himachal Pradesh

Water Balance & Pollution Load (Domestic) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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) Data 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

Assessment of Domestic Pollution Load from Urban Agglomeration in Ganga Basin: Haryana

GRBMP: Ganga River Basin Management Plan

by

Consortium of 7 "Indian Institute of Technology"s (IITs)

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.

Dr. Vinod Tare
Professor and Coordinator
Development of GRBMP
IIT Kanpur

The Team

1. AAKazmi, IIT Roorkee *kazmifce@iitr.ernet.in*
2. A K Gupta, IIT Kharagpur *akgupta18@rediffmail.com,akgupta@iitkgp.ac.in*
3. A K Mittal, IIT Delhi *akmittal@civil.iitd.ernet.in*
4. A K Nema, IIT Delhi *aknema@gmail.com*
5. Ajay Kalmhad, IIT Guwahati *kajay@iitg.ernet.in*
6. Anirban Gupta, BESU Shibpur *guptaanirban@hotmail.com*
7. Arun Kumar, IIT Delhi *arunku@civil.iitd.ac.in*
8. G J Chakrapani, IIT Roorkkee *gjcurfes@iitr.ernet.in*
9. GazalaHabib, IIT Delhi *gazalahabib@gmail.com*
10. Himanshu Joshi, IIT Roorkee *himanshujoshi58@gmail.com*
11. InduMehrotra, IIT Roorkee *indumfce@iitr.ernet.in*
12. I M Mishra, IIT Roorkee *imishfch@iitr.ernet.in*
13. Ligy Philip, IIT Madras *ligy@iitm.ac.in*
14. M MGhangrekar, IIT Kharagpur *ghangrekar@civil.iitkgp.ernet.in*
15. MukeshDoble, IIT Bombay *mukeshd@iitm.ac.in*
16. P K Singh, IT BHU *dr_pksingh1@rediffmail.com*
17. Purnendu Bose, IIT Kanpur *pbose@iitk.ac.in*
18. R Ravi Krishna, IIT Madras *rrk@iitm.ac.in*
19. Rakesh Kumar, NEERI Nagpur *r_kumar@neeri.res.in*
20. S M Shivnagendra, IIT Madras *snagendra@iitm.ac.in*
21. SaumyenGuha, IIT Kanpur *sguha@iitk.ac.in*
22. Shyam RAsolekar, IIT Bombay *asolekar@iitb.ac.in*
23. SudhaGoel, IIT Kharagpur *sudhagoel@civil.iitkgp.ernet.in*
24. Suparna Mukherjee, IIT Bombay *mitras@iitb.ac.in*
25. T R Sreekrishanan, IIT Delhi *sree@dbeb.iitd.ac.in*
26. Vinod Tare, IIT Kanpur *vinod@iitk.ac.in*
27. Vivek Kumar, IIT Roorkee *vivekfpt@iitr.ernet.in*

Lead Persons

1. Vinod Tare, IIT Kanpur
2. Purnendu Bose, IIT Kanpur
3. Suresh Kr Gurjar, IIT Kanpur
4. Abhishek Gaur, IIT Kanpur
5. Vishal Kapoor, IIT Kanpur
6. Shashikant Patel, IIT Kanpur
7. Swatanta Pratap Singh, IIT Kanpur

Contents

1. Introduction:

Haryana is among the most prosperous states in India, having one of the highest per-capita-income in the country, and its capital is Chandigarh.Haryanais home of epic battle of Mahabharata and recital of Bhagavad Gita by Lord Krishna. It shares border with Punjab and Himachal Pradesh in the North, and with Rajasthan in the West and South and with Uttarakhand in East. Haryana has the total area of 44,212 sq. km, which is about 1.34 % of the total area of the country. Haryana has total 19 districts and the 17th largest populated state. Haryana has a catchment area of 21,265 km^{2}in river Yamuna basin whileGanga river basin covers 79.5% cultivable land in Haryana.

The Ganga River Basin (GRB) has a total catchment area of 1,086,000 sqkmacross India, Tibet (China), Nepal and Bangladesh. The river basin in India, nearly covers 26% (861,404 sq km; about 80% of total catchment area of Ganga river basin) of the total geographical area. The sprawling Ganga basin, spread across 11 states, is the world's most populous river basin and home to more than 492 million Indians. Haryana is one of the 11 states (Uttarakhand, Uttar Pradesh, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh, Jharkhand and West Bengal) of the GRB in India through which the Ganga River and her tributaries flowapproximately in the direction of North West to South East. A comparison of state-wise distribution of GRB area within the geographical areas of different states is presented in Table 1.

Table 1: State-wise Distribution of the Ganga River Basin Area

State/ Union Territory	*Total Geographical Area (sqkm)	#Area contributing to Ganga Basin (sqkm)	Percentage of the Basin Area (%)
Uttarakhand	53,483	53,436	6.2
Uttar Pradesh	**240,928**	**240,928**	**28**
Bihar	94,163	143,961	16.7
Jharkhand	79,716		
Madhya Pradesh	308,252	198,962	23.1
Chhattisgarh	135,192		
Delhi	1,484	1,484	0.17
Haryana	44,212	34,341	4.0
Himachal Pradesh	55,673	4,317	0.5
Rajasthan	342,239	112,490	13.1
West Bengal	88,752	71,485	8.3

River Yamunatouches the Haryana near Kalesar (Yamuna Nager) and shareseastern boundary with Uttar Pradesh and then finally enters inDelhi. The salient features of some major tributaries contributing directly or indirectly to the Ganga basin in the state of Haryana are presented in Table 2.

Table 2: The Salient Features of Tributaries of the Ganga River Basin Contributing to the Riverin the State of Haryana

Characteristics	Yamuna
Position	Right bank
Region of origin	Yamunotri glacier at Bandar Punch
Mouth	Ganga
Total length (km)	1376
Total catchment area (sq km)	366,223
Catchment area in Haryana (sq km)	21,265
River bed/ Soil texture	Alluvial about 42% of the basinarea, followed by medium black soil 25.5% and mixed red and black soil 15%

The total annual average rainfall in the state of Haryana isabout619 mm and it contributes approximately 1.6% of the total rainfall in the catchment of the Ganga basin.Location of Haryana in Ganga river basin is shown in Figure 1. Figure 2 shows Yamuna basin in Haryana stateFigure 2.

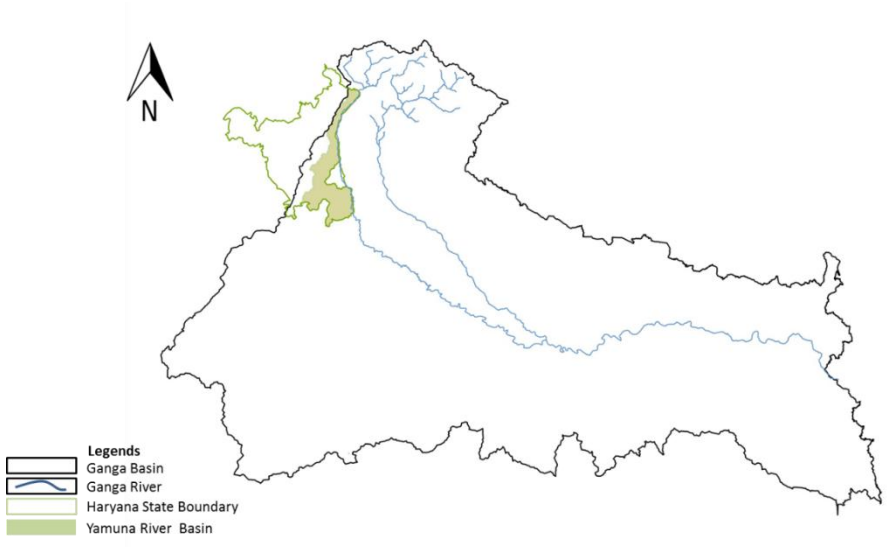

Figure 1: Ganga River Basin the Indian Territory and Haryana State

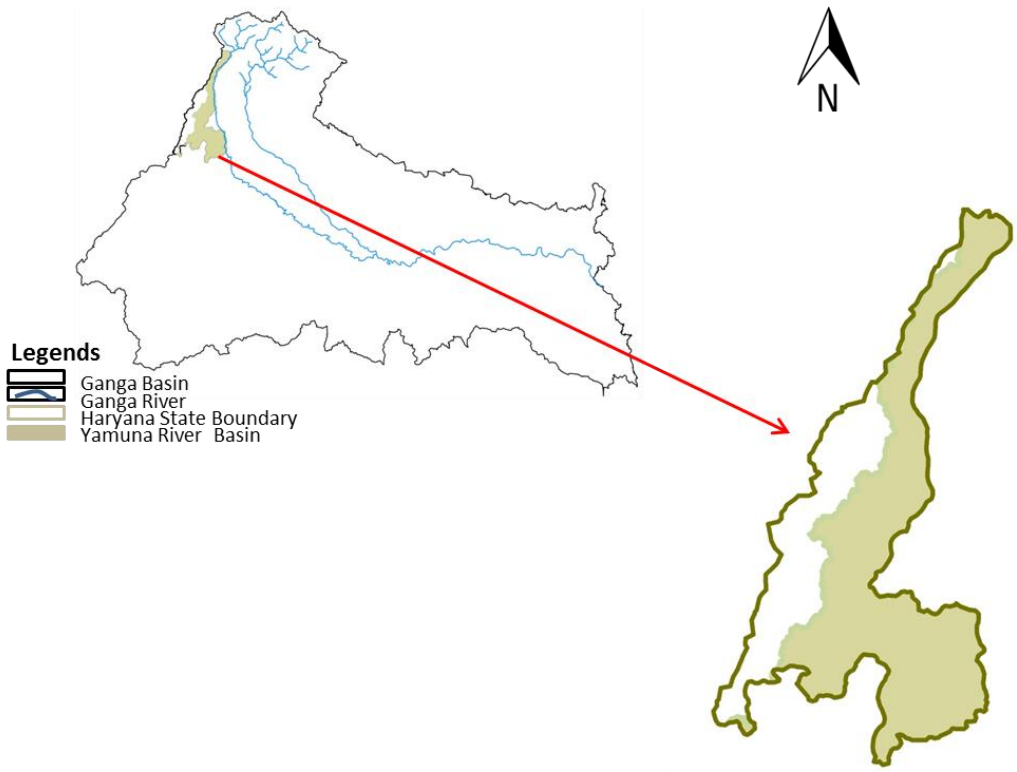

Figure 2: Major Sub-Basins or their Portions under the Ganga River Basin in the State of Haryana

2. Major Obstruction and Abstraction Projectson the Tributaries of the River GangaExecutedin the State

The natural flow regime in the river Yamunahas been altered due to construction of number of dams and barrages in the Haryana state. Haryana has 1 Dam, 5 Barrages under Ganga basin (Table 3). These Dams and barrages are essentially for irrigation and domestic water supplies.Kaushalya Dam at Pinjorehas 34 meter height. The list of the major dams on Ganga River and its tributaries in Haryana are mentioned underneath.

Table 3: Details of the Major Dams/Barrages on River of Ganga Basin in the State of Haryana (WRIS-wiki)

Projects	River	Year of Completion	Remark
Kaushalya Dam	Kaushalya	2011	Major Irrigation Project
Dadupur Barrage	Somb	1890	Major Irrigation Project
HathiniKund Barrage	Yamuna	1999	Major Irrigation Project
Masani Barrage	Sahibi	1989	-
Ottu Barrage	Ghaggar	-	-
Palla Barrage	Yamuna	-	-

3. Demographic Profile of Ganga Basin in the State

Haryana has 11 Class I cities, 5 Class II cities and 21 Class III cities under Ganga basin (Figure 4-6). The total population of the state according to the Census 2011 is 25.35 million out of which 34.8% live in urban area. The density in the state is about 573 people per square kilometer. According to the Population Census 2011, some of the Class I cities areBahadurgarh, Faridabad, Gurgaon, Jagadhri, Karnal, Palwal, Panipat, Rewari, Rohtak, Sonipat, and Yamunanagar. The details of the area, population and the major river systems of all the Class I, II and III cities are presented in Table 4-6, respectively.

Figure 3 shows the population distribution of Class I cities, Class II and III towns in the Ganga basin in the Haryana state and along the main stream of the river Yamuna. 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 state is 0.39 million, approximately six times and thirteen times higher than the population of class II and class III towns, respectively. Faridabad is the highly populated class I city having the population of 1.4 million, while Jagadhri is the least populated (0.12 million) class I city. Narnaul andHodal are the cities having maximum and minimum population under class II towns, contains 0.074 and 0.05 million, respectively. In class III towns where the population is less than 0.05 million, the maximum population is in the Jhajjar town (0.048 million), while minimum is in the Pataudi (0.02 million).

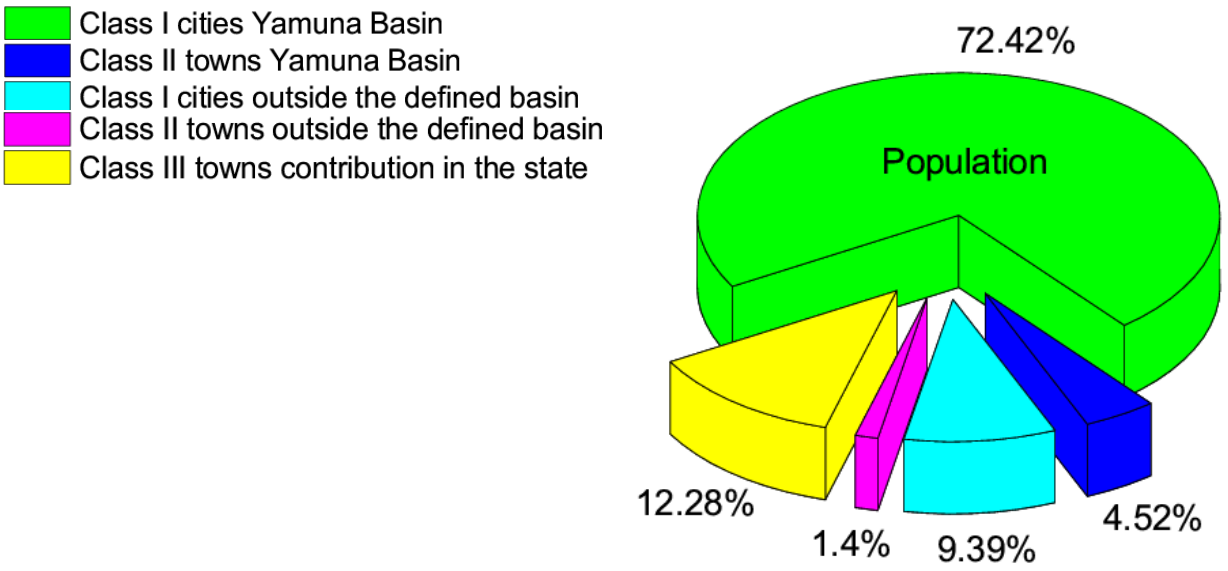

Figure 3: **Population Distribution of Class I Cities and Class II, Class III Towns in the Major Basins in the State.**

Table4: Demographic details of Major urban centers (Class I) in Haryana.

SNo.	Name	River System	Total Area (sq km)	Population (as in 2011)
1	Bahadurgarh (M Cl)	Yamuna River	29.5	170767
2	Faridabad (M Corp.)	Yamuna River	204	1414050
3	Gurgaon (M Corp. + OG)	Yamuna River	184.59	886519
4	Jagadhri (M Cl)	Yamuna River	24.8	124894
5	Karnal (M Cl + OG)	Yamuna River	29.46	302140
6	Palwal (M Cl + OG)	Yamuna River	8.42	131926
7	Panipat (M Cl + OG)	Yamuna River	21.86	295970
8	Rewari (M Cl)	Yamuna River	22.5	143021
9	Rohtak (M Cl)	Yamuna River	72.18	374292
10	Sonipat (M Cl + OG)	Yamuna River	42.61	289333
11	Yamuna Nagar (M Cl + OG)	Yamuna River	16.48	217071

Table5: Demographic details of class II cites in Haryana.

SNo.	Name	River System	Total Area (sq km)	Population (as in 2011)
1	Charkhi Dadri (MC)	Yamuna River	5.42	56337
2	Gohana (MC)	Yamuna River	11.51	65708
3	Hodal (MC)	Yamuna River	5.39	50143
4	Narnaul (M Cl)	Yamuna River	12.67	74581
5	Panipat TarafMakhdumZadgan (CT)	Yamuna River	6.54	67998

Table 6: Demographic details of class III cites in Haryana.

SNo.	Name	River System	Total Area (sq km)	Population (as in 2011)
1	Dharuhera (MC)	Sahibi River	11.49	30344
2	Ferozepur jhirka (MC)	Yamuna River	8.86	24750
3	Ganaur (MC)	Yamuna River	9.06	35603
4	Gharaunda (MC)	Yamuna River	12.98	37816
5	Hailey Mandi (MC)	Yamuna River	16.27	20906
6	Jhajjar (MC)	Yamuna River	36	48424
7	Kalanaur (MC)	Yamuna River	6.85	23319
8	Kharkhoda (MC)	Yamuna River	1.63	25051
9	Kundli (55) (CT)	Yamuna River	7.9	21633
10	Manesar (154) (CT)	Yamuna River	14.7	23448
11	Palwal (Rural) (Part) (73) (CT)	Yamuna River	20.1	23072
12	Panipat Taraf Ansar (CT)	Yamuna River	7.88	42877
13	Panipat TarafRajputan (CT)	Yamuna River	5.1	28803
14	Pataudi (MC)	Yamuna River	13.51	20418
15	Punahana (MC)	Yamuna River	10.12	24734
16	Safidon (MC)	Yamuna River	9.48	34728
17	Samalkha (MC + OG)	Yamuna River	4.66	39710
18	Sampla (MC)	Yamuna River	17.83	20563
19	Sasauli (CT)	Yamuna River	2.88	22479
20	Sohna (MC)	Yamuna River	9.7	36552
21	Taoru (MC)	Yamuna River	4.52	22599

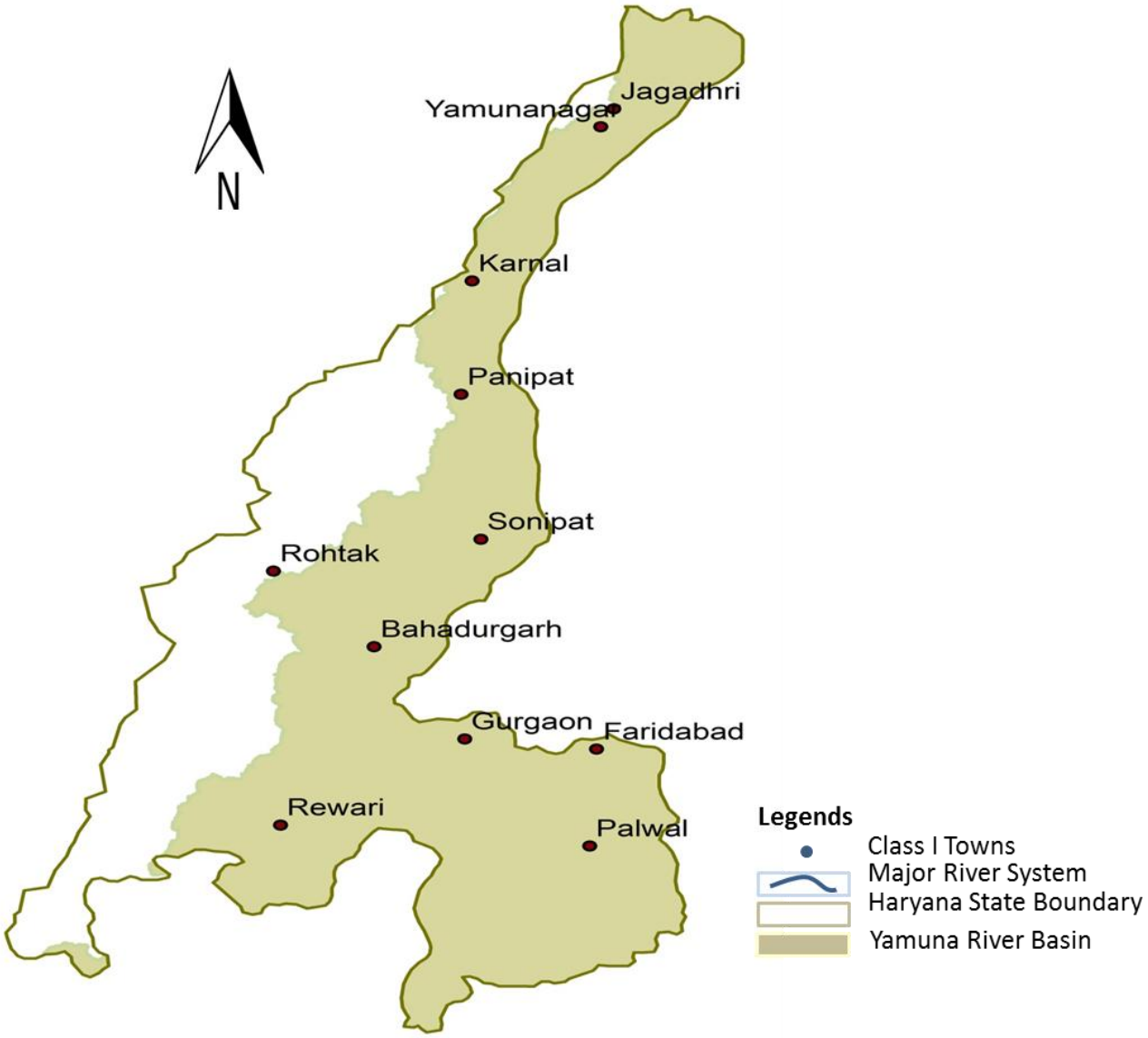

Figure 4: Class I Cities of Haryana in Ganga River Basin

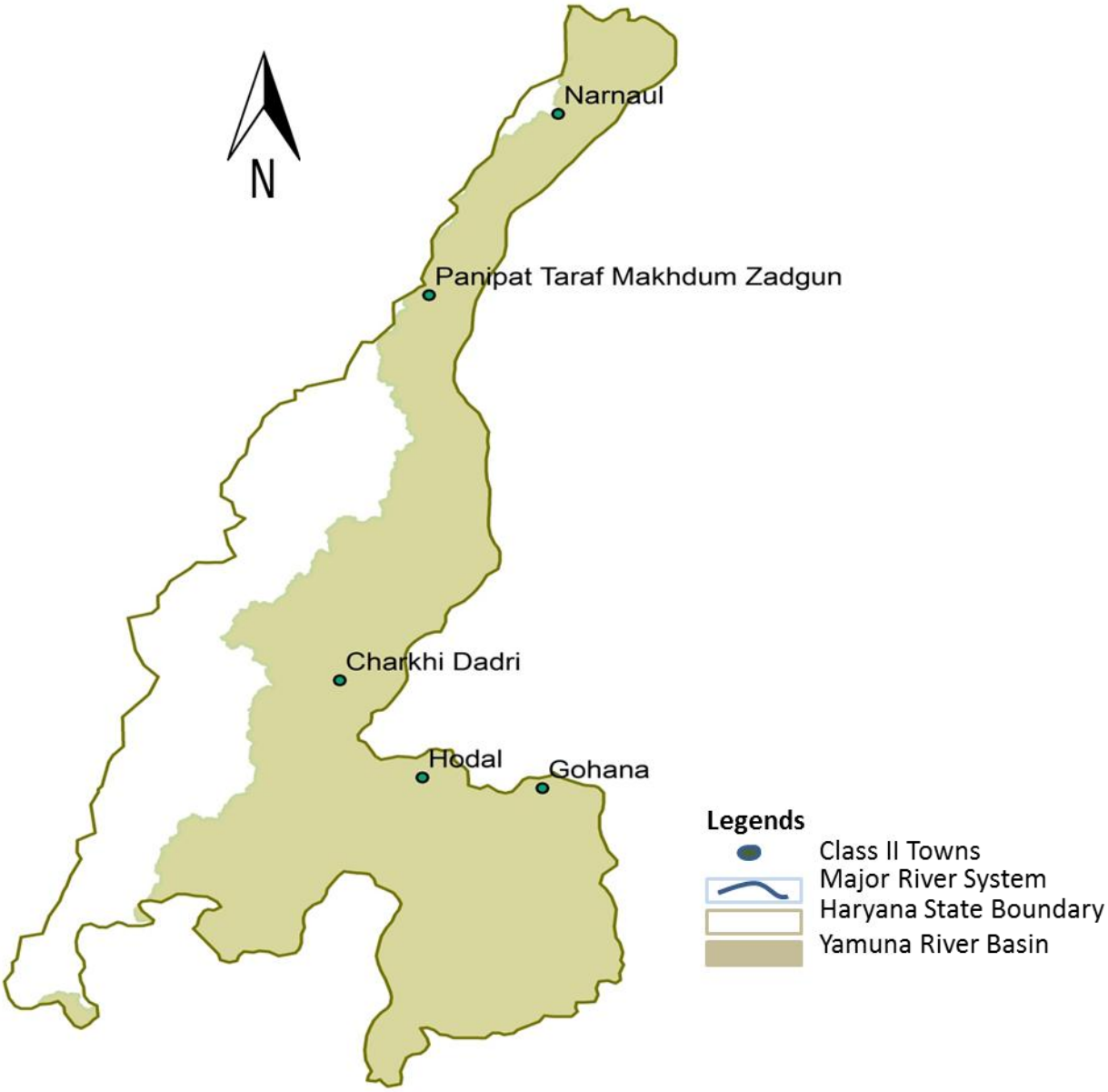

Figure 5: Class II Cities of Haryana in Ganga River Basin

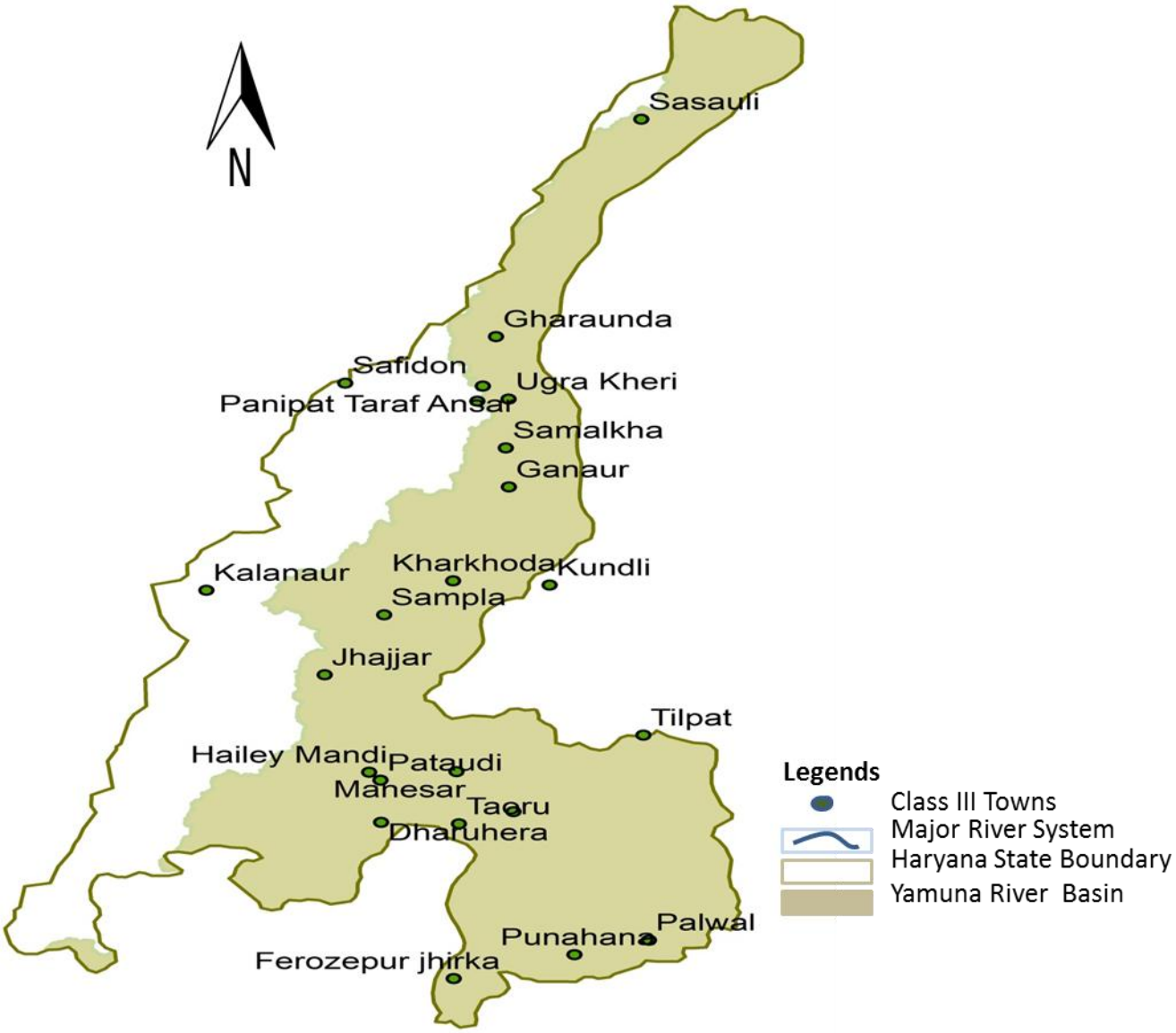

Figure 6: Class IIICities of Haryana in Ganga River Basin

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, discharges from the tributaries 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 major cities contributing the wastewater discharge of approximately 239 MLD in river Yamuna are in Faridabad, Karnal, Panipat, Sonipat, Gurgaon (CPCB, 2013). 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.

The maximum sewage generated by class I cities and class II towns of Haryana are592 and 34 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 Haryana depicted that the maximum share of sewage generation (88.33%) is from class I cities followed by class II and III towns, 10.12 and 4.89%, respectively (Figure 7). The BOD and COD load for Class I cities, Class II and Class III towns are in the range of 81.8, 12.28 and 5.92%, respectively. The TKN load almost showing 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 Faridabad152.7 MLD, approximately 79.9% of the water supply. In case of the class II towns the sewage generation in Namaul is maximum 8.1 MLD, ~80.4% of its total water supply. The total BOD and COD load in Kg/day has been estimated on the per capita basis in Class I towns and its average are approximately 10.6 and 18.1 tons/day, respectively. The average BOD and COD load from the Class II towns is 1.7 and 2.9 tons/day, respectively whereas Class III towns contribute approximately 0.9 tons/day and 1.55 tons/day of BOD and COD, respectively. The maximum and minimum BOD and COD contributing cities in Class I towns are Faridabad andJagadhri, respectively. In Class II towns maximum BOD and COD is from Namaul, whereas minimum BOD and COD are from Hodal. In class III towns maximum and minimum BOD and COD is from JhajjarandPataudi respectively.

The total TKN in metric tons/day contributed by Class I, Class II and Class III towns are approximately 2.1, 0.33 and 0.15 tons/day, respectively. The maximum and minimum contribution of TKN from class I towns are from Faridabad and Jagadhrirespectively. The maximum and minimum contribution of TKN from class II towns is from Namaul and Hodal,

respectively while the maximum and minimum contribution of TKN from class III towns is from JhajjarandPataudi, 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.

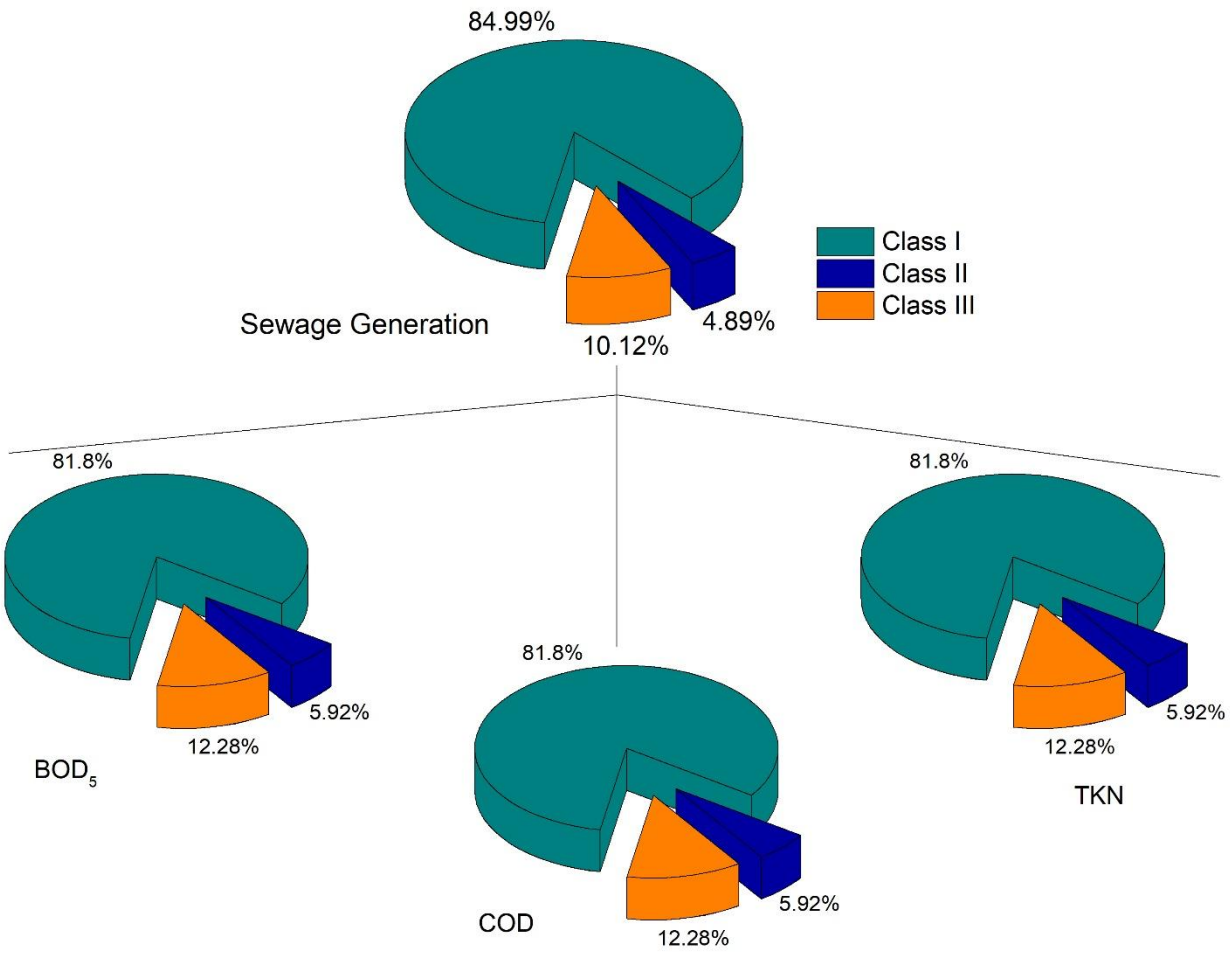

Figure 7: Distribution of Pollution Load of Class I Cities and Class II, Class III Towns in Haryana

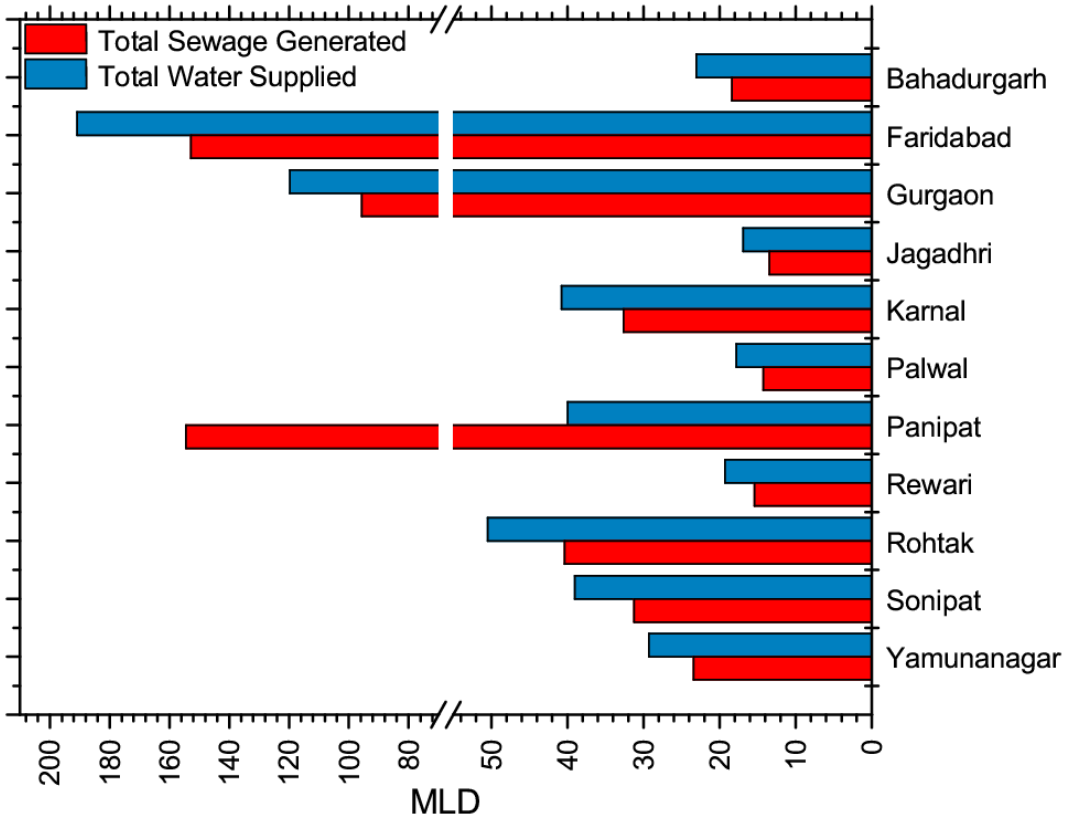

Figure 8a: **Assessment of Water Supply and Sewage Generation (MLD) in Class I Cities of Haryana in Ganga River Basin**

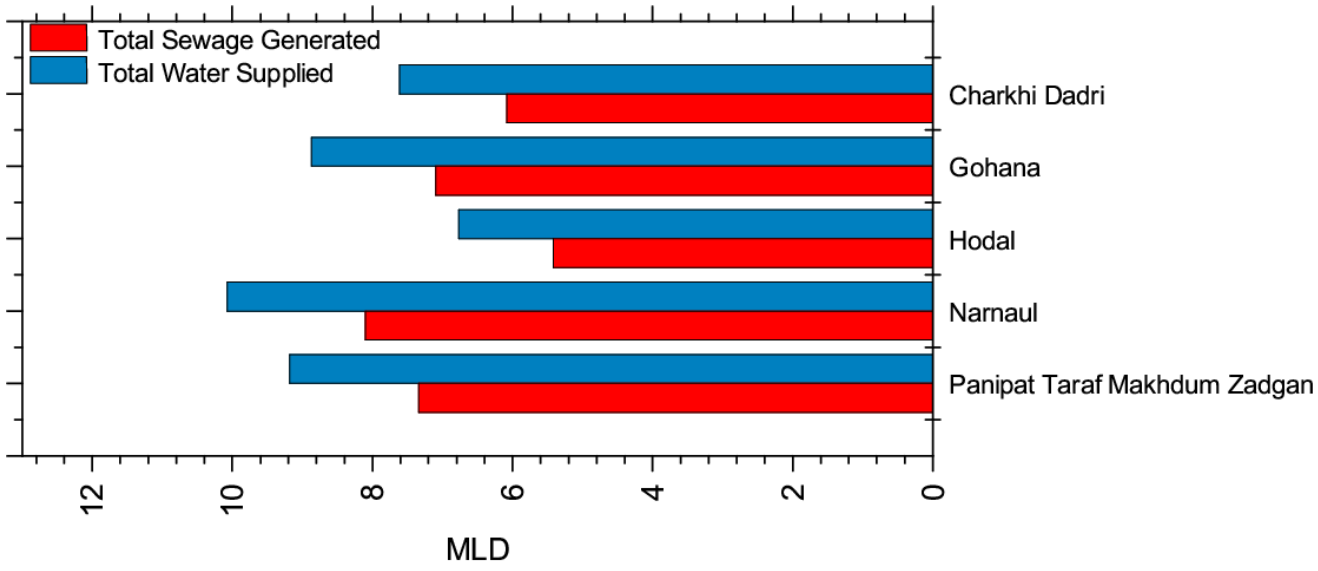

Figure 8b: **Assessment of Water Supply and Sewage Generation (MLD) in Class II Cities of Haryana in Ganga River Basin**

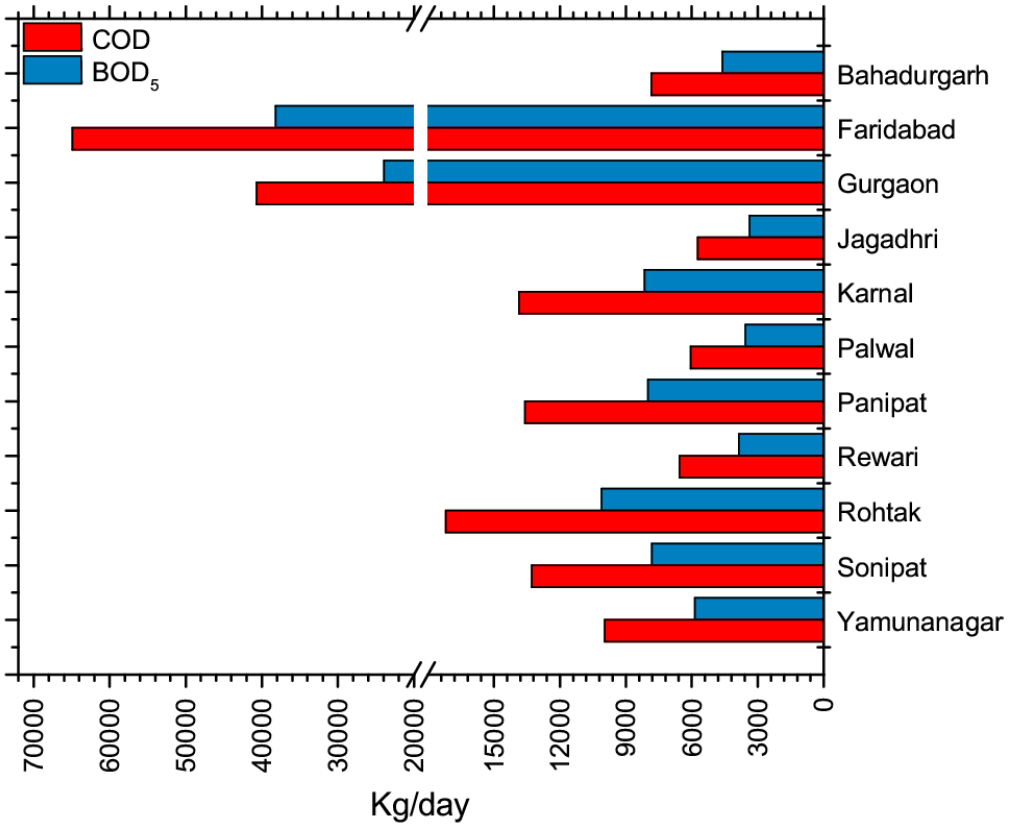

Figure 9a: Assessment of Organic Pollution Load (kg/day) from Class I Cities of Haryana in Ganga River Basin

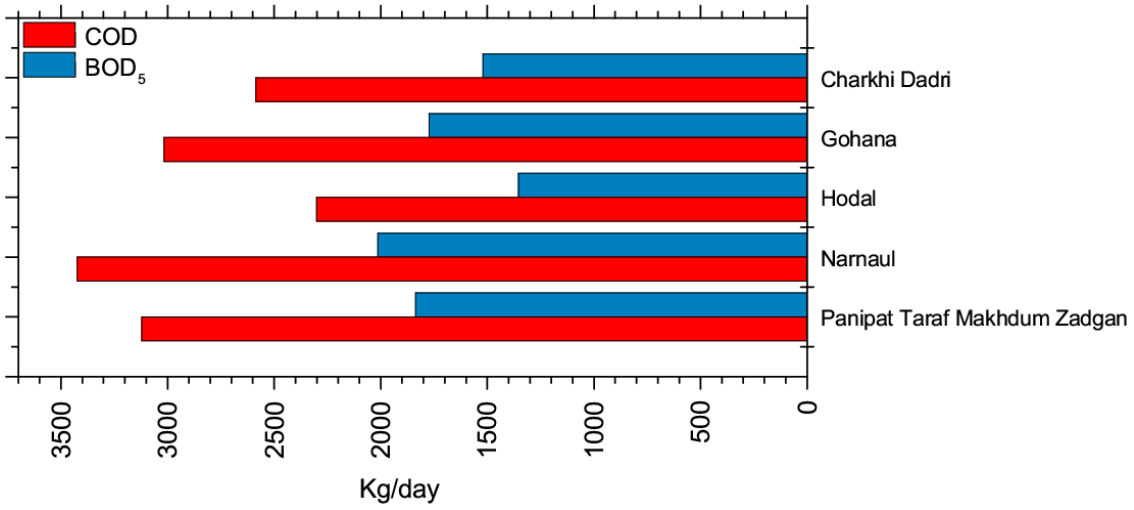

Figure 9b: Assessment of Organic Pollution Load (kg/day) from Class IICities of Haryana in Ganga River Basin

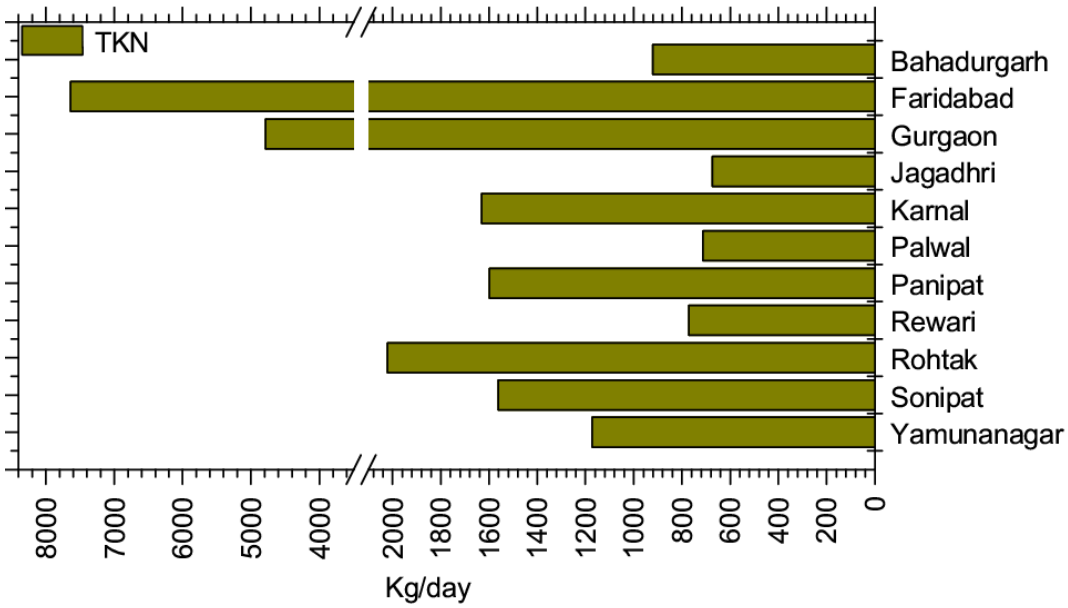

Figure 10a: Assessment of TKN Load (kg/day) from Class I Cities of Haryana in Ganga River Basin

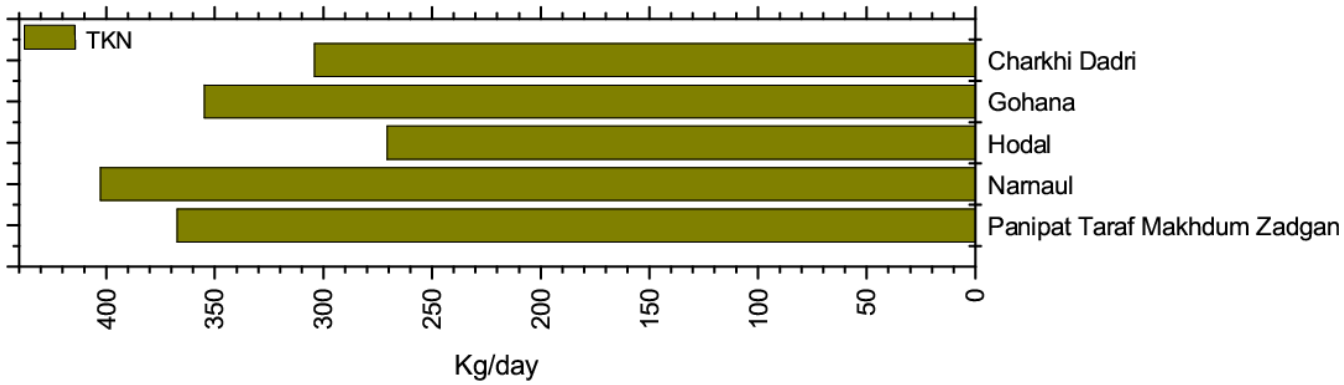

Figure 10b: Assessment of TKN Load (kg/day) from Class IICities of Haryana in Ganga River Basin

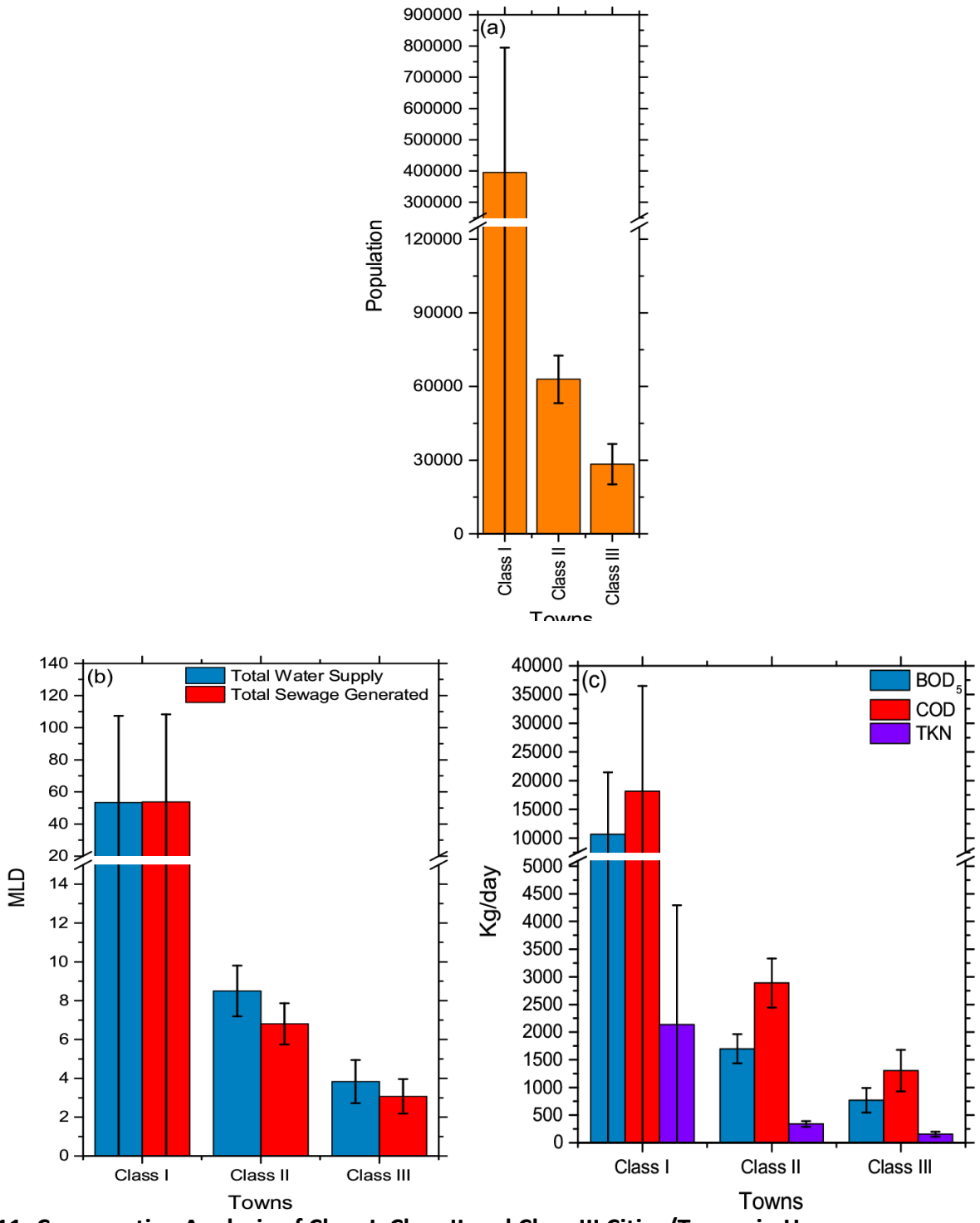

Figure 11: Comparative Analysis of Class I, Class II and Class III Cities/Towns in Haryana : (a) Population (b) Total Water Supply and Sewage Generation (c) Pollution Load

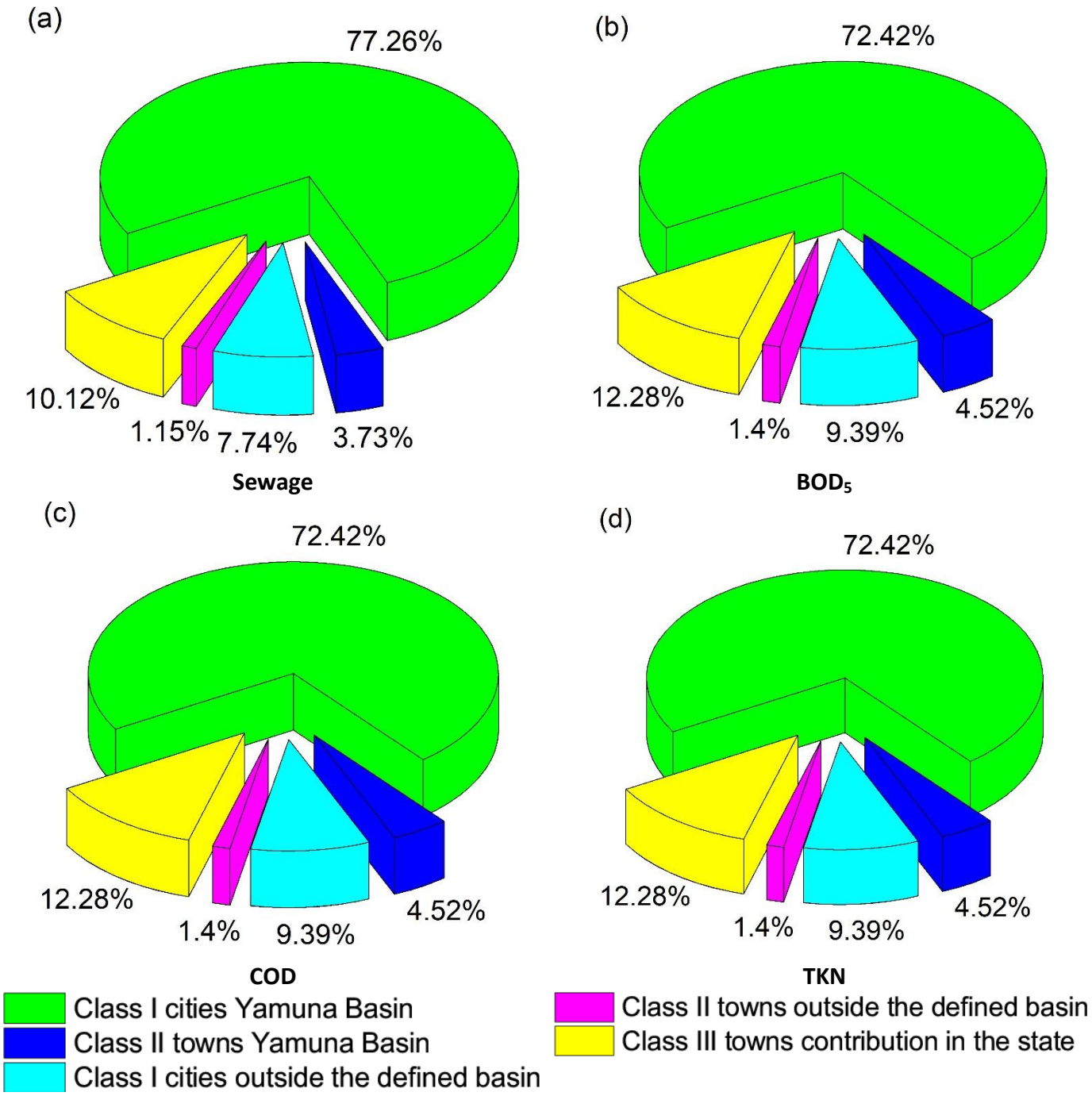

Figure 12 (a-d): Pollution load of Class I Cities and Class II, Class III Towns in the Major Basins in the State: (a) Sewage Generation; (b) BOD_5 ; (c) COD; (d) TKN

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 along the main stem of Yamuna (77.26%). The Class I cities and Class II towns outside the major defined basins combinedly release 8.99% of waste water. The percentage sewage generation by Class III towns of the entire state is 10.12% of the total sewage generated by the state.

The BOD, COD and TKN load contributed by Class I cities of the main stem of Yamuna is 72.42%. The Class II and Class III towns of the state imparted around 4.52% and 12.69% respectively of the total BOD, COD, and TKN load. 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 11Class I cities, 5 Class II towns and 21 Class III towns, directly or indirectly. 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 (77.26%) followed by Class III (10.12%) and Class II towns (7.74%). Pollution load (BOD, COD and TKN load) also follows the same trend with maximum values for Class I cities. Faridabad and Namaulare the Class I and Class II towns showing maximum amount ofsewage generation in comparison to their water supply. The maximum BOD, COD and TKN contributing Class I cities, Class II and III towns are Faridabad, Namauland Jhajjar respectably. All calculations related to pollution load were done on per capita basis. There is lack of real data (drains, water supply, etc.) for the Haryana state and real data collection is suggested to be done for more accurate pollution situation.

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Appendix-1

Compilation of Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class I Cities/Towns in Haryana

Water Balance & Pollution Load (Domestic) Data Sheet				
City: BahadurGarh			**State: Haryana**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	29.50
2	Population as in 2011		:	170767
3	Population Growth Rate as in 2011 (%)		:	29.44
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	5509
6	Total Number of Household as in 2011		:	34910
7	Number of Household per Ward		:	1126
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/ Tube wells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NIL
15	Total Pumping Capacity (MLD)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	23.1
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	18.4
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	3.0
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	18.0
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	1.0
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD	:	4610.7
		COD	:	7838.2
		TKN	:	922.1
30	Wastewater Disposal Means		:	RiverDisposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
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) Data Sheet				
City: Faridabad				**State: Haryana**
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	204.00
2	Population as in 2011		:	1414050
3	Population Growth Rate as in 2011 (%)		:	33.91
4	Total Number of Wards		:	35
5	Population per Ward (Thousands)		:	40401
6	Total Number of Household as in 2011		:	290675
7	Number of Household per Ward		:	8305
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)		:	500
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)		:	190.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	152.72
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	142.3
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	4.0
24	Total Installed Capacity of STPs under GAP 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	:	38179.4
		COD	:	64904.9
		TKN	:	7635.9
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Gurgaon			**State: Haryana**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	184.59
2	Population as in 2011		:	886519
3	Population Growth Rate as in 2011 (%)		:	340.30
4	Total Number of Wards		:	74
5	Population per Ward (Thousands)		:	11980
6	Total Number of Household as in 2011		:	208229
7	Number of Household per Ward		:	2814
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)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	119.7
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	95.7
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	3.0
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	148.0
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	:	23936.0
		COD	:	40691.2
		TKN	:	4787.2
30	Wastewater Disposal Means		:	River
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	4.0
33	Number of Water Bodies		:	7.0
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Jagadhari			**State: Haryana**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	24.80
2	Population as in 2011		:	124894
3	Population Growth Rate as in 2011 (%)		:	23.30
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	4029
6	Total Number of Household as in 2011		:	26716
7	Number of Household per Ward		:	862
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)		:	500
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)		:	16.9
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135
19	Total Sewage Generation (MLD)*		:	13.49
20	Per Capita Sewage Generation (lpcd)		:	108
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3372.1
		COD	:	5732.6
		TKN	:	674.4
30	Wastewater Disposal Means		:	River
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
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) Data Sheet				
City: Karnal				**State: Haryana**
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	29.46
2	Population as in 2011		:	302140
3	Population Growth Rate as in 2011 (%)		:	36.57
4	Total Number of Wards		:	20
5	Population per Ward (Thousands)		:	15,107
6	Total Number of Household as in 2011		:	63280
7	Number of Household per Ward		:	11062
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)		:	500
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)		:	40.79
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	32.63
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	30.84
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	2.0
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	48.0
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	:	8157.8
		COD	:	13868.2
		TKN	:	1631.6
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
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) Data Sheet				
City: Palwal				**State: Haryana**
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	8.42
2	Population as in 2011		:	131926
3	Population Growth Rate as in 2011 (%)		:	30.98
4	Total Number of Wards		:	32
5	Population per Ward (Thousands)		:	4,123
6	Total Number of Household as in 2011		:	23742
7	Number of Household per Ward		:	742
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/ Tube wells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	17.81
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	14.25
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	1
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	9
25	Current Utilized Capacity of STPs (MLD)		:	9
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	:	3562.0
		COD	:	6055.4
		TKN	:	712.4
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
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) Data Sheet				
City: Panipat			**State: Haryana**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	21.86
2	Population as in 2011		:	295970
3	Population Growth Rate as in 2011 (%)		:	10.07
4	Total Number of Wards		:	24
5	Population per Ward (Thousands)		:	12,332
6	Total Number of Household as in 2011		:	60905
7	Number of Household per Ward		:	2538
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/ Tube wells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	2
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)		:	40.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	154.4
20	Per Capita Sewage Generation (lpcd)		:	88.2
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	2
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	45
25	Current Utilized Capacity of STPs (MLD)		:	45.0
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	:	7991.2
		COD	:	13585.0
		TKN	:	1598.2
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	3
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Rewari				**State: Haryana**
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	22.50
2	Population as in 2011		:	143021
3	Population Growth Rate as in 2011 (%)		:	42.05
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	4614
6	Total Number of Household as in 2011		:	28702
7	Number of Household per Ward		:	926
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)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	19.3
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	15.4
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 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	:	3861.6
		COD	:	6564.7
		TKN	:	772.3
30	Wastewater Disposal Means		:	River 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) Data Sheet				
City: Rohtak				**State: Haryana**
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	72.18
2	Population as in 2011		:	374292
3	Population Growth Rate as in 2011 (%)		:	27.06
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	12074
6	Total Number of Household as in 2011		:	75528
7	Number of Household per Ward		:	2436
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)		:	500
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)		:	50.5
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	40.4
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	3
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	20
25	Current Utilized Capacity of STPs (MLD)		:	NA
26	Percentage Utilization of Installed Capacity (%)		:	NA
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	16.0
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	:	10105.9
		COD	:	17180.0
		TKN	:	2021.2
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	6.88
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Sonipat			**State: Haryana**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	42.61
2	Population as in 2011		:	289333
3	Population Growth Rate as in 2011 (%)		:	28.55
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	9,333
6	Total Number of Household as in 2011		:	57740
7	Number of Household per Ward		:	1863
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)		:	500
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)		:	39.06
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	31.25
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	1
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	30
25	Current Utilized Capacity of STPs (MLD)		:	30
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	:	7812.0
		COD	:	13280.4
		TKN	:	1562.4
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
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) Data Sheet				
City: Yamunanagar		**State: Haryana**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.48
2	Population as in 2011		:	217071
3	Population Growth Rate as in 2011 (%)		:	14.43
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	7002
6	Total Number of Household as in 2011		:	45351
7	Number of Household per Ward		:	1463
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)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	29.3
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	23.4
20	Per Capita Sewage Generation (lpcd)		:	108.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	2
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	35
25	Current Utilized Capacity of STPs (MLD)		:	35.0
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	:	5860.9
		COD	:	9963.6
		TKN	:	1172.2
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	2
34	Gross Area of Water Bodies (Hectare)		:	3.70
35	Area of Water Bodies as % of Total Area		:	<<< 1

Appendix-2

Compilation of Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class I Cities/Towns in Haryana

Class II towns list

Water Balance & Pollution Load (Domestic) Data Sheet				
City :Charkhi Dadri		**State: Haryana**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.42
2	Population as in 2011		:	56337
3	Population Growth Rate as in 2011 (%)		:	25.49
4	Total Number of Wards		:	19
5	Population per Ward (Thousands)		:	2965
6	Total Number of Household as in 2011		:	11074
7	Number of Household per Ward		:	583
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)		:	500
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)		:	7.61
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135
19	Total Sewage Generation (MLD)*		:	6.08
20	Per Capita Sewage Generation (lpcd)		:	108
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	1
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	9
25	Current Utilized Capacity of STPs (MLD)		:	5.9
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	:	1521.1
		COD	:	2585.9
		TKN	:	304.2
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
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) Data Sheet				
City: Gohana		**State: Haryana**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	11.51
2	Population as in 2011		:	65708
3	Population Growth Rate as in 2011 (%)		:	35.39
4	Total Number of Wards		:	21
5	Population per Ward (Thousands)		:	3,129
6	Total Number of Household as in 2011		:	12477
7	Number of Household per Ward		:	594
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)		:	500
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)		:	8.87
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	7.10
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1774.1
		COD	:	3016.0
		TKN	:	354.8
30	Wastewater Disposal Means		:	River 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) Data Sheet				
City: Hodal			**State: Haryana**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.39
2	Population as in 2011		:	50143
3	Population Growth Rate as in 2011 (%)		:	30.89
4	Total Number of Wards		:	17
5	Population per Ward (Thousands)		:	2,950
6	Total Number of Household as in 2011		:	8579
7	Number of Household per Ward		:	505
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)		:	500
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)		:	6.77
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135
19	Total Sewage Generation (MLD)*		:	5.42
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1353.9
		COD	:	2301.6
		TKN	:	270.8
30	Wastewater Disposal Means		:	River 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) Data Sheet				
City: Narnaul		**State: Haryana**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.67
2	Population as in 2011		:	74581
3	Population Growth Rate as in 2011 (%)		:	20.14
4	Total Number of Wards		:	23
5	Population per Ward (Thousands)		:	3,243
6	Total Number of Household as in 2011		:	13990
7	Number of Household per Ward		:	608
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)		:	500
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)		:	10.07
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135
19	Total Sewage Generation (MLD)*		:	8.1
20	Per Capita Sewage Generation (lpcd)		:	108
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2013.7
		COD	:	3423.3
		TKN	:	402.7
30	Wastewater Disposal Means		:	River 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) Data Sheet				
City: Panipat TarafMakhdumZadgan			**State: Haryana**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.54
2	Population as in 2011		:	67998
3	Population Growth Rate as in 2011 (%)		:	93.42
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	67,998
6	Total Number of Household as in 2011		:	14066
7	Number of Household per Ward		:	14066
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)		:	500
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)		:	9.18
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	7.34
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1835.9
		COD	:	3121.1
		TKN	:	367.2
30	Wastewater Disposal Means		:	River 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

Assessment of Domestic Pollution Load from Urban Agglomeration in Ganga Basin: Uttar Pradesh

GRBMP: Ganga River Basin Management Plan

by

Consortium of 7 "Indian Institute of Technology"s (IITs)

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 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 (GRBMP). 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 GRBMP. 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. A list of persons who have contributed directly and names of those who have taken lead in preparing this report is given on the reverse side.

Dr Vinod Tare
Professor and Coordinator
Development of GRBMP
IIT Kanpur

The Team

1. AAKazmi, IIT Roorkee *kazmifce@iitr.ernet.in*
2. A K Gupta, IIT Kharagpur *akgupta18@rediffmail.com,akgupta@iitkgp.ac.in*
3. A K Mittal, IIT Delhi *akmittal@civil.iitd.ernet.in*
4. A K Nema, IIT Delhi *aknema@gmail.com*
5. Ajay Kalmhad, IIT Guwahati *kajay@iitg.ernet.in*
6. Anirban Gupta, BESU Shibpur *guptaanirban@hotmail.com*
7. Arun Kumar, IIT Delhi *arunku@civil.iitd.ac.in*
8. G J Chakrapani, IIT Roorkkee *gjcurfes@iitr.ernet.in*
9. GazalaHabib, IIT Delhi *gazalahabib@gmail.com*
10. Himanshu Joshi, IIT Roorkee *himanshujoshi58@gmail.com*
11. InduMehrotra, IIT Roorkee *indumfce@iitr.ernet.in*
12. I M Mishra, IIT Roorkee *imishfch@iitr.ernet.in*
13. Ligy Philip, IIT Madras *ligy@iitm.ac.in*
14. M MGhangrekar, IIT Kharagpur *ghangrekar@civil.iitkgp.ernet.in*
15. MukeshDoble, IIT Bombay *mukeshd@iitm.ac.in*
16. P K Singh, IT BHU *dr_pksingh1@rediffmail.com*
17. Purnendu Bose, IIT Kanpur *pbose@iitk.ac.in*
18. R Ravi Krishna, IIT Madras *rrk@iitm.ac.in*
19. Rakesh Kumar, NEERI Nagpur *r_kumar@neeri.res.in*
20. S M Shivnagendra, IIT Madras *snagendra@iitm.ac.in*
21. SaumyenGuha, IIT Kanpur *sguha@iitk.ac.in*
22. Shyam RAsolekar, IIT Bombay *asolekar@iitb.ac.in*
23. SudhaGoel, IIT Kharagpur *sudhagoel@civil.iitkgp.ernet.in*
24. Suparna Mukherjee, IIT Bombay *mitras@iitb.ac.in*
25. T R Sreekrishanan, IIT Delhi *sree@dbeb.iitd.ac.in*
26. Vinod Tare, IIT Kanpur *vinod@iitk.ac.in*
27. Vivek Kumar, IIT Roorkee *vivekfpt@iitr.ernet.in*

Lead Authors

1. Vinod Tare, IIT Kanpur
2. Purnendu Bose, IIT Kanpur
3. Abhishek Gaur, IIT Kanpur
4. Vishal Kapoor, IIT Kanpur
5. Suresh Kr Gurjar, IIT Kanpur
6. Shashikant Patel, IIT Kanpur
7. Ankit Modi, IIT Kanpur

Contents

1. Introduction

Uttar Pradesh has a total area of 240,928sq km which is about 7.33 percent of the total area of the country (Census 2011). It is the fifthlargest state in the country having more than 32 large and small rivers. The state's population of 200 million (as per census 2011 provisional data) is equivalent to the population of Brazil. Based on economic activities, the state can be divided into four regions – Western, Central, Eastern and Bundelkhand. The first three regions fall in the Gangetic plains, while the fourth region lies in the southern part of the state. Uttar Pradesh has a total of 75 districts with Lucknow as its capital.

The Ganga River Basin (GRB) has a total catchment area of 1,086,000 sqkmacross India, Tibet (China), Nepal and Bangladesh. The river basin in India, nearly covers 26% (861,404 sq km; about 80% oftotal catchment area ofGanga river basin) of the total geographical area. The sprawling Ganga basin,spread across 11 states, is the world's most populous river basin and home to more than 492 million Indians. Uttar Pradesh is one of the 11 states (Uttarakhand, Uttar Pradesh, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh, Jharkhand and West Bengal) of the GRB in India through which the Ganga Riverandher tributaries flowapproximately in the direction of North West to South East.The entire geographical area of the state lies in GRB where Ganga River traverses a distance of about 1,140 km (Figures 1 and 2). A comparison of state-wise distribution of GRB area within the geographical areas of different states is presented in Table 1.

Table 1: State-wise Distribution of the Ganga River Basin Area

State/ Union Territory	*Total Geographical Area (sqkm)	#Area contributing to Ganga Basin (sqkm)	Percentage of the Basin Area (%)
Uttarakhand	53,483	53,436	6.2
Uttar Pradesh	**240,928**	**240,928**	**28.0**
Bihar	94,163	94,163	10.9
Jharkhand	79,716	49,798	5.8
Madhya Pradesh	308,252	198,962	23.1
Chhattisgarh	135,192		
Delhi	1,484	1,484	0.17
Haryana	44,212	34,341	4.0
Himachal Pradesh	55,673	4,317	0.5
Rajasthan	342,239	112,490	13.1
West Bengal	88,752	71,485	8.3

Source: *Census 2011; #https://nmcg.nic.in/location.aspx

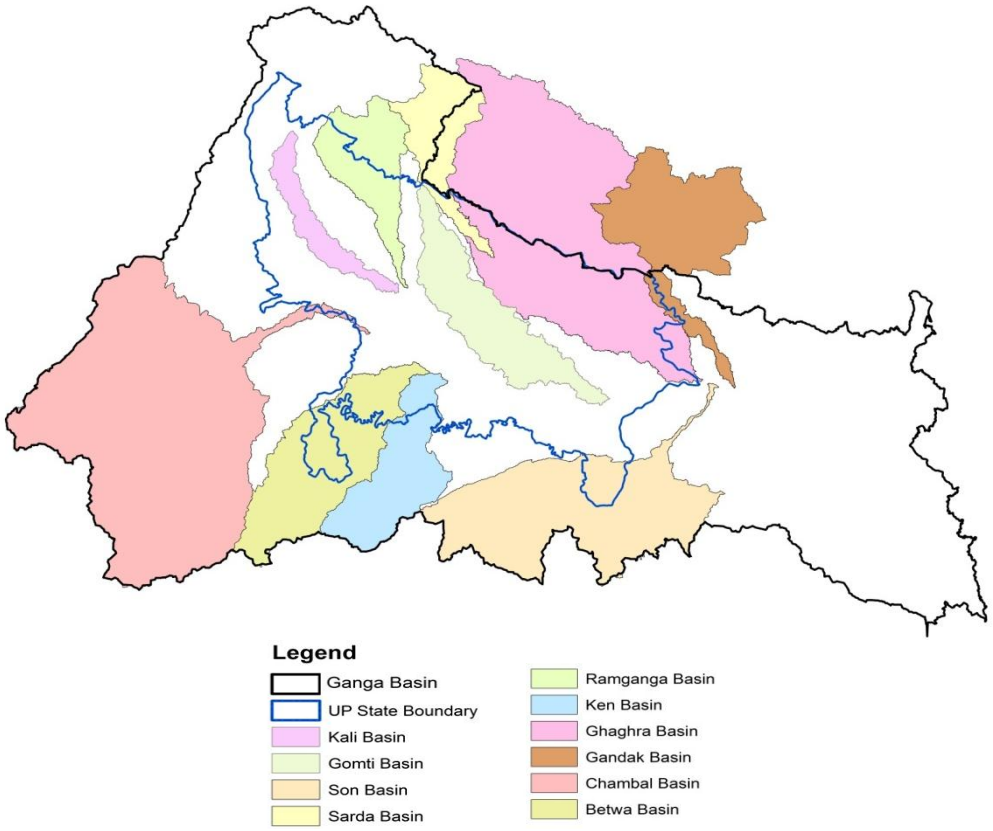

Figure 1: Ganga River Basinwith its Major Sub-Basins within the Indian Territory

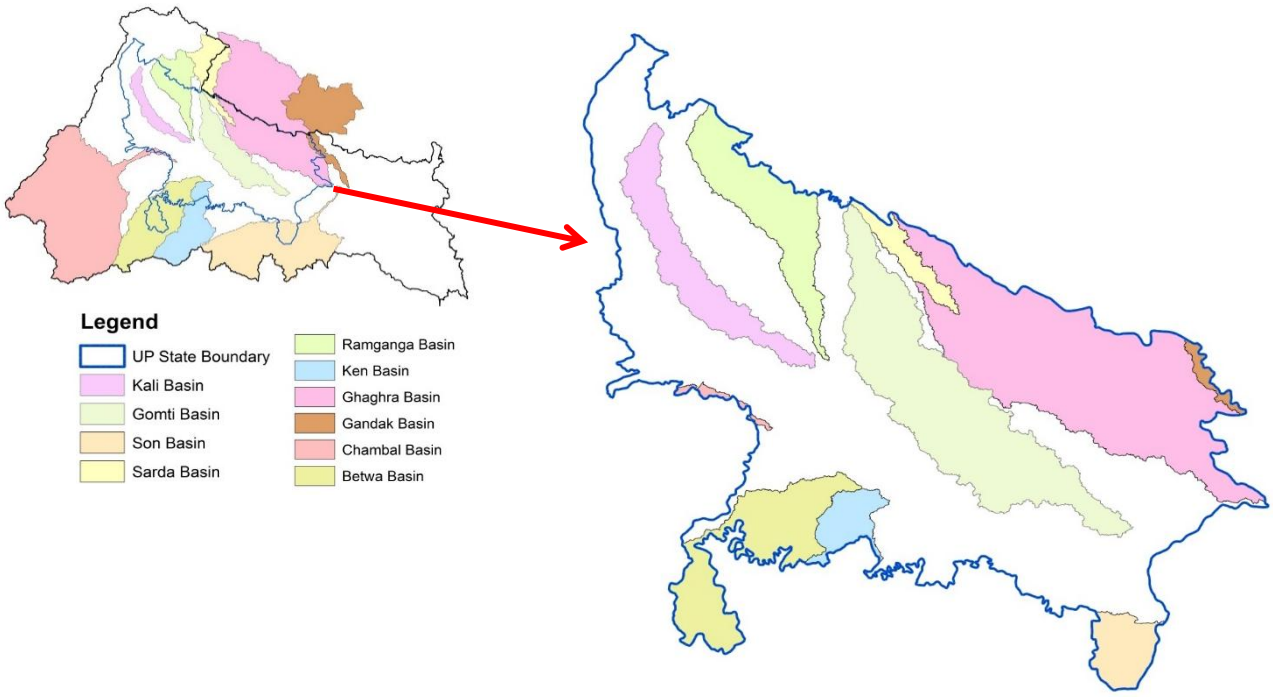

Figure 2: Major Sub-Basins or their Portions under the Ganga River Basin in the State of Uttar Pradesh

River Ganga enters in Uttar Pradesh near Balawali, Bijnorand exits near Ballia before confluence with Ghaghara River.During her course manytributariessuch as

Ramganga,Gomti, Varuna, Ghaghara join Ganga on her left bank, whereas, Assi,Kali, Pandu, Yamuna, Tamas (also known as Tons), and Sone join on the right banks. The entire state of Uttar Pradesh is in GRB, and in terms of catchment area is the largest contributor. The salient features of major tributaries and sub-tributaries contributing directly or indirectly to the river Ganga in the state of Uttar Pradesh are presented in Table 2.

Table 2: Salient Features of Tributaries/ Sub-Tributaries of River Ganga in the State of Uttar Pradesh

	Tributaries/ Sub-tributaries					
Characteristics	**Yamuna**	**Ramganga**	**Ghaghara**	**Gomti**	**Varuna**	**Tamsa/Tamas**
Position	Right bank	Left bank	Left bank	Left bank	Left bank	Right bank
Region of origin	Yamunotri glacier at Bandarpunch, UK	Gairsain of Doodha-Toli ranges, UK	Tibetan Plateau near Lake Mansarovar	GomatTal, Pilibhit, UP	Jhigna Tal (Phulpur Tal) near Allahabad, UP	Kamore hills in Satna district, MP
Mouth	Ganga	Ganga	Ganga	Ganga	Ganga	Ganga
Total length (km)	1376	596	1,080	960	100	264
Total catchment area (sq km)	366,223	22,400	127,950	30,437	-	18,158
Catchment area in U.P. (sq km)	70,437	12,773	43,488	30,437	-	6,184
River bed/ Soil texture	Alluvial about 42% of the basinarea, followed by medium black soil 25.5% and mixed red and black soil 15%	Clay, silt and gravel of various grades	Clay, sand, loam and deep black soil	Sand, silt, clay and occasional kankar bands	Clay, silt, sand and gravel of various grades	Deep black soil, shallow black soil and the mixed red and black soil

Table continued to next page … … …

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	Tributaries/ Sub-tributaries					
Characteristics	**Hindon**	**Chambal**	**Sind**	**Betwa**	**Ken**	**Sharda**
Position	Left bank	Right bank	Right bank	Right bank	Right bank	Right bank
Region of origin	Sivalik hills	North wards slope of the Vindhyan mountains in native state of Indore, MP	North wards slope of the Vindhyan mountains originates at Hatoli District Vidisha, MP	North wards slope of the Vindhyan mountains , MP	North Western slope of the Vindhyan mountains in native state of Bhopal, MP	Kalapani, district Pithoragarh, UK
Mouth	Yamuna	Yamuna	Yamuna	Yamuna	Yamuna	Ghaghara
Total length (km)	400	960	415	590	427	350
Total catchment area (sq km)	7,083	143,219	25,879	47,940	28,058	18,140
Catchment area in U.P. (sq km)	7,083*	452*	748*	14,438*	3,366*	-
River bed	Sand	Stony rapid, sand banks and gravel bars	-	Stones, Sand, Riffle and Pools; Pebbles and Cobble	Rocks, Stones, Sand	-

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

The total catchment area of the major tributaries (Yamuna, Hindon, Ghaghara, Gomti, Betwa, Ramganga,Varuna, Tamas, Kali, Son, Ken, Sharda, Gandak and Chambal) of River Ganga coversnearly78 % of the total area of the state of Uttar Pradesh, while the balance 22 % of the state falls directly in the catchment of the main stem of River Ganga. Yamuna is one of the largest tributaries of river Ganga, having a total catchment area of 366,223 sq km, out of which near about 19-20% lies in Uttar Pradesh, alone covering 29.24% of the geographical area (240,928 sq km) of the state. The total annual average rainfall in the state of Uttar Pradesh is in the order of 1025mm.

2. Major Obstruction and Abstraction Projectson the Tributaries of the River GangaExecutedintheState

The natural flow regime in the river Ganga and hertributaries have been altered due to construction of a number of dams and barrages in the mountainous reaches. The mountainous region of the main stem river Ganga is obstructed due to the ongoing hydroelectric projects *i.e.,*ManeriBhali I, ManeriBhali II, Tehri and Koteshwar. Further downstream, Bhimgauda barrage diverts nearly all water during non-monsoon season to upper Ganga canal through Har kiPauri, Haridwar. As the river enters the state of Uttar Pradesh, further obstacles occur in Bijnor and Narora districts in the form of diversions to Middle orMadhya (Kharif canal) and Lower Ganga Canal, respectively. The Madhya and Lower Ganga Canals have capacities of 290 and 254cumec, respectively. A parallel canal system of 130cumecwas added later by the state of Uttar Pradesh. Substantial portion of the river flow is diverted to support agricultural activities through these canal systems. Further downstream at Kanpur the river is interrupted by Luvkush barrage. This barrage is essentially for meeting the domestic water supplies. The list of the major dams on Ganga River and its tributaries in Uttar Pradesh are mentioned underneath.

Table 3: Details of the Major Dams on the River Ganga and HerTributaries in the State of Uttar Pradesh

Projects	River	Year of Completion	Remark
Adwa Dam	Adwa	1978	Irrigation
Afzalgarh Dam	Ramganga	-	Irrigation
Ahraura Dam	Garai	1955	Irrigation
Arjun Dam	Arjun	1957	Irrigation
Aunjhar Dam	Aunjhar	1930	Irrigation
Bachara Dam	Bacharanala	1980	Irrigation
Baghel Khand Dam	Jamunahwa	1957	Irrigation
Baghla Dam	-	-	Irrigation
Balui Bandh	-	-	Irrigation
Balui Dam	Local	-	Irrigation
Banjari Kalan Dam	Local	-	Irrigation
Barwa Dam	Bora Nala	1967	Irrigation
Barwa Sagar Dam	Barwa Nala	-	-
Barwar Dam	Bora Nala	1923	Irrigation
Barwatola Dam	local nala	1957	Irrigation
BhagwanPur Dam	NaktiNala	1965	Irrigation
Bhainsora Dam	MarhwaNala	1926	Irrigation
Bhonka Dam	Bhonka	1951	Irrigation
Chandra Prabha Dam	Chandraprabha	1966	Irrigation
Chandrawal Dam	Chandrawal	1973	Irrigation
Chittaurgarh Dam	Gambhiri	1985	Irrigation
Deori Dam	Local	1978	Irrigation

Dhandhraul Dam	Son	1917	Irrigation
Dhenkwan Dam	PhatidariNala	1985	Irrigation
Dongia Dam	Garai	1918	Irrigation
Dongri Dam	Pahuj	1986	Irrigation
Ganeshpur Dam	Local nala	-	-
Garhwa Dam	Garhwa	1975	Irrigation
Ghooga Dam	Local	1951	Irrigation
Ghori Dam	Ghori	1915	Irrigation
Girgity Dam	RamsutiaNala	1966	Irrigation
Gointha Dam	Local	1992	Irrigation
Govind Sagar Dam	Shahzad	1953	Irrigation
Gularia Dam	Gularia Stream	1966	Irrigation
Gunta Dam	GuntaNala (Yamuna)	2003	Irrigation
Hinauti Dam	Col Nala	1964	Irrigation
Jaiwanti Dam	Jalwanti	1928	Irrigation
Jamini Dam	Jamni	1973	Irrigation
Jirgo Dam	Jirgo	1958	Irrigation
Jogendra Dam	Jogendra	1970	Irrigation
Kabrai Dam	Mageria	1955	Irrigation
Kachnoda Dam	Sajnam	2012	Irrigation
Kargara Dam	Local	1978	Irrigation
Keolari Dam	Keolari	1966	Irrigation
Khairman Dam	HengaNala	1958	Irrigation
Khandeha Dam	DasrathNala	1929	Irrigation
Khapatia Dam	Borera	1916	Irrigation
Khirihata Dam	Local	1992	Irrigation
Kohar Gaddi Dam	BhabharNala	1930	Irrigation
Kota Dam	Local	1960	Irrigation
KotraKhambha Dam	Harai	1915	Irrigation
Kuba Khurd Dam	Local	1988	Irrigation
Lachura Dam	Dhasan	1910	Irrigation
Lower Khajuri Dam	KuardariNalla	1949	Irrigation
Majhgawan Dam	GunchiNala	1917	Irrigation
Matatila Dam	Betwa	1958	Hydroelectric,Irrigation
Maudaha (Swami Brahmanand) Dam	Birma	2003	Irrigation
Meja Dam	Belan	1987	Irrigation
Moosakhand Dam	Karmnasa	1967	Irrigation
Muirpur Dam	Local	1992	Irrigation
Murtia Dam	Local	1977	Irrigation
Nagwa Dam	Karmanasa	1950	Irrigation
Nanauti Dam	Local	1963	Irrigation

Narson Dam	Narson	1988	Irrigation
Naugarh Dam	Karmnasa	1956	Irrigation
Newari Dam	Local	-	Irrigation
Obra Dam	Rihand	1970	Hydroelectric,Irrigation
Ohen Dam	Ohan	1961	Irrigation
Pachwara Lake Dam	Local	1694	Irrigation
Pahari Dam	Dhasan	1912	Irrigation
Pahuj Dam	Pahuj	1909	Irrigation
Patharai Dam	Pathari and Sukhnai (Tributary of Dhasan)	2002	Irrigation
Pili Dam	Pili	1968	Irrigation
Ragura Dam	Local	1976	Irrigation
Raipura Dam	Arjun nala	1930	Irrigation
Rajghat Dam	Betwa	2000	Hydroelectric,Irrigation,Water Storage
Rajkhar Dam	Local stream	1957	Irrigation
Rampur Dam	GoinghawaNala	1958	Irrigation
Rampur Kalyangarh Dam	Local	1925	Irrigation
Rampur PindariaDam(Tandadari Tal)	Local	1974	Irrigation
Rihand Dam	Rihand	1962	Hydroelectric,Irrigation
Rohini Dam	Rohini	1983	Irrigation
Sajnam Dam	Sajnam	1990	Irrigation
SakteshGarh Dam	Local	1989	Irrigation
Salarpur Dam	Kardia	1960	Irrigation
Saprar Dam	Saprar	1952	Irrigation
Sarai Garh Dam	Local	1970	Irrigation
Sarda Sagar Dam	Sharda	1962	Irrigation
Semri Dam	Local	1989	Irrigation
Shahjad Dam	Shahjad	1992	Irrigation
Siori Lake Dam	Siori	1911	Irrigation
Sirsi Dam	BakharNala	1958	Irrigation
Sukhra Dam	SukharaNala	1909	Irrigation
Suswar Dam	local	-	Irrigation
Upper Khajuri Dam	Chandauli and Shibati	1958	Irrigation
Urmil Dam	Urmil	1994	Irrigation
Vijaipur Dam	Local	1983	Irrigation

(Source: India-WRIS WebGIS)

3. Demographic Profile of Ganga Basin in the State

Uttar Pradesh in total has 63 Class I cities, 59 Class II townsand232 Class III townsin catchment of Ganga River as per estimate based on Census-2011.The total population of the state according to the Census 2011 isapproximately 200 million. The population density in the state is about 828 people per square kilometer. Some of the Class I cities are Agra, Aligarh, Allahabad, Ballia, Bareilly, Etawah, Farrukhabad, Gorakhpur, Ghaziabad, Greater Noida, Lucknow, Kanpur, Mathura, Meerut, Raibareilly, Varanasi and Sitapur.Among all the cities Kanpur, Lucknow and Ghaziabad are the most populated class I cities having more than 2 million residents each, according to the Census 2011. The percent urban population in the state is 22.27% in 2011 (Census-2011).In the state, 16.72% and 0.92% of the population live in the Class I cities and Class II towns situated along the main stem of river Ganga. The population cover along the main stem of river Yamuna is lesser for Class I cities (11.22%) while for Class II towns (1.5%) it is greater than that of cities/towns on the main stem of river Ganga.The overall share of Class III town's population in the state is 18.01%.The population residingin major sub-basins lying in the state has also been estimated for both Class I and Class II cities/ towns. The largest such population is harboured in Gomti Basin (Class I: 9.66%)andthe least is in Ken Basin (Class I: 0.42%). The least population of Class II town also belongs to Ken basin (0.25%) while maximum belongs to Kali basin (1.36%). The total population residing outside the selected sub-basins for Class I cities and Class II towns in the state is 18.77%. Figure 3 shows the population distribution of Class I cities, Class II and III towns in the major sub-basins of river Ganga in the state and along the main stem of the river Ganga and Yamuna. Maps in Figures 4 and 5 show the distribution of Class I cities and Class II towns in the state under Ganga River 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 4-6, respectively. The average population of class I town in the state is 0.4 million which are approximately six times and fifteen times higher than the population of class II and class III towns, respectively. Lucknow is the highest populated class I city having population of the order of 2.8 million while Kasganj is the least populated (0.1 million) class I city. Deoband and Baghpat are the cities having maximum and minimum population under class II towns, contains 0.09 and 0.05 million, respectively. In class III towns where the population is less than 0.05 million, the maximum population is in Padrauna town (0.049 million) while the minimum is in MungraBadshahpur (0.02 million).

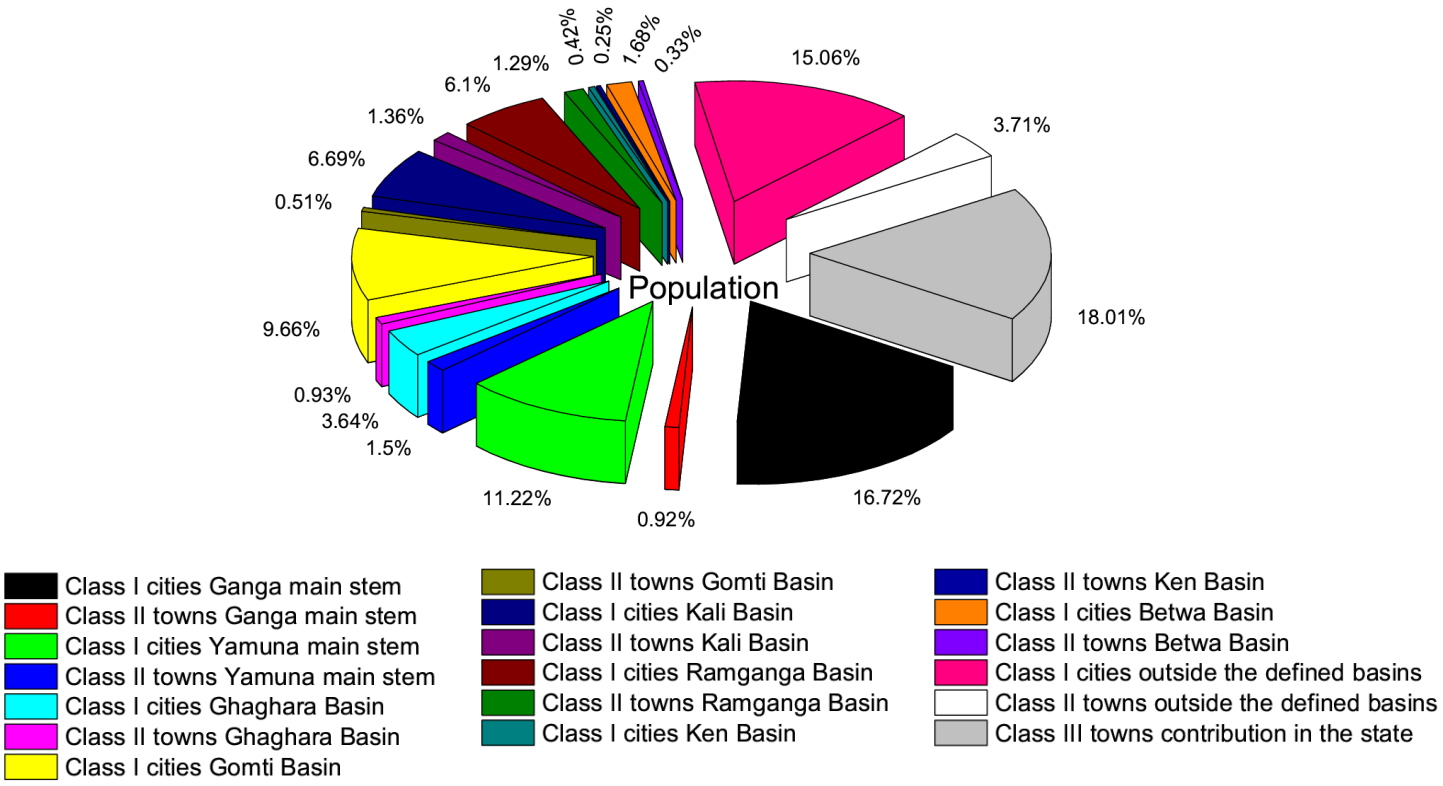


Figure 3: **Population Distribution of Class I Cities and Class II, Class III Towns in the Major Sub-Basins of River Ganga in the State and Along the Main Stem of the River Ganga and Yamuna**

Table 4: Demography of Class I Cities in Portion of the Ganga Basin Lying in the State of Uttar Pradesh

S No.	Town Name	River System	Area (sq km)	Town Population (Census 2011)
1	Agra	Yamuna River	120.6	1,585,704
2	Akbarpur	Tamsa River	72.5	111,447
3	Aligarh	Yamuna River	40.4	874,408
4	Allahabad	Ganga & Yamuna River	70.1	1,168,385
5	Amroha	Gangan River	9.0	198,471
6	Azamgarh	Tamsa River	12.7	110,983
7	Bahraich	Saryu River	13.3	186,223
8	Ballia	Ganga River	16.0	104,424
9	Banda	Ken River	16.0	160,473
10	Baraut	Yamuna River	10.4	103,764
11	Bareilly	Ramganga River	106.4	904,797
12	Basti	Kuwano River	19.5	114,657
13	Budaun	Shot River	6.1	159,285
14	Bulandshahr	Kali River	37.0	230,024
15	Chandausi	Shot River	8.8	114,383
16	Deoria	Kurna River	16.2	129,479
17	Etah	Ishan River	13.5	118,517
18	Etawah	Yamuna River	28.9	256,838
19	Faizabad	Sai River	16.0	165,228
20	Farrukhabad-cum-Fatehgarh	Ganga River	19.1	276,581
21	Fatehpur	Yamuna River	57.0	193,193
22	Firozabad	Yamuna River	21.4	604,214
23	Ghaziabad	Yamuna &Hindon	220.0	1,648,643
24	Ghazipur	Ganga River	18.3	121,020
25	Gonda	Teri River	24.6	114,046
26	Gorakhpur	Rapti River	141.0	673,446
27	Greater Noida	Yamuna River	20.0	102,054
28	Hapur	Kali River	14.2	262,983
29	Hardoi	Saie River	6.4	197,029
30	Hathras	Karvan River	6.8	143,020
31	Jaunpur	Gomti &Sai River	25.3	180,362
32	Jhansi	Betwa River	150.0	505,693
33	Kanpur	Ganga & Pandu	266.7	2,768,057
34	Kasganj	Kali River	7.5	101,277
35	Khora	Hindan River	4.3	190,005
36	Khurja	Kali River	16.7	121,207
37	Lakhimpur	Ull River	10.0	151,993
38	Lalitpur	Betwa River	17.4	133,305

39	Loni	Yamuna River	34.5	516,082
40	Lucknow	Gomti River	348.8	2,817,105
41	Mainpuri	Ishan River	7.0	136,557
42	Mathura	Yamuna River	28.1	349,909
43	MaunathBhanjan	Tauns/Tamsa River	39.0	278,745
44	Meerut	Kali River	141.9	1,305,429
45	Mirzapur-cum-Vindhyachal	Ganga River	38.9	234,871
46	Modinagar	-	14.0	130,325
47	Moradabad	Ramganga &Gangan River	75.0	887,871
48	Mughalsarai	Ganga River	16.6	109,650
49	Muzaffarnagar	Kali River	12.0	392,768
50	Noida	Yamuna River	92.1	637,272
51	Orai	Betwa River	23.2	190,575
52	Pilibhit	Devha River	10.0	127,988
53	Rae Bareli	Saie River	50.1	191,316
54	Rampur	Kosi River	20.2	325,313
55	Saharanpur	Dhamola River	46.7	705,478
56	Sambhal	Ganga River	15.7	220,813
57	Shahjahanpur	Khanaut&Garra River	11.4	329,736
58	Shamli	Yamuna River	26.2	107,266
59	Shikohabad	Yamuna River	8.5	107,404
60	Sitapur	Sarayan River	35.0	177,234
61	Sultanpur	Gomti River	12.0	107,640
62	Unnao	Ganga River	21.5	177,658
63	Varanasi	Ganga &Varuna River	82.1	1,198,491

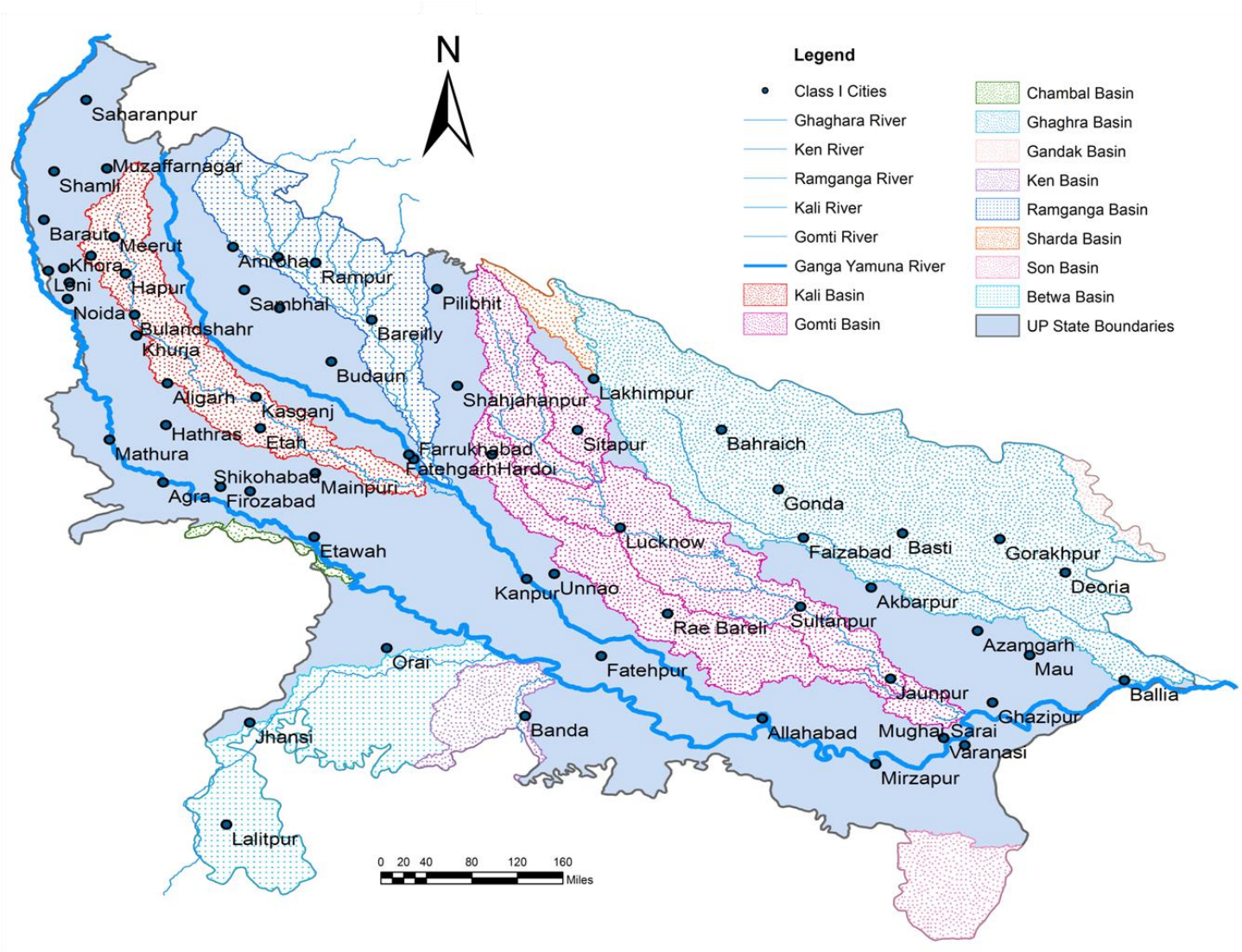


Figure 4: Class I Cities in the State of Uttar Pradesh under Ganga River Basin

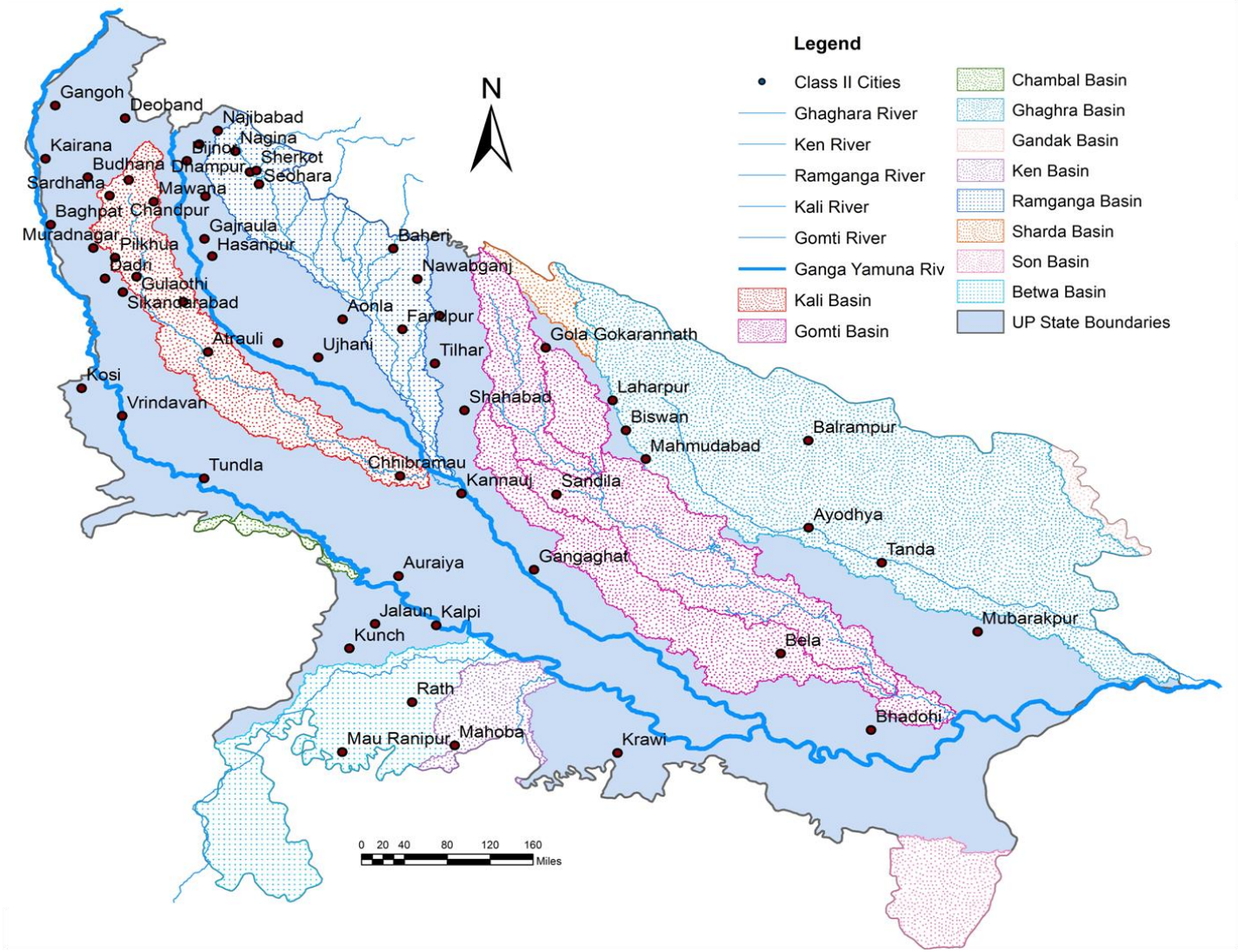


Figure 5: Class IITowns in the State of Uttar Pradesh under Ganga River Basin

Table 5: Demography of Class II Towns in Portion of the Ganga River BasinLyingin the State of Uttar Pradesh

S No.	Town Name	River System	Area (sq km)	Town Population (Census 2011)
1	Aonla	Ramganga River	15.0	55,629
2	Atrauli	Kali River	16.3	50,412
3	Auraiya	Yamuna River	9.0	87,736
4	Ayodhya	Ghaghra River	10.2	55,890
5	Baghpat	Yamuna River	2.8	50,310
6	Baheri	Gaula River	6.0	68,413
7	Balrampur	Rapti River	36.3	82,488
8	Bela Pratapgarh	Saie River	12.0	76,133
9	Bhadohi	Varuna River	8.0	94,620
10	Bijnor	Ganga River	3.6	93,297
11	Bisalpur	Katna&Devha River	3.0	73,551
12	Biswan	Ull River	7.8	55,780
13	Budhana	Kali River	7.6	53,722
14	Chandpur	Ganga River	23.4	83,441
15	Chhibramau	Yamuna River	11.0	60,986
16	Chitrakoot Dham (Karwi)	Mandakini River	7.8	57,402
17	Dadri	-	6.5	91,189
18	Deoband	-	7.9	97,037
19	Dhampur	Khoh River	3.9	50,997
20	Faridpur	Ramganga River	9.4	78,249
21	Gajraula	Ganga River	14.2	55,048
22	Gangaghat	Ganga River	4.9	84,072
23	Gangoh	Buriyamuna River	6.0	59,279
24	Gola Gokaran Nath	Gomti River	10.0	60,172
25	Gulaothi	Ganga River	2.2	50,823
26	Hasanpur	Bagad River	5.7	61,243
27	Jahangirabad	-	14.5	59,858
28	Jalaun	Betwa River	6.3	56,909
29	Kairana	Yamuna River	7.1	89,000
30	Kalpi	Yamuna River	9.7	51,670
31	Kannauj	Kali River	14.9	84,862
32	Khatauli	Ganga River	3.8	72,949
33	Kiratpur	Malini River	6.5	61,946
34	Konch	Betwa River	3.0	53,412
35	Kosi Kalan	Yamuna River	4.5	60,074
36	Laharpur	Ull River	13.0	61,990
37	Mahmudabad	Gomati River	12.8	50,777
38	Mahoba	Ken River	12.2	95,216
39	Mauranipur	Sukhnai River	5.5	61,449

40	Mawana	Ganga River	7.5	81,443
41	Mubarakpur	Tamsa River	9.0	70,463
42	Muradnagar	Hindan River	12.0	95,208
43	Nagina	Gangan&Padhoi River	10.3	95,246
44	Najibabad	Malin River	5.1	88,535
45	Nawabganj	Ramganga River	3.6	81,486
46	Pilkhuwa	-	5.3	83,736
47	Rath	Betwa River	8.1	65,056
48	Sahaswan	Ganga River	7.5	66,204
49	Sandila	Sai River	24.6	58,346
50	Sardhana	Hindan River	5.0	58,252
51	Seohara	Ramganga River	2.7	53,296
52	Shahabad	Garra River	9.7	80,226
53	Sherkot	Khoh River	6.0	62,226
54	Sikandrabad	Yamuna River	1.1	81,028
55	Tanda	Ghaghra River	10.5	95,516
56	Tilhar	Ramganga River	3.5	61,444
57	Tundla	Yamuna River	8.3	50,423
58	Ujhani	Ganga River	6.5	62,039
59	Vrindavan	Yamuna River	13.5	63,005

Table 6: Demography of Class IIITowns in Portion of the Ganga Basin Lying in the State of Uttar Pradesh

S No.	Town Name	River System	Area (sq km)	Town Population (Census 2011)
1	Achhnera	Bandi	8.0	22,781
2	Afzalgarh	PurviNayar	6.8	29,101
3	Ahraura	Ganga	4.8	24,967
4	Akbarpur	Ganga	5.0	20,445
5	Aliganj	Gomti	1.6	28,396
6	Allapur	Ghaghara	7.8	23,985
7	Amilo	Ghaghara	3.7	30,339
8	Anupshahr	KaaliNadi	5.6	29,087
9	Atarra	Nahar	10.0	47,419
10	Aurangabad	Ganga	3.0	26,544
11	BabarpurAjitmal	Yamuna	5.0	29,284
12	Bachhraon	Ganga	9.5	31,101
13	Bahjoi	Ganga	8.0	37,037
14	Bakshi Ka Talab	Gomti	41.9	49,166
15	Banat	Eastern Yamuna	2.9	20,728
16	Bangarmau	Ganga	3.5	44,204
17	Banki	Betwa	4.3	21,317
18	Bansdih	Basanhi	3.5	21,201
19	Bansi	Rapti	13.0	41,057
20	Barel	Gomti	5.0	27,207
21	Barhalganj	Ghaghara	6.0	21,290
22	Barua Sagar	Barwa Sagar	5.9	25,028
23	Behat	Yamuna	4.0	20,474
24	Belthara Road	Ghaghara	11.5	20,404
25	Bewar	Virma	9.0	23,729
26	Bhargain	Old Ganga	4.0	21,891
27	Bharthana	Yamuna	6.0	44,120
28	Bhinga	Rapti	5.5	23,780
29	Bhogaon	Yamuna	4.3	30,874
30	BhojpurDharampur	Ramganga	4.5	31,305
31	Bidhuna	Ramganga	10.0	32,252
32	Bilari	Ramganga	3.5	37,567
33	Bilaspur	Ramganga	20.0	43,908
34	Bilgram	Ganga	5.0	29,768
35	Bilhaur	Isan	3.0	20,493
36	Bilsi	Sot	13.6	26,604
37	Bindki	Chhoti Nahar	3.9	36,926
38	Bisauli	-	5.7	32,780

39	Chandauli	Ganga	5.8	23,020
40	Charkhari	-	5.0	27,760
41	Charthawal	-	8.8	20,653
42	ChharraRafatpur	-	18.6	21,146
43	Chhata	-	14.0	23,537
44	Chitbara Gaon	Tamsa	6.0	21,879
45	Chunar	Ganga	14.0	37,185
46	Colonelganj	Ganga	1.8	29,435
47	Dasna	Hindon	3.3	34,914
48	Dataganj	Ganga	6.0	26,244
49	Deoranian	-	5.0	20,815
50	Dhanauli	Yamuna	7.1	28,990
51	Dhanaura	-	4.7	30,007
52	Dhanipur	Ganga	1.5	20,511
53	DhauraTanda	-	6.0	23,727
54	Dhaurehra	-	5.2	24,518
55	Dibai	Ganga	2.3	39,818
56	Dibiyapur	Lower Ganga	10.0	27,237
57	Domariyaganj	Rapti	12.0	30,698
58	Etmadpur	Yamuna	4.0	21,897
59	Fatehabad	Yamuna	6.0	23,278
60	FatehganjPashchimi	Gaula	7.0	26,607
61	Fatehpur	Utangan	8.0	35,582
62	Fatehpur Sikri	Utangan	8.0	32,905
63	Ganj Dundawara	Old Ganga	2.6	45,385
64	Garhmukhteshwar	Ganga	32.0	46,077
65	GauraBarhaj	Ghaghara	8.0	36,459
66	Ghatampur	Yamuna	4.0	40,623
67	Ghosi	-	11.0	39,165
68	Ghosia Bazar	Ganga	5.0	20,760
69	Govardhan	Manasi Ganga	8.0	22,756
70	Gunnaur	Bardman	9.0	23,665
71	Gursahaiganj	KaaliNadi	16.0	46,060
72	Gursarai	-	2.2	26,869
73	Hamirpur	Betwa & Yamuna	3.9	35,475
74	Handia	-	5.4	21,798
75	Hargaon	Sarda	4.1	20,920
76	Hastinapur	Ganga	7.6	26,452
77	Renukoot	Renu	5.0	41,792
78	Islamnagar	-	18.3	31,022
79	Jais	-	0.8	26,735
80	Jalalabad (Muzaffarnagar)	-	4.1	27,921
81	Jalalabad (Bijnor)	-	1.2	20,360

82	Jalalabad (Shahjahanpur)	Ramganga	9.0	38,202
83	Jalali	Ganga	17.6	20,238
84	Jalalpur	-	0.3	31,972
85	Jalesar	-	3.7	38,130
86	Jaswantnagar	Sarsa	5.8	28,164
87	Jewar	Yamuna	18.2	32,269
88	Jhalu	Eastern Ganga	4.0	20,978
89	Jhinjhak	Lower Ganga	5.4	24,027
90	JhusiKohna	Ganga	2.0	20,023
91	Kabrai	Ken	4.0	28,564
92	Kaimganj	-	2.0	34,384
93	Kakrala	-	2.6	37,986
94	Kandhla	-	6.0	46,796
95	Kanth (Moradabad)	Ramganga	0.8	26,381
96	Kanth (Shahjahanpur)	Garra	6.8	27,137
97	Kaptanganj	ChhotiGandakNadi	10.0	23,526
98	Karhal	-	9.6	27,701
99	Katra	Garra	4.0	32,440
100	Katri Piper Khera	Ganga	3.3	26,475
101	Kemri	-	14.0	28,698
102	Khaga	Pakka Talab	16.0	35,637
103	Khair	KarbanNadi	15.5	35,751
104	Khairabad	-	9.0	48,538
105	Khalilabad	-	7.0	47,847
106	Khamaria	-	5.0	25,929
107	Khekada	-	8.0	48,676
108	Kheragarh	Utangan	3.0	21,470
109	Kheri	Sarda	5.0	33,355
110	Khurja Rural	-	9.7	21,383
111	Kiraoali	-	5.0	23,788
112	Kithaur	-	4.0	27,933
113	Kopaganj	ChhotiSaryu	7.7	34,782
114	Kora Jahanabad	Rind	3.1	26,359
115	Kukra	-	4.5	29,454
116	Kul Pahar	-	2.8	20,096
117	Kunda	Duar	10.0	27,179
118	Kundarki	-	3.5	29,951
119	Kuraoali	-	12.6	24,969
120	Kushinagar	ChhotiGandak	21.0	22,214
121	Lal Gopalganj Nindaura	Sharda	12.7	28,288
122	Lalganj	Ganga	4.1	23,124
123	Lar	ChhotiGandakNad	10.0	28,307

		i		
124	Lawar	Ganga	8.0	22,024
125	Lohta	-	1.2	25,596
126	Machhlishahr	-	2.4	26,107
127	Maharajganj	Sarua	18.0	33,930
128	Maholi	-	4.3	21,331
129	MajharaPiparAhatmali	Ganga	2.6	25,310
130	Majhauliraj	ChhotiGandakNadi	10.6	20,818
131	Mallawan	Ganga	11.8	36,915
132	Mandawar	Malini	3.0	21,078
133	Mariahu	Sharda	4.4	22,778
134	Maudaha	-	6.1	40,003
135	Mehdawal	-	3.0	27,897
136	Milak	-	11.0	30,553
137	Miranpur	Ganga	8.0	29,283
138	MograBadshahpur	-	2.5	20,004
139	Mohammadabad (Farrukhabad)	Ganga	10.0	24,687
140	Mohammadabad (Ghazipur)	-	6.4	38,328
141	Mohammadi	Ganga	10.0	44,968
142	Mohenpur		2.7	21,812
143	Mughalsarai Railway Settlement	-	15.0	20,441
144	Muhammadabad	Ganga	12.0	41,780
145	Nakur	Yamuna	6.3	22,712
146	Nanauta	Eastern Yamuna	4.0	22,551
147	Nanpara	Babai	2.0	48,337
148	Naraura	Ganga	7.2	22,775
149	Naugawan Sadat	Preshak Nahar	5.6	32,954
150	Nautanwa	-	8.0	33,753
151	Nawabganj	Ghaghara	2.2	39,241
152	Nehtaur	Ganga	8.0	47,834
153	Noorpur	-	1.6	38,806
154	Northern Railway Colony	Ganga	4.7	20,916
155	NyoriaHusainpur	Sharda	6.1	21,812
156	Obra	Rihand	16.0	46,574
157	Padrauna	Bansi	6.9	49,723
158	Pahasu	Kaali	20.0	20,672
159	Pakbara	Ganga	4.0	26,728
160	Paliya Kalan	Sarda	12.0	41,126
161	Parasi	Rihand	3.0	23,966
162	Phulpur	Ganga	2.6	22,998

163	Phulwaria	Varuna	2.1	20,466
164	Pihani	Sai	5.0	36,014
165	Powayan	Gomati	15.0	28,613
166	Pukhrayan	Yamuna	15.0	24,258
167	Puranpur	Gomati	4.0	40,007
168	Purdilnagar	-	12.0	21,885
169	Purquazi	Upper Ganga	4.9	29,041
170	Purwa	-	3.7	24,467
171	Ramnagar	Ganga	3.6	49,132
172	Rampur Maniharan	Eastern Yamuna	2.0	27,979
173	Rasra	Tamsa	6.0	31,765
174	Rasulabad	Ganga	8.0	22,196
175	Raya	Yamuna	7.0	21,344
176	Renukoot	Renu	2.0	20,076
177	Reoti	Ghaghara	4.1	26,359
178	Richha	-	1.7	20,977
179	Rudauli	Ghaghara	8.0	43,091
180	Rudrapur	-	16.0	34,014
181	Sadabad	Karwan	4.0	40,926
182	Safipur	Rani Taal	8.5	25,688
183	Sahanpur	-	2.0	21,639
184	Sahaspur	-	1.8	24,463
185	Sahatwar	Ghaghara & Ganga	5.6	20,615
186	Sahawar	Ganga	6.8	24,067
187	Sahjanwan	Rapti	25.0	32,886
188	Saidpur	Ganga	5.2	24,338
189	Salempur	ChhotiGandak	4.0	21,124
190	Samdhan	Kaali Nadi	10.3	31,479
191	Samthar	Pahuj	4.0	22,455
192	Sandi	Ghagra	12.0	26,007
193	Sarwat	KaaliNadi	6.9	24,846
194	Sewalkhas	Upper Ganga	4.0	24,882
195	Sewarhi	Bansi	8.0	23,077
196	Shahabad	Ganga	15.0	38,276
197	Shahbudinpur	Pathrala&BoliNadi	4.7	25,157
198	Shahganj	-	4.0	26,556
199	Shahpur	Lower Ganga	2.6	20,154
200	Shamsabad (Farrukhabad)	Ganga	4.0	28,454
201	Shamsabad (Agra)	Yamuna	6.0	33,144
202	Shikarpur	KaaliNadi	9.0	37,969
203	Shishgarh	-	6.0	25,815
204	Siana	Ganga	5.2	44,415

205	Siddharthnagar	Tinaau	9.0	25,422
206	Sidhauli	-	12.0	24,976
207	Sikanderpur	Yamuna	6.5	23,986
208	Sikandrarao	Rehtom	2.8	46,038
209	Sirauli	Utangan	2.2	23,650
210	Sirsaganj	-	2.1	32,098
211	Sirsi	Ganga	3.4	26,519
212	Siswa Bazar	Gandak	8.0	20,963
213	Sonbhadra	Sone	3.5	36,689
214	Soron	Kali	1.0	27,468
215	Suar	Kosi	4.0	32,158
216	Sumerpur	Betwa	7.5	39,132
217	Tambaur-cum-Ahamdabad	-	1.5	26,052
218	Tanda	Ghaghara	9.1	48,059
219	Thakurdwara	-	10.0	44,255
220	Thana Bhawan	-	1.1	36,669
221	ThiriyaNizamat Khan	-	3.6	23,184
222	Tirwaganj	-	6.0	24,082
223	Tulsipur	West Rapti	2.1	24,488
224	Ujhari	-	4.5	24,488
225	Uska Bazar	Dano	10.0	24,444
226	Utraula	Rapti	4.5	36,145
227	VillimarKundi	-	30.7	21,082
228	Walidpur	Upper Ganga	6.2	25,589
229	Warhapur	Khoh	1.5	23,456
230	Wazirganj	Saryu	10.2	21,844
231	Zaidpur	Kosi	2.5	34,443
232	Zamania	Ganga	9.4	33,243

4. Religious Places and Their Importance

Uttar Pradesh, a state in the Gangetic basin, is home to many holy places, marked with the presence of sages, seers, devotees and mystics. Varanasi, Allahabad, Mathura, Vrindavan, Ayodhya, Garhmuketswar and Chitarkoot are major holy cities for Hindus,whileKushinagar and Sarnath are important Buddhist places and Agra-Fatehpur Sikri, Lucknow-Unnao and Aligarh host major Muslim pilgrimage sites. Hordes of pilgrims and devotees visit these places of pilgrimage every year and participate in festivals.

Varanasi, also known as Kashi and Benaras, is the cultural capital of India and famous forspiritualism, mysticism, Hinduism and Indian philosophy. It is one of the most ancient citiesin the world and home to several Hindu temples, ashrams and ghats, which are important pilgrimage sites for visitors.Ghatsat the river banks are undoubtedly an important

asset of the city. Varanasi has 87 ghats and most of them are used for bathing and religious ceremonies, while 2 ghats (ManikarnikaGhat and the Harishchandra Ghat)are used exclusively for cremation activities. Varanasi is also rich in Buddhist Stupas and Jain temples.

Allahabad/Prayagraj is an ancient pilgrim sitelocated at the confluence of River Ganga, Yamuna and the mythicalSaraswati and plays a central role in Hindu scriptures. Sangam, the three rivers' convergence point, is the venue of many sacred fairs and rituals since ancient times which attract thousands of pilgrims to take a holy dip throughout the year.Amongthe majorfestivals and fairs at the site, the Kumbh Melais one of the greatest Indian cultural and religious fair. Magh Mela is another fair that is held annually in the month of Magh (mid January to Mid February).

Mathura and Vrindavan arethe most important places of pilgrimage for devotees of Lord Krishna.These ancient towns witness numerous mesmerizing temples of various ages and the stretch of the sacred Yamuna River which flows past here is lined with 25 ghats. Govardhan, Barsana, Gokul, Nandgaon, Mahavan, Baldeo and Chhatikara are some of the popular places.Mathurawas earlier a Buddhist center before Hinduism rose to prominence.

Ayodhya is an ancient spiritual city for followers of epic hero Lord Rama, located on the right bank of SarayuRiver. Ayodhya also shows cultural influence of Buddhism, Jainism and Islam. However, its history and heritage hold an unequivocal importance for Hindus.ImmenseHoly Spirit of the city with numerous temples of various ages and pilgrimage sites attracts devotees throughout the year.

SarnathandKushinagar are the popular Buddhist pilgrim places in Uttar Pradesh. These ancient cities gain more importance for devotees because Lord Buddha gave his first sermon after becoming "The enlightened one" in Sarnath and delivered his last sermon in Kushinagar. Both cities are home to several ancient stupas and viharas, dating from the 3rdto 5th centuries. These places are also sacred for Jains. Some major religious events and their features have been illustrated in Table 7.

Table 7: Major Religious Events on River Banks in Uttar Pradesh

S No	Religious Events	Place	River Bank	Duration	Period
1	Kumbha Mela	Allahabad	Ganga, Yamuna	January–February	Every twelfth year
2	Ardh Kumbha Mela	Allahabad	Ganga, Yamuna	January–February	Every sixth year
3	Magh Mela	Allahabad	Ganga, Yamuna	January–February	Annual
4	Kartik Poornima	Varanasi	Ganga	November	Annual

5	Krishna Leela	Varanasi	Ganga	October–November	Annual
6	Ganga Dusshera	Varanasi, Allahabad, Kanpur, Garhmukteshwar, Prayag	Ganga	June	Annual
7	Garh Ganga Mela	Garhmuketeshwar	Ganga	November	Annual
8	Bateshwar Fair	Agra	Yamuna	October–November	Annual
9	Ramayan Mela	Chitrakoot	Mandakini	February, March	Annual
10	SawanJhulaMela	Ayodhya	Sarayu	August	Annual

5. 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 centres, discharge from open drain carryingsewage, discharges from the tributaries and discharge of untreated/partially treated wastewater from industrial units are the major point sources that contributetothepollution load in the state. The major cities contributingwastewater discharge of approximately 3,289 MLD through 45 number of drains in river Ganga are in Bijnor, Garhmuketshwar, Gajrola, Babrala, Kannauj, Kanpur, Allahabad and Varanasi (CPCB, 2013). The discharge of wastewater through the state of Uttar Pradesh alone is 54% of the total discharge through the 4 major states (Uttarakhand, Uttar Pradesh, Bihar, and West Bengal) covered under the GRB.

The Central Pollution Control Board (CPCB) and Central Water Commission (CWC) have planned to install13 Real Time Water Quality Monitoring Stations for monitoring in-situ river water quality parameters of the river Ganga and hertributaries (Gomti and Ramganga). Seven stations (at Kannauj, Kanpur, Allahabad, Varanasi, Agra, Moradabad and Lucknow) might be installed in the state of Uttar Pradesh. The report published by CPCB in 2009 revealed that the total sewage generation of class I cities in Ganga basin is 15,305.55 MLD while its treatment capacity is only 32% of the total sewage generation (4,886.28 MLD). The situation gets 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.The sewage treatment capacity is only 8% of the total sewage generation in class II towns in the states under Ganga river basin. The statewise assessment of sewage generation and treatment capacity of class I cities and class II towns under Ganga basin has been presented in Figure 6. The state-wise maximum sewage is generated by class I cities and class II towns of Uttar Pradesh, 3,506.01 and 345.7 MLD, respectively followed by West Bengal, 2,345.21 and 180.42 MLD, respectively.The comparison of the total sewage generation and sewage treatment capacity of the Class I cities and Class II towns of differentstates lying under Ganga basin has been represented in Figure 7. The assessment shows that there is also a massive gap between the generation and treatment capacity in the main stretch of the Ganga. The trends of the data in Uttar Pradesh depicted that the maximum share of sewage generation (81.62%) is from class I cities followed by

class II and III towns, 11.1 and 7.28%, respectively.CPCB in 2013 has identified 64 STPs (Sewage Treatment Plants) under Ganga river Catchment, out of which 8 STPs in Uttar Pradesh having atotal installed capacity of 358 MLD treats waste water of 287 MLD. A single STP was found to be non-operational.

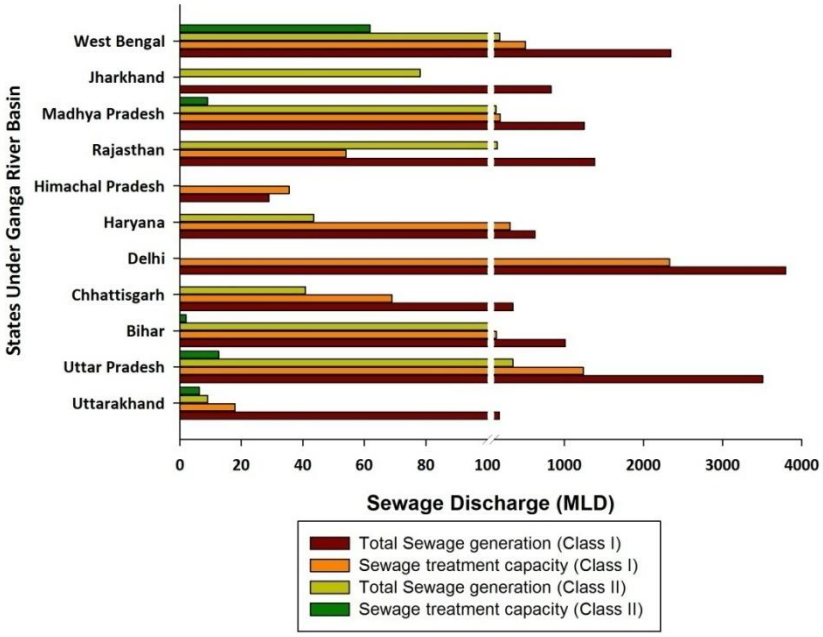


Figure 6: Assessment of Total Sewage Generation (MLD) and Sewage Treatment Capacity of Class I and II Cities in the States under Ganga River Basin

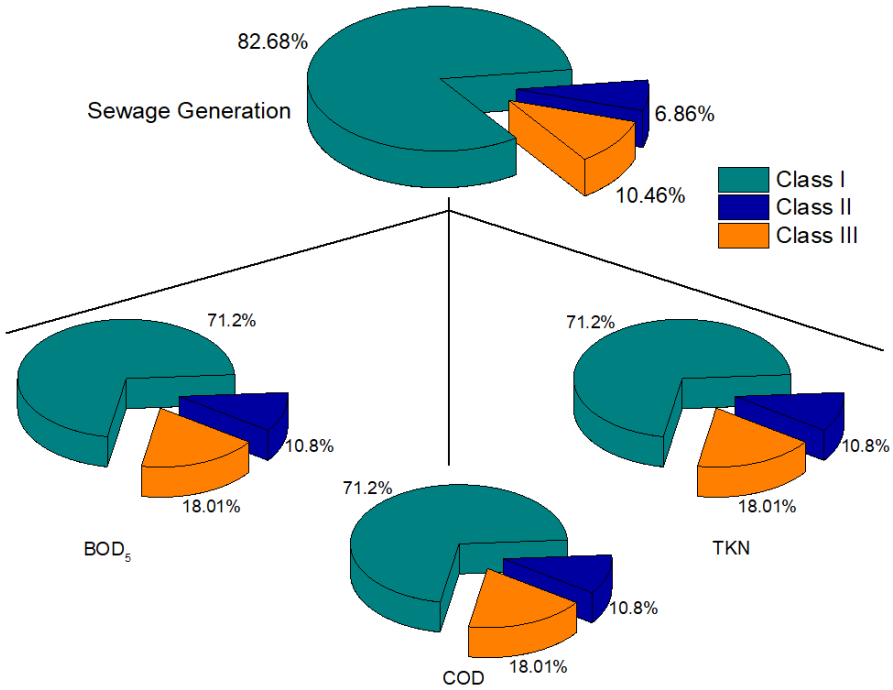


Figure 7: Distribution of Pollution Load of Class I Cities and Class II, Class III Towns in Uttar Pradesh

The pollution load for Class I cities, Class II and III towns have been estimated by the data received through rigorous field survey of almost all the major cities and towns in the state (Figure 7). The maximum sewage generation is in the Class I cities (82.68%) followed by Class III (10.46%) and Class II towns (6.86%). The BOD and COD load for Class I cities, Class II and Class III towns are in the range of 71, 11 and 18%, respectively. The TKN load almost showing the same trend as BOD and COD load. The BOD, COD and TKN load of all the Class I cities, Class II and Class III towns are estimated on per capita basisby using standard values.

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 Greater Noida 1080 MLD, approximately 149% of the municipal water supply. In case of the class II towns the sewage generation in Sikandrabad is maximum 48.79 MLD, approx 800% of its total water supply. ThetotalBODand COD load in tons/dayhas been estimated forClass I towns and its average isapproximately 12.3and20.1tons/day, respectively. The average BOD and COD load from Class II towns is 1.85 and3.14tons/day,respectivelywhereas Class III towns contribute approximately 0.8 tons/dayand1.4tons/day of BOD and COD, respectively. The maximum and minimum BOD, COD and TKNcontributing cities in Class I towns are Lucknow and Orai, respectively. In Class II towns, maximum BOD,COD and TKN loadis from Deoband, whereas minimum isfromBaghpat. In class III towns, maximum and minimum BOD, COD and TKN loadis from PadraunaandMograBadshahpur.Theestimates of total water supply,totalsewage generated, BOD, COD and TKN loads are summarized and illustrated in Figures8a-10bfor 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 loads are presented in Figure 11.

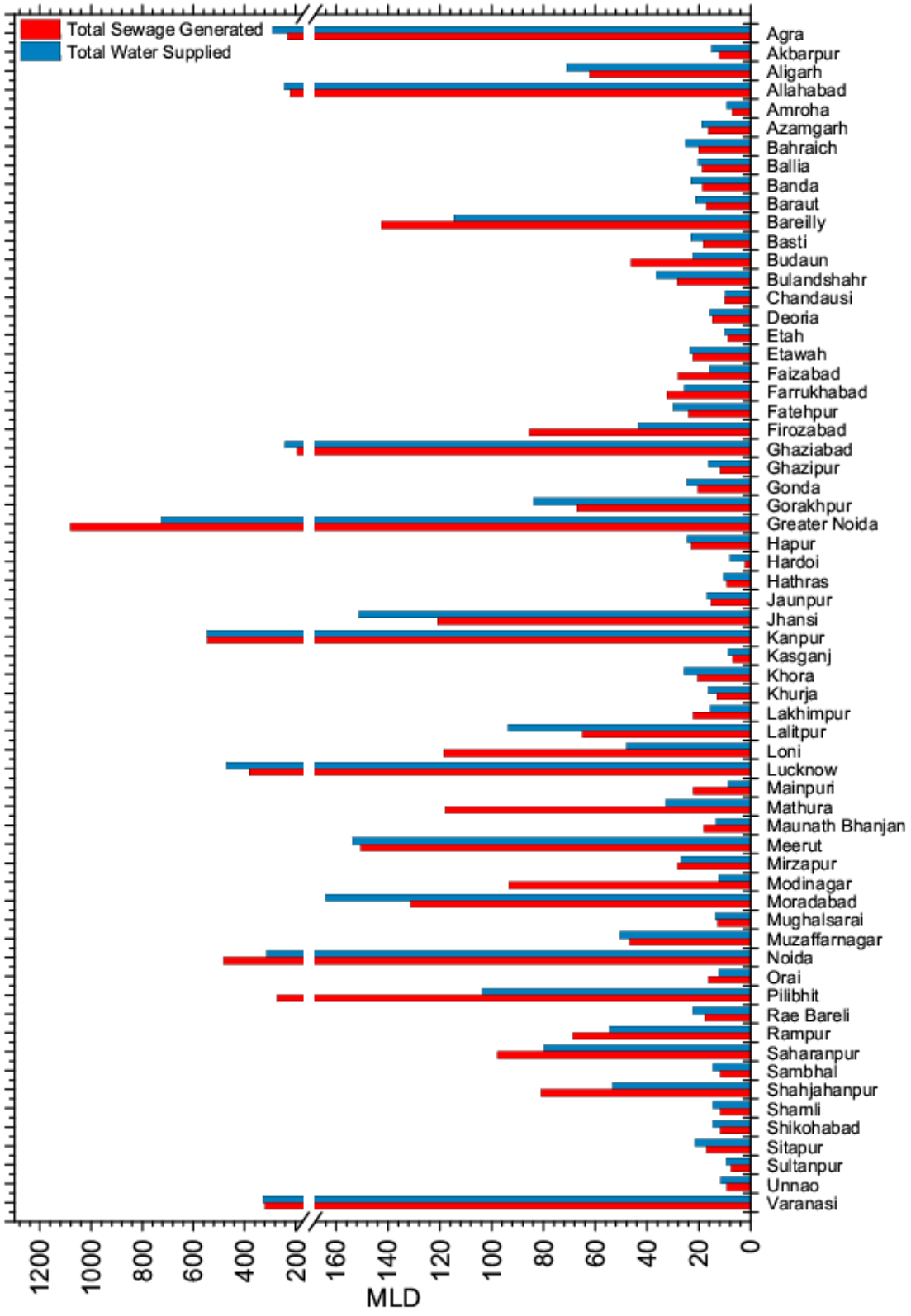


Figure 8a: Assessment of Water Supply and Sewage Generation (MLD) in Class I Cities in the Ganga River Basin Lying in the State of Uttar Pradesh

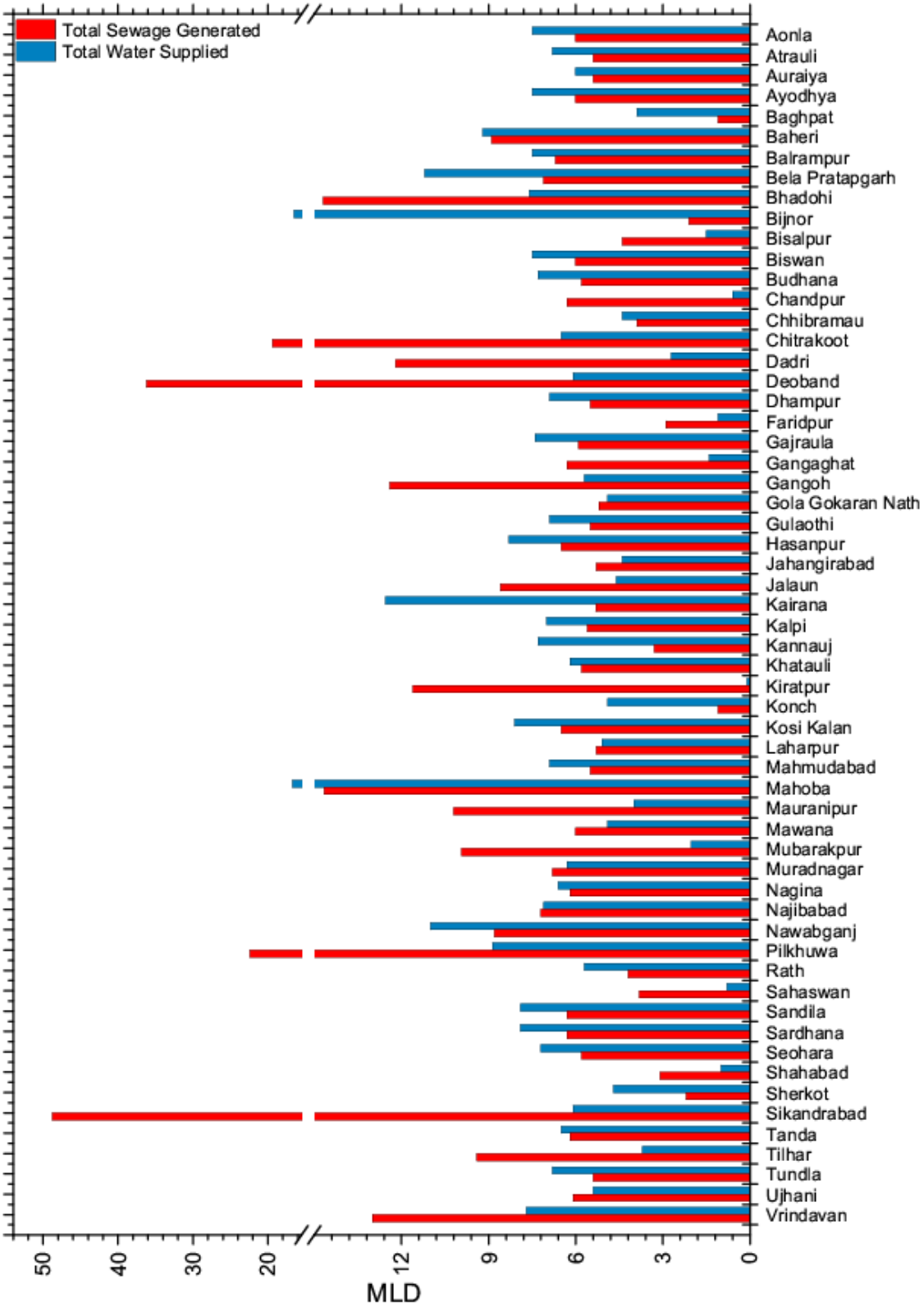


Figure 8b: Assessment of Water Supply and Sewage Generation (MLD) in Class II Towns in the Ganga River Basin Lying in the State of Uttar Pradesh

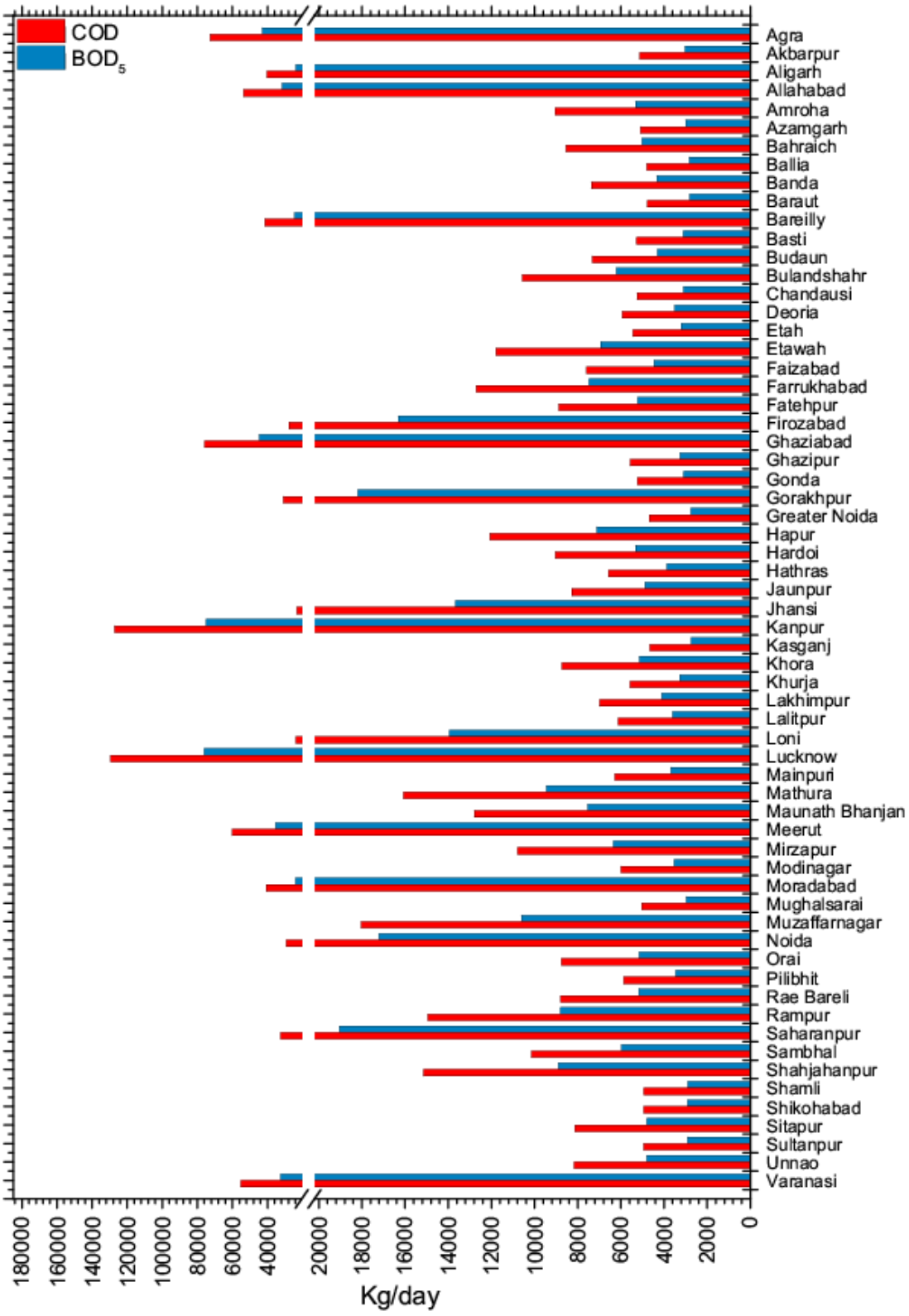


Figure 9a: Assessment of Organic Pollution Load (kg/day) from Class I Cities in the Ganga River Basin lying in Uttar Pradesh

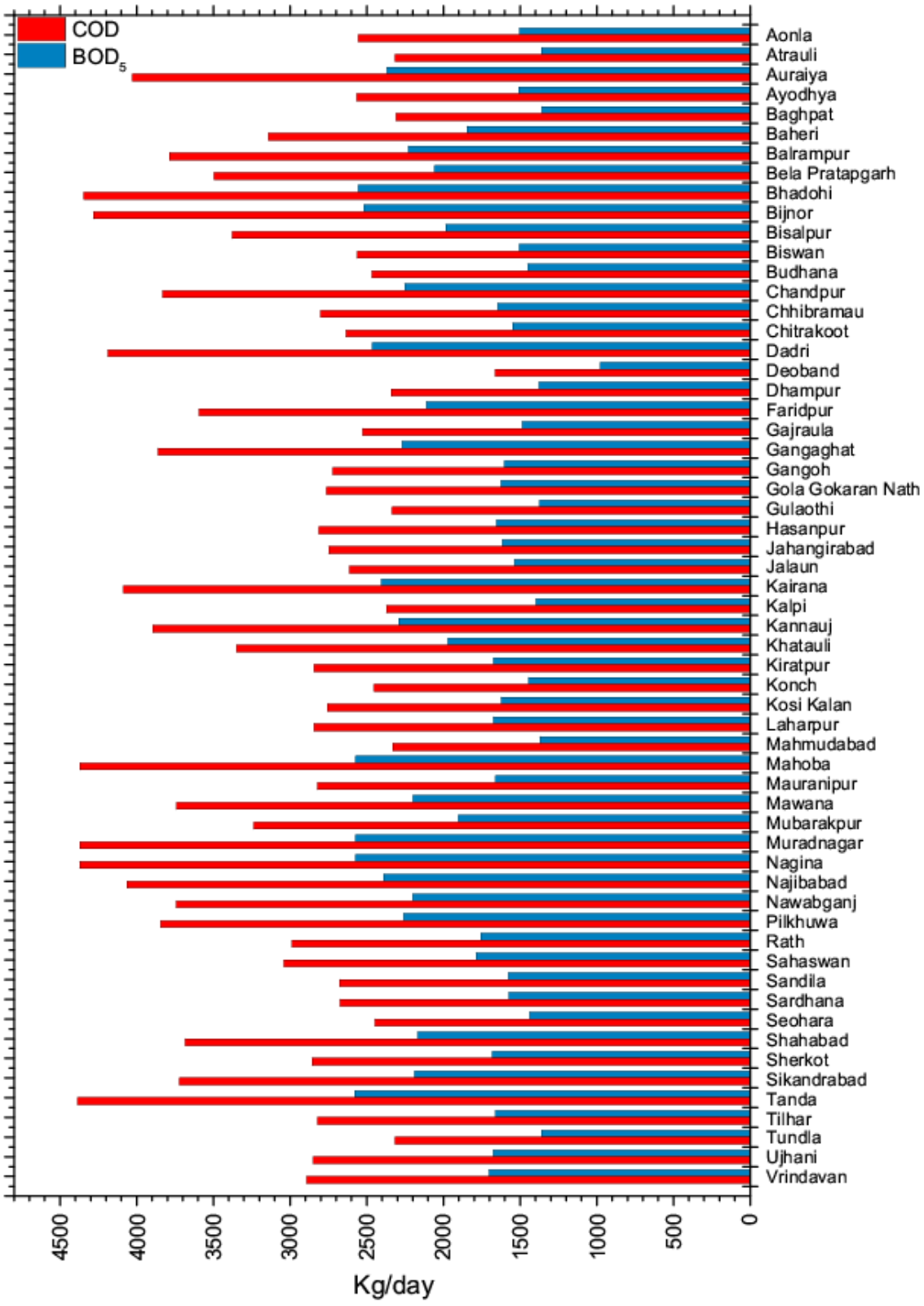


Figure 9b: Assessment of Organic Pollution Load (kg/day) from Class II Towns in the Ganga River Basin Lying in Uttar Pradesh

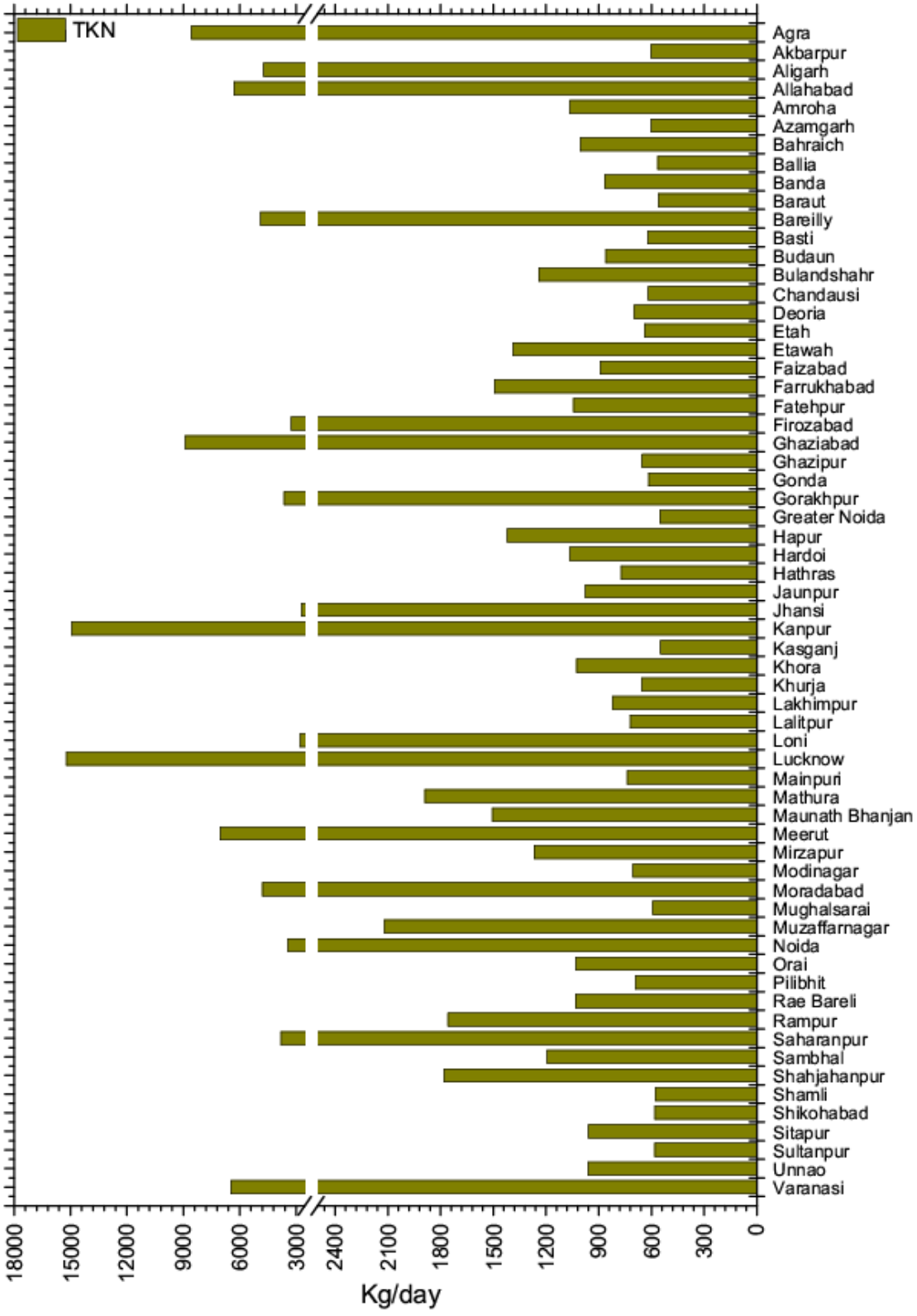


Figure 10a: Assessment of TKN Load (kg/day) from Class I Cities in the Ganga River Basin Lying in the State of Uttar Pradesh

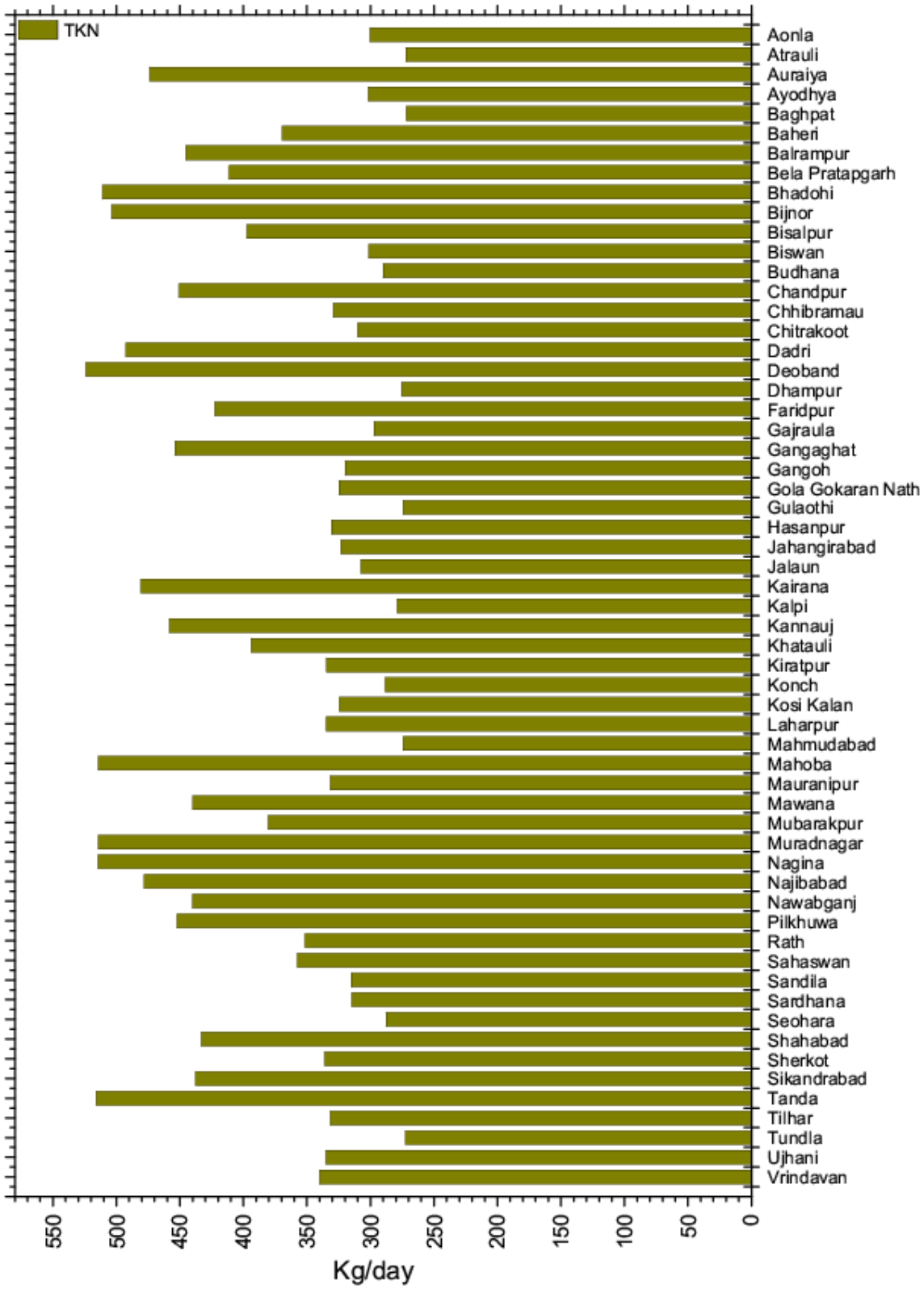


Figure10b: Assessment of TKN Load (kg/day) from Class II Towns in the Ganga River Basin Lying in the State of Uttar Pradesh

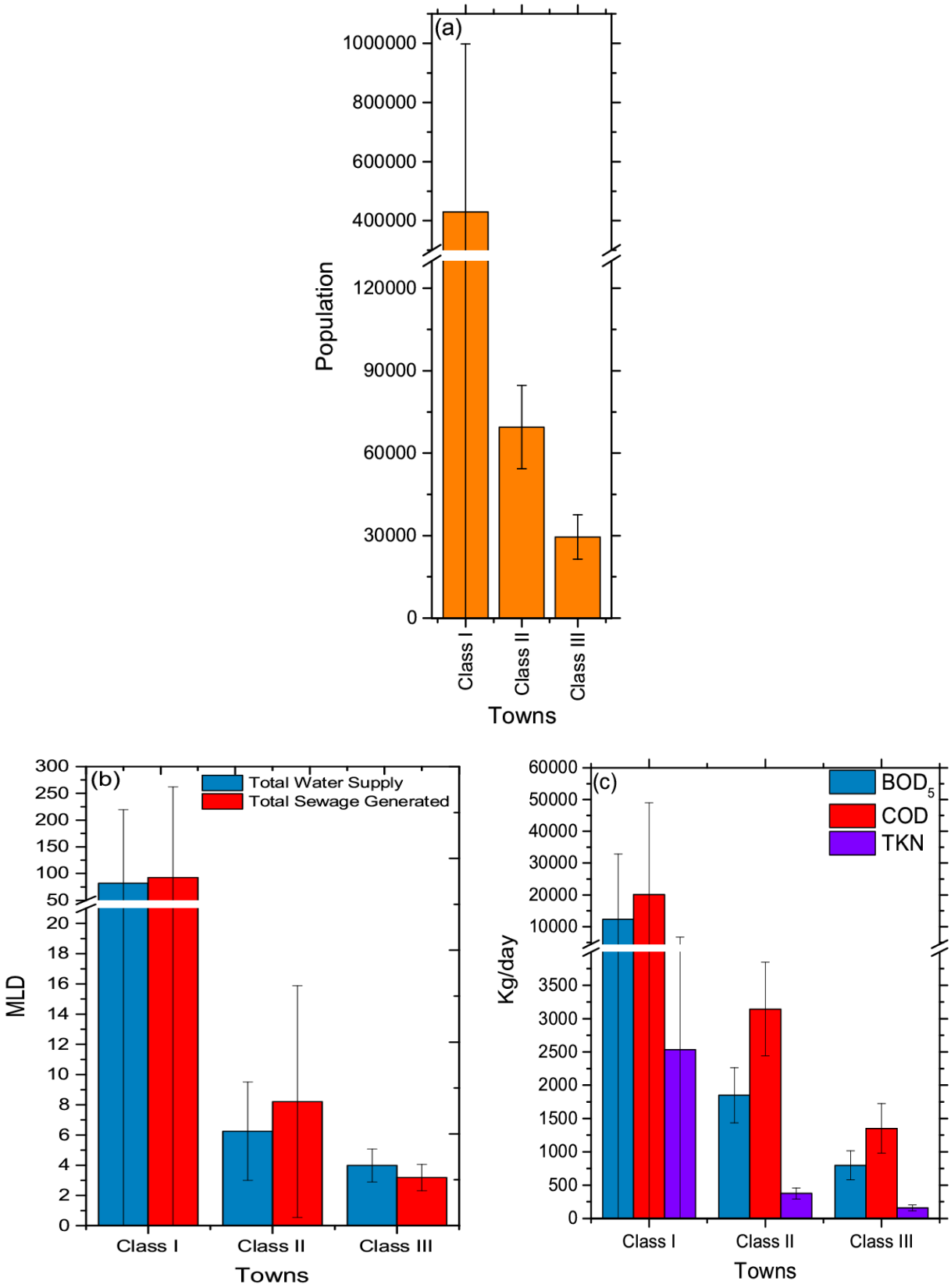


Figure 11: Comparative Analysis of Class I, Class II and Class III Cities/Towns Lying Under the State: (a) Population (b) Total Water Supply and Sewage Generation (c) Pollution Load

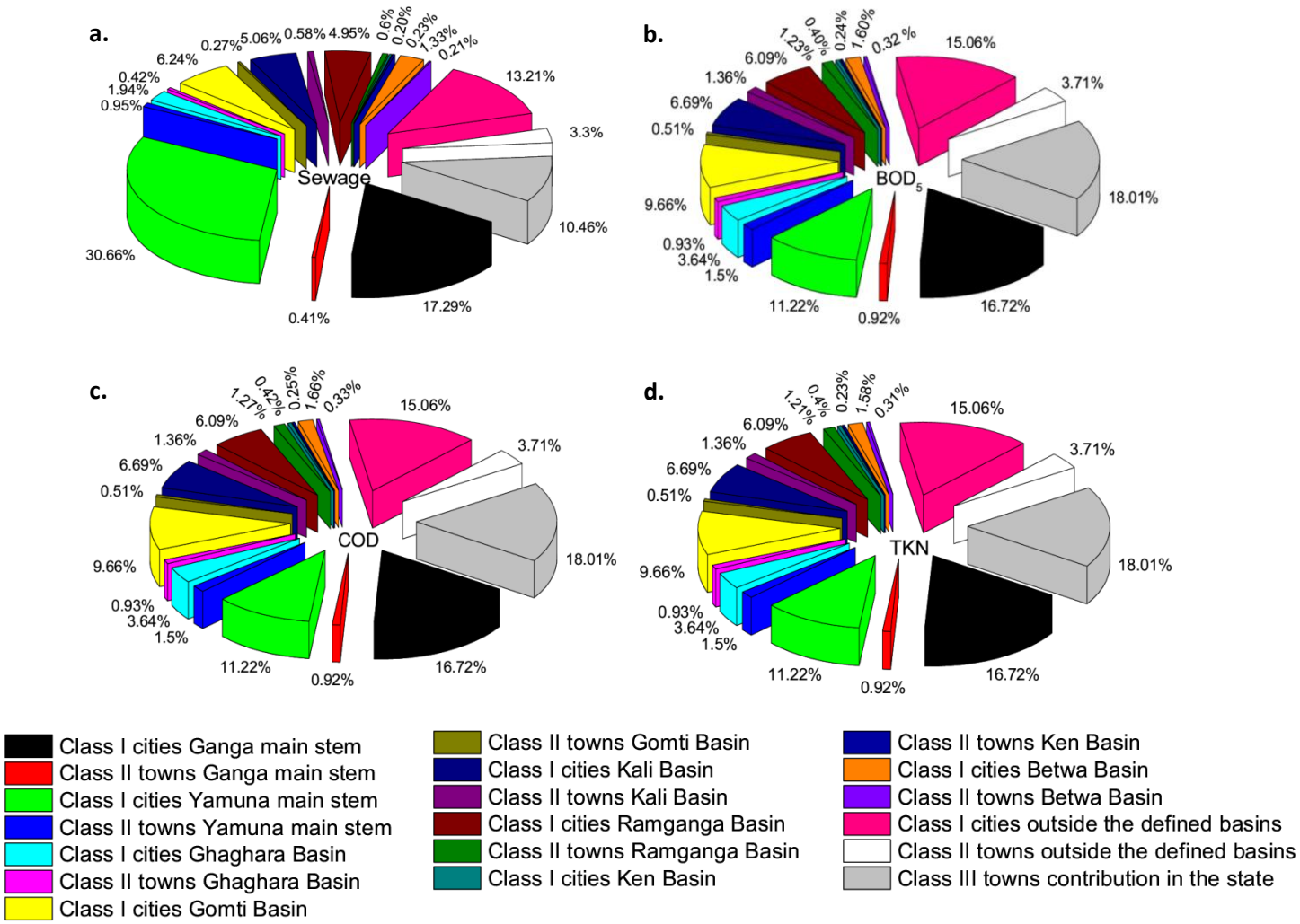


Figure 12 (a-d): Pollution load of Class I Cities and Class II, Class III Towns in the Major Basins of River Ganga in the State and Along the Main Stem of the River Ganga and Yamuna: (a) Sewage Generation; (b) BOD_5 ; (c) COD; (d) TKN

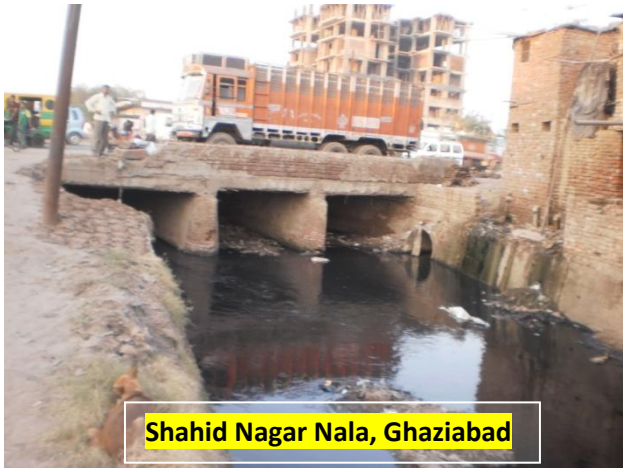
The results of the pollution load of Class I cities, Class II and Class III towns under the major basins of river Ganga in the state has been evaluated (Figure 12a) and the results revealed that the percentage of the total sewage generation is maximum in Class I cities situated along the main stem of Yamuna (30.66%) which is 1.8 times higher than the total percent contribution of the Class I cities placed along the main stem of river Ganga (17.29%). The sewage generation in the Gomti basin is highest for Class I cities (6.24%) and is higher than the Kali (5.06%) and Ramganga basin (4.95%) compared with the total sewage generation. All the Class I cities of the other basinsindividually(Ghaghara, Ken and Betwa) are discaharging less than 2% of the total sewage generation. The sewage generation in all Class II towns in all the basins in the state is less than one percent. The Class I cities and Class II towns outside the major defined basins combindly release 16.51% of waste water. The percentage sewage generation by Class III towns of the entire state is 10.46% of the total sewage generated by the state.

The BOD, COD and TKN load contributed by Class I cities of the main stem of Ganga and Yamuna is 16.72 and 11.22%, respectively.The Class III towns of the stateimpartaround18.01% of the total BOD,COD and TKN load. The basin wise major contributors of Class I cities for BOD,COD and TKN load are Gomti (9.66%), Kali (6.69%) and Ramganga (6.09%) river basins. The other basins like Ken, Betwa and Ghaghara contributed relatively lesser BOD,COD and TKN load and are in the range of 0.2-3.7%.But significant BOD,COD and TKN loads are also contributed by the Class I cities and Class II towns lying outside the selected basins (15.06 and 3.71%, respectively). The details of the BOD and COD load in the state are presented in Figures 12b and c.

6. Conclusions

River Ganga flowing in the Indo-Gangetic plains of the stateis one of the most sacred rivers in India, yet it is being polluted by many sources. Pollution levels in the river contributed 9-12% of the total burden of diseases in the state (Mallikarjun, 2003).The catchment of the river bears the load of 63 Class I cities, 59 Class II townsand 232 Class III towns,directly or indirectly. The main Class I cities of the state falling on at the bank of Ganges river are Narora, Farrukhabad, Kannauj, Kanpur, Allahabad, Mirzapur, Varanasi, Ghazipur and Ballia.
The scenario of water quality in the system fluctuates from bad to worse base on the spatial and temporal alterations. The multitudinousproblemsalso arise during lean season due to the continous discharge of untreated and/or partially treated sewage and industrial wastewater. The Kali, Ramganga, Pandu and Gomti tributaries discharge their partially treated and untreated effluent into river Ganga.

The maximum sewage generation is in the Class I cities (81.62%) followed by Class III (11.1%) and Class II towns (7.28%).Pollution load (BOD, COD and TKN load) also follows the same trend with maximum values for Class I cities. Greater Noida and Sikandrabad are the Class I and Class II townsshowing maximum amount ofsewage generation in comparision to their water supply. The maximum BOD, COD and TKN contributing Class I cities, Class IIand III towns areLucknow, Deoband and Padrauna while the minimum load is from Kasganj (Class I), Baghpat (Class II) and MograBadsahpur (Class III) in the state.



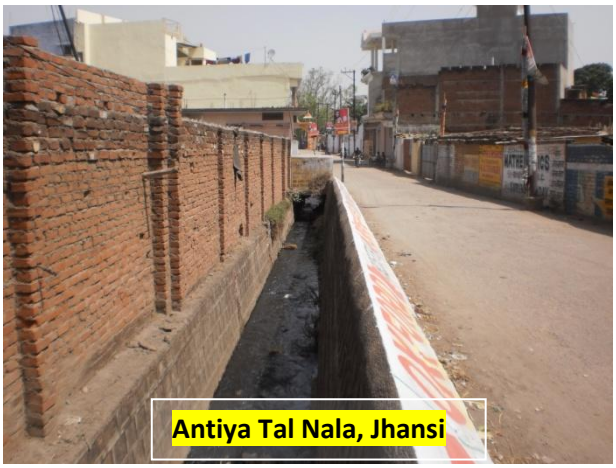


Plate 1: Major Drains Disposing Sewage into River Ganga or herTributary

Plate 2: Major Drains Disposing Sewage into River Ganga or its Tributary

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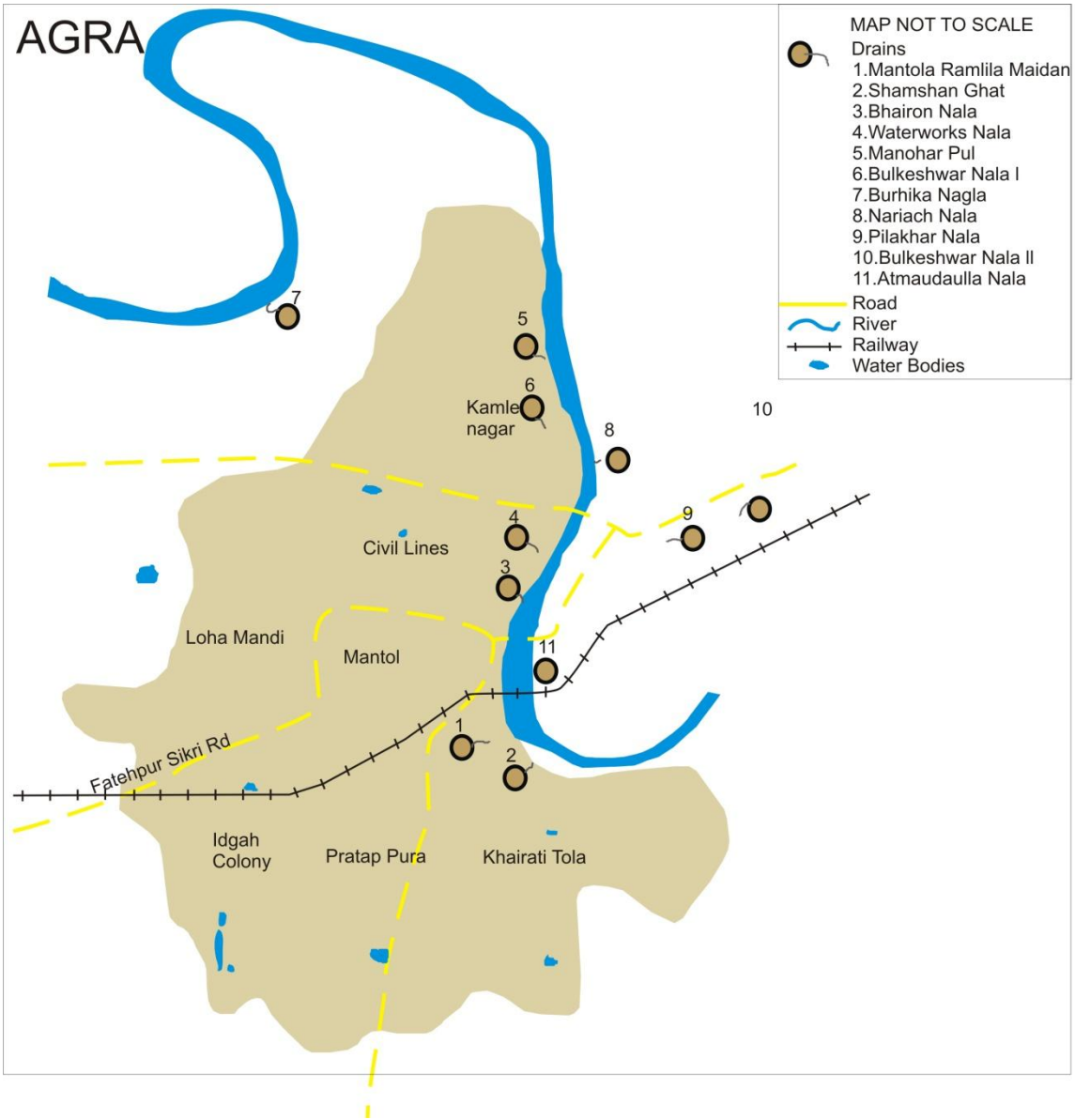
Appendix-1

Compilation of Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class I Cities/Towns in Uttar Pradesh

Water Balance & Pollution Load (Domestic) Data Sheet

City: Agra			State: Uttar Pradesh	
S. No.	**Items**		**:**	**Value**
1	Total Area (sq km)		:	120.57
2	Population as in 2011		:	1585704
3	Population Growth Rate as in 2011 (%)		:	24.36
4	Total Number of Wards		:	90
5	Population per Ward (Thousands)		:	17,619
6	Total Number of Household as in 2011		:	267945
7	Number of Household per Ward		:	2977
8	Surface Water Supply (MLD)		:	285
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		:	7058
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	2
15	Total Pumping Capacity (MLD)		:	285
16	Average Water Supply Rate from ULB Sources (lpcd)		:	179.73
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	288.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	182.00
19	Total Sewage Generation (MLD)*		:	154.40
20	Per Capita Sewage Generation (lpcd)*		:	88.20
21	Sewage Collection (MLD)		:	106.50
22	Percentage of Sewage Collection (%)		:	68.98
23	Number of STPs		:	5
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	116
25	Current Utilized Capacity of STPs (MLD)		:	106.50
26	Percentage Utilization of Installed Capacity (%)		:	91.80
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	100
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	:	42814.00
		COD	:	72783.80
		TKN	:	8562.80
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		:	11
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

*

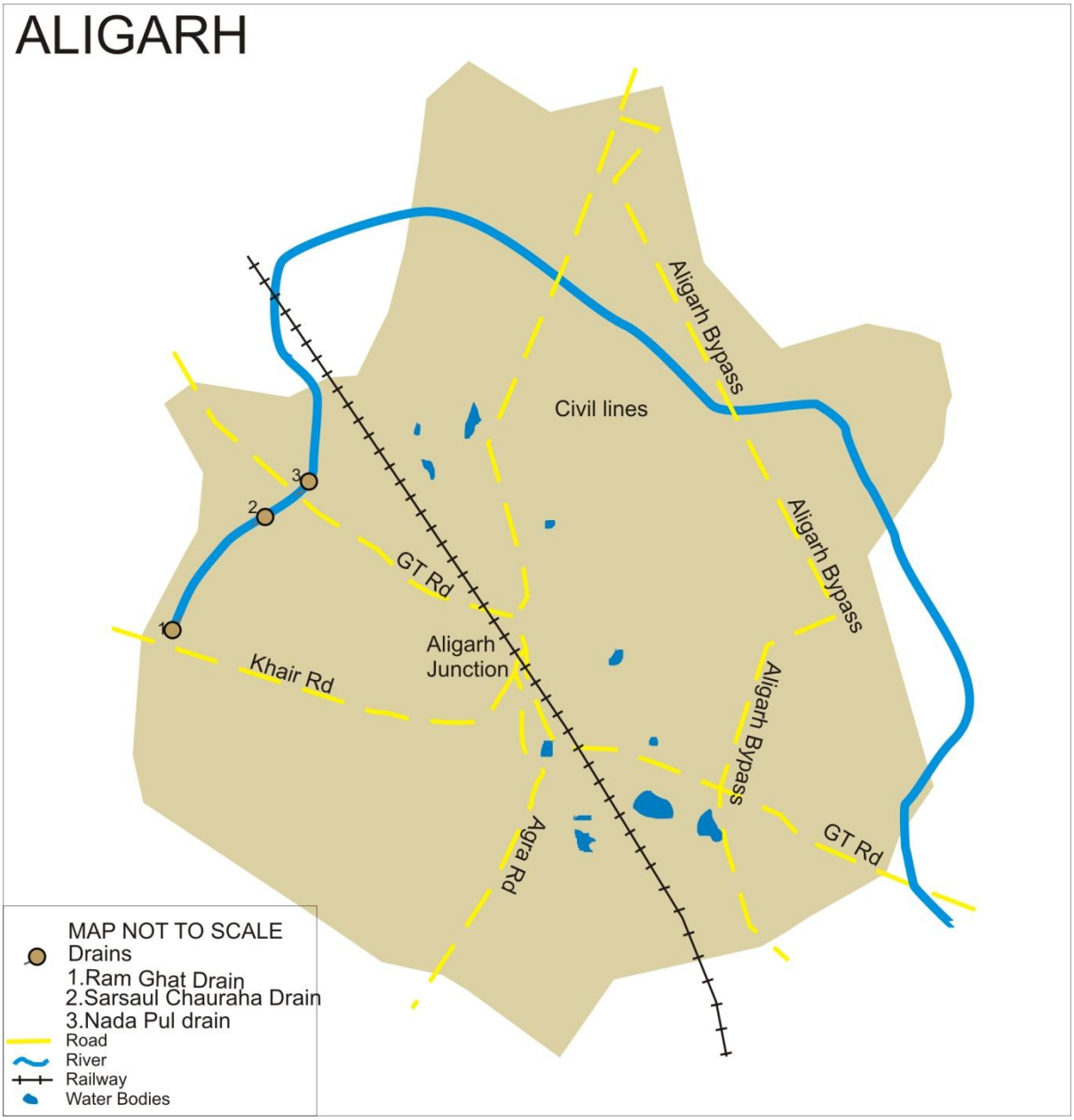

AGRA
MAP NOT TO SCALE
Drains
1.Mantola Ramlila Maidan
2.Shamshan Ghat
3.Bhairon Nala
4.Waterworks Nala
5.Manohar Pul
6.Bulkeshwar Nala I
7.Burhika Nagla
8.Nariach Nala
9.Pilakhar Nala
10.Bulkeshwar Nala II
11.Atmaudaulla Nala
Road
River
Railway
Water Bodies
Kamla nagar
Civil Lines
Loha Mandi
Mantol
Fatehpur Sikri Rd
Idgah Colony
Pratap Pura
Khairati Tola

Water Balance & Pollution Load (Domestic) Data Sheet

City: Akbarpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	72.47
2	Population as in 2011		:	111447
3	Population Growth Rate as in 2011 (%)		:	228.69
4	Total Number of Wards		:	61
5	Population per Ward (Thousands)		:	1,827
6	Total Number of Household as in 2011		:	17720
7	Number of Household per Ward		:	290
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)		:	15.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	12.00
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3009.10
		COD	:	5115.40
		TKN	:	601.80
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Tamsa River
32	Number of Drains/Nallah for Wastewater Disposal		:	11
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

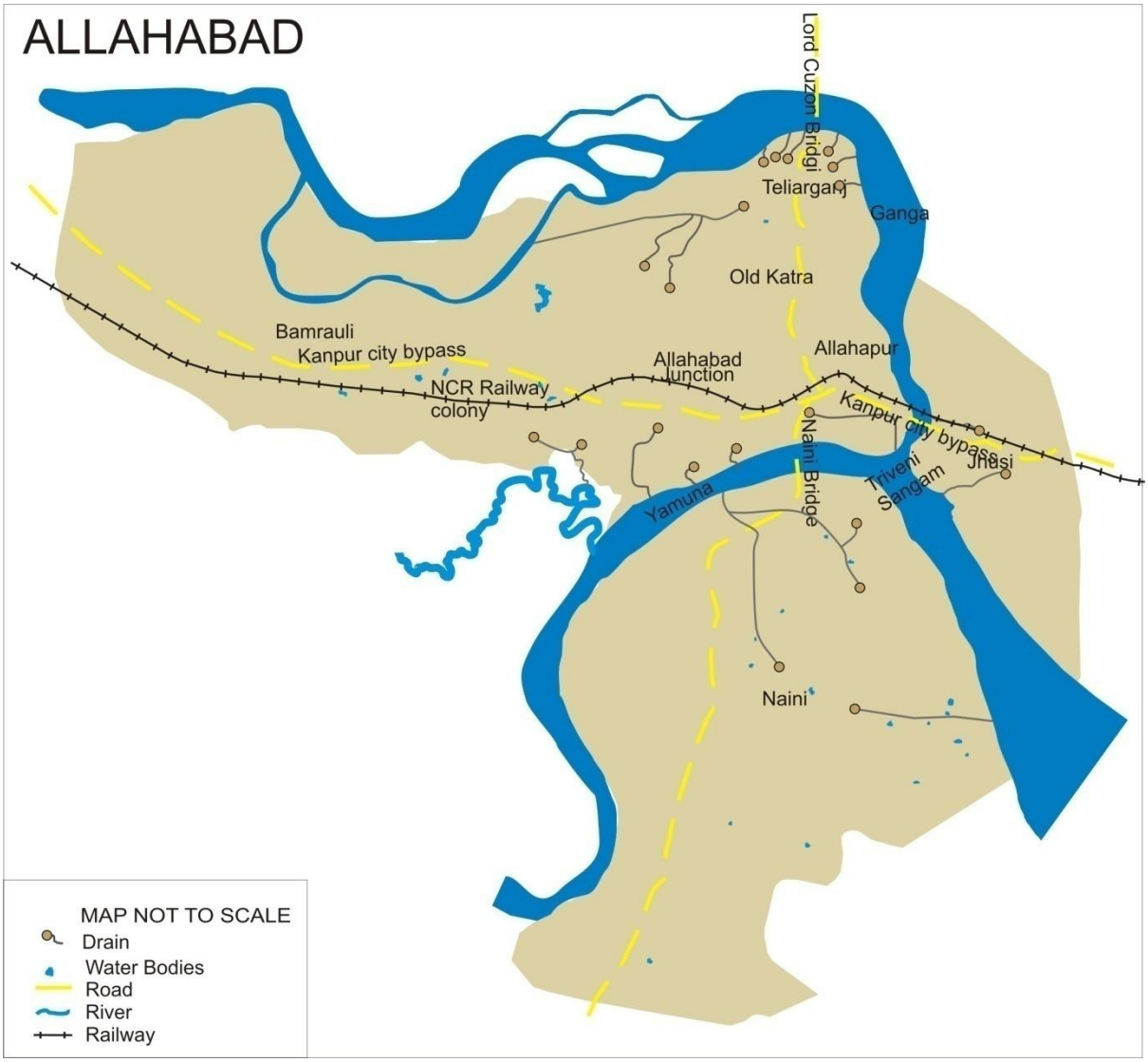
Water Balance & Pollution Load (Domestic) Data Sheet

City: Aligarh		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	40.43
2	Population as in 2011		:	874408
3	Population Growth Rate as in 2011 (%)		:	30.69
4	Total Number of Wards		:	70
5	Population per Ward (Thousands)		:	12,492
6	Total Number of Household as in 2011		:	147363
7	Number of Household per Ward		:	2105
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	69.10
10	Number of Bore Wells		:	72
11	Ground Water Extraction per Bore Well (MLD)		:	0.96
12	Number of Hand Pumps/ Tubewells		:	4100
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	79.02
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	71.15
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	81.37
19	Total Sewage Generation (MLD)*		:	62.21
20	Per Capita Sewage Generation (lpcd)		:	71.14
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	23609.00
		COD	:	40135.30
		TKN	:	4721.80
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	21
34	Gross Area of Water Bodies (Hectare)		:	8.42
35	Area of Water Bodies as % of Total Area		:	<<< 1


ALIGARH
Civil lines
Aligarh Bypass
Aligarh Bypass
Aligarh Bypass
GT Rd
GT Rd
Khair Rd
Aligarh
Junction
Agra Rd
1
2
3
MAP NOT TO SCALE
Drains
1.Ram Ghat Drain
2.Sarsaul Chauraha Drain
3.Nada Pul drain
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Allahabad				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	70.05
2	Population as in 2011		:	1168385
3	Population Growth Rate as in 2011 (%)		:	14.76
4	Total Number of Wards		:	80
5	Population per Ward (Thousands)		:	14605
6	Total Number of Household as in 2011		:	205529
7	Number of Household per Ward		:	2569
8	Surface Water Supply (MLD)		:	70
9	Ground Water (GW) Supply (MLD)		:	171.50
10	Number of Bore Wells		:	189
11	Ground Water Extraction per Bore Well (MLD)		:	1.12
12	Number of Hand Pumps		:	2383
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	3
15	Total Pumping Capacity (MLD)		:	70
16	Average Water Supply Rate from ULB Sources (lpcd)		:	172.50
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	242.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	207.70
19	Total Sewage Generation (MLD)		:	221.40
20	Per Capita Sewage Generation (lpcd)		:	189.50
21	Sewage Collection (MLD)		:	87.50
22	Percentage of Sewage Collection (%)		:	39.50
23	Number of STPs		:	2
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	89
25	Current Utilized Capacity of STPs (MLD)		:	87.50
26	Percentage Utilization of Installed Capacity (%)		:	98.30
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	60
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	25203.60
		COD	:	67256.20
		TKN	:	10230.20
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	31546.40
		COD	:	53628.90
		TKN	:	6309.30
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga & Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	57 (Tapped: 15)
33	Number of Water Bodies		:	17
34	Gross Area of Water Bodies (Hectare)		:	8.44
35	Area of Water Bodies as % of Total Area		:	<<1.0

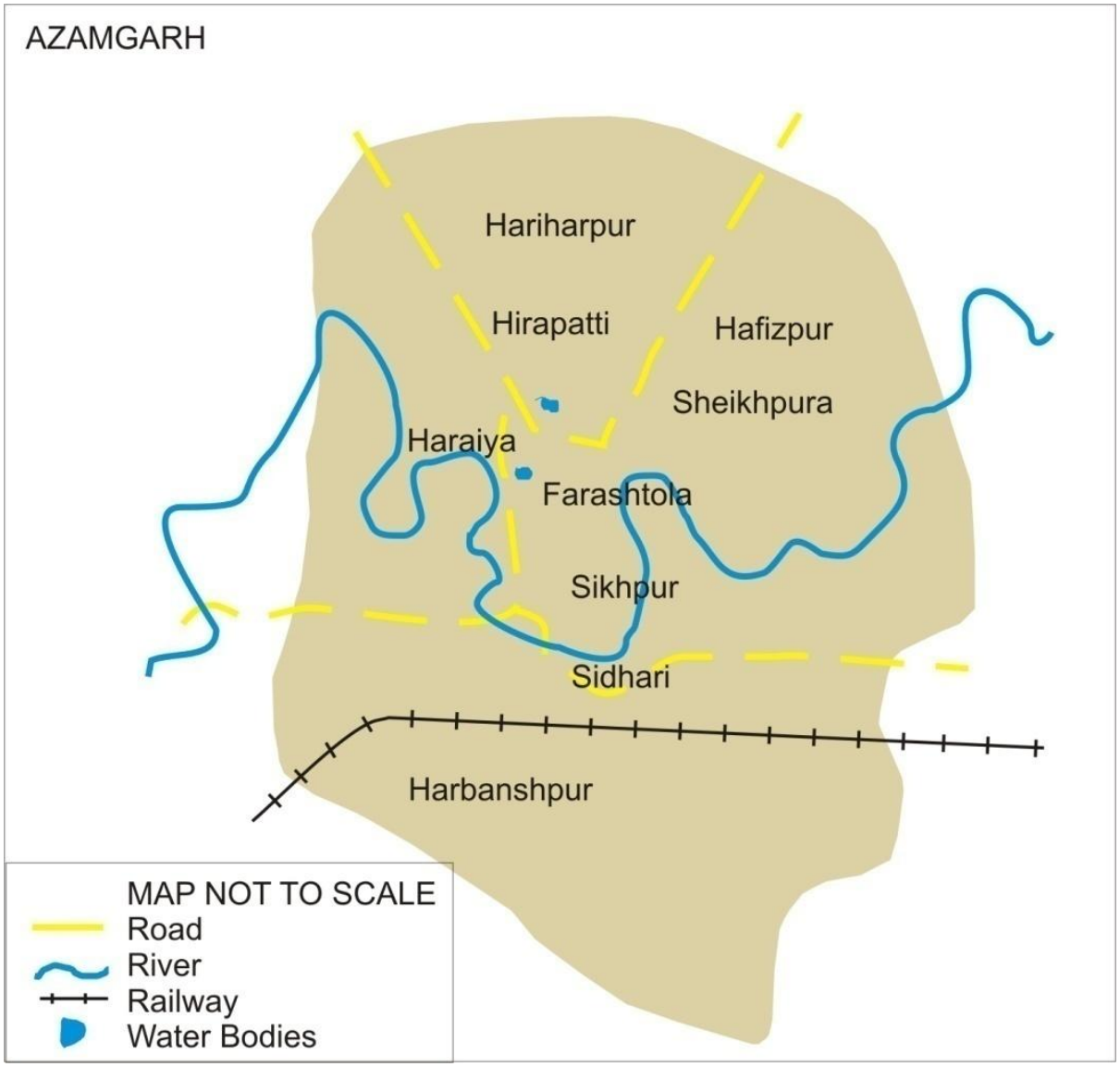

ALLAHABAD
Lord Cuzon Bridge
Teliarganj
Ganga
Old Katra
Bamrauli
Kanpur city bypass
NCR Railway colony
Allahabad Junction
Allahapur
Kanpur city bypass
Jhusi
Triveni Sangam
Naini Bridge
Yamuna
Naini
MAP NOT TO SCALE
Drain
Water Bodies
Road
River
Railway

Water Balance & Pollution Load (Domestic) Data Sheet

City: Amroha				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	8.95
2	Population as in 2011		:	198471
3	Population Growth Rate as in 2011 (%)		:	20.19
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	6,402
6	Total Number of Household as in 2011		:	24137
7	Number of Household per Ward		:	779
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	9.00
10	Number of Bore Wells		:	12
11	Ground Water Extraction per Bore Well (MLD)		:	0.75
12	Number of Hand Pumps/ Tubewells		:	350
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	45.35
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	9.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	46.20
19	Total Sewage Generation (MLD)*		:	7.20
20	Per Capita Sewage Generation (lpcd)		:	36.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	5322.60
		COD	:	9048.50
		TKN	:	1064.50
30	Wastewater Disposal Means		:	Land & River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gangan River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	3
34	Gross Area of Water Bodies (Hectare)		:	40.00
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Azamgarh				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.70
2	Population as in 2011		:	110983
3	Population Growth Rate as in 2011 (%)		:	18.67
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4439
6	Total Number of Household as in 2011		:	16,294
7	Number of Household per Ward		:	652
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	18.70
10	Number of Bore Wells		:	19
11	Ground Water Extraction per Bore Well (MLD)		:	0.98
12	Number of Hand Pumps/ Tubewells		:	552
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	168.49
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	18.98
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	170.98
19	Total Sewage Generation (MLD)*		:	16.23
20	Per Capita Sewage Generation (lpcd)		:	146.24
21	Sewage Collection (MLD)		:	16.23
22	Percentage of Sewage Collection (%)		:	85
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2996.54
		COD	:	5094.12
		TKN	:	599.31
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Tamsa River
32	Number of Drains/Nallah for Wastewater Disposal		:	14
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	NA

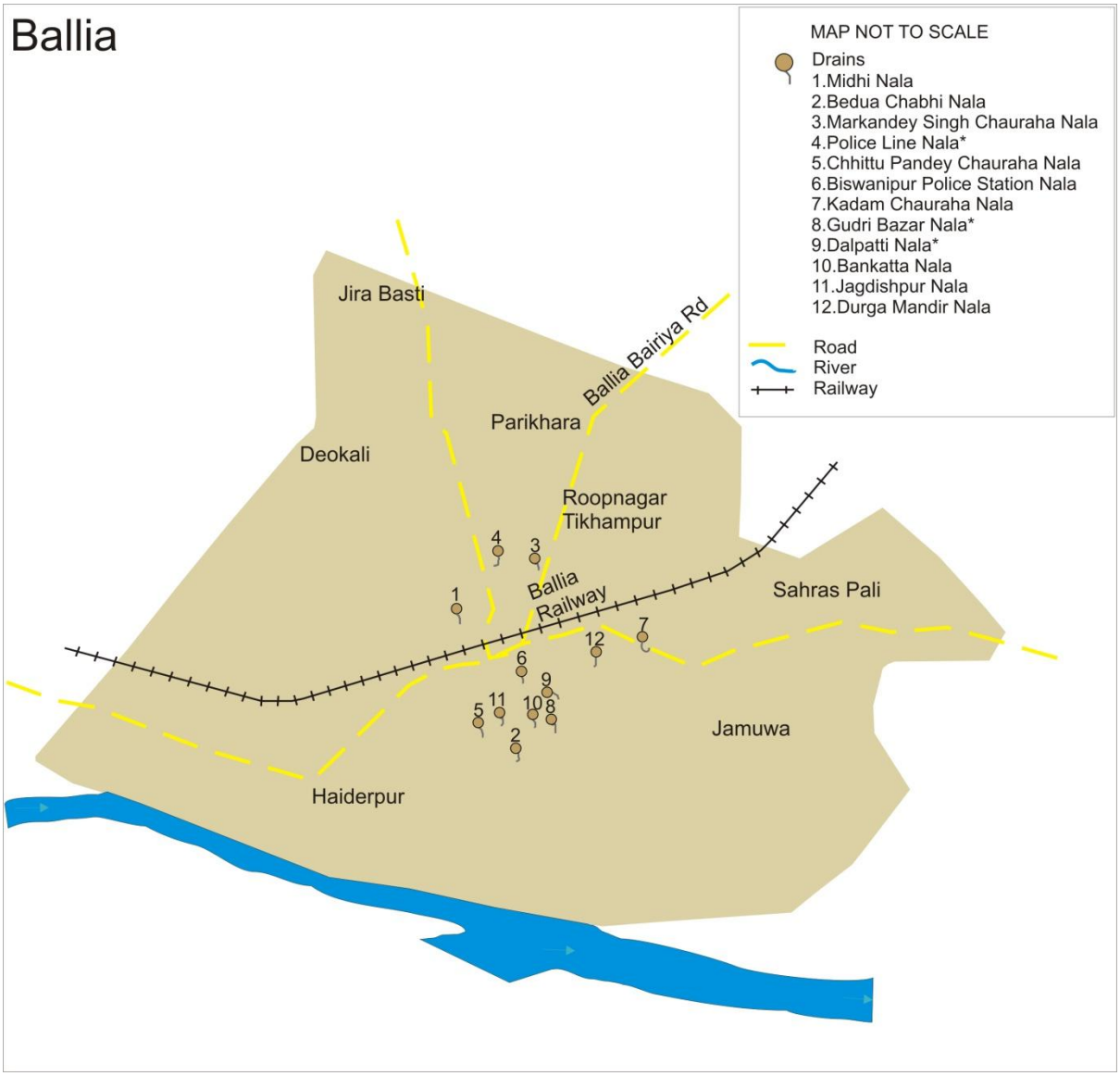

AZAMGARH
Hariharpur
Hirapatti
Hafizpur
Sheikhpura
Haraiya
Farashtola
Sikhpur
Sidhari
Harbanshpur
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bahraich				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	13.30
2	Population as in 2011		:	186223
3	Population Growth Rate as in 2011 (%)		:	10.63
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	6,007
6	Total Number of Household as in 2011		:	30460
7	Number of Household per Ward		:	983
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)		:	25.10
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	20.10
20	Per Capita Sewage Generation (lpcd)*		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	5028.00
		COD	:	8547.60
		TKN	:	1005.60
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Saryu 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

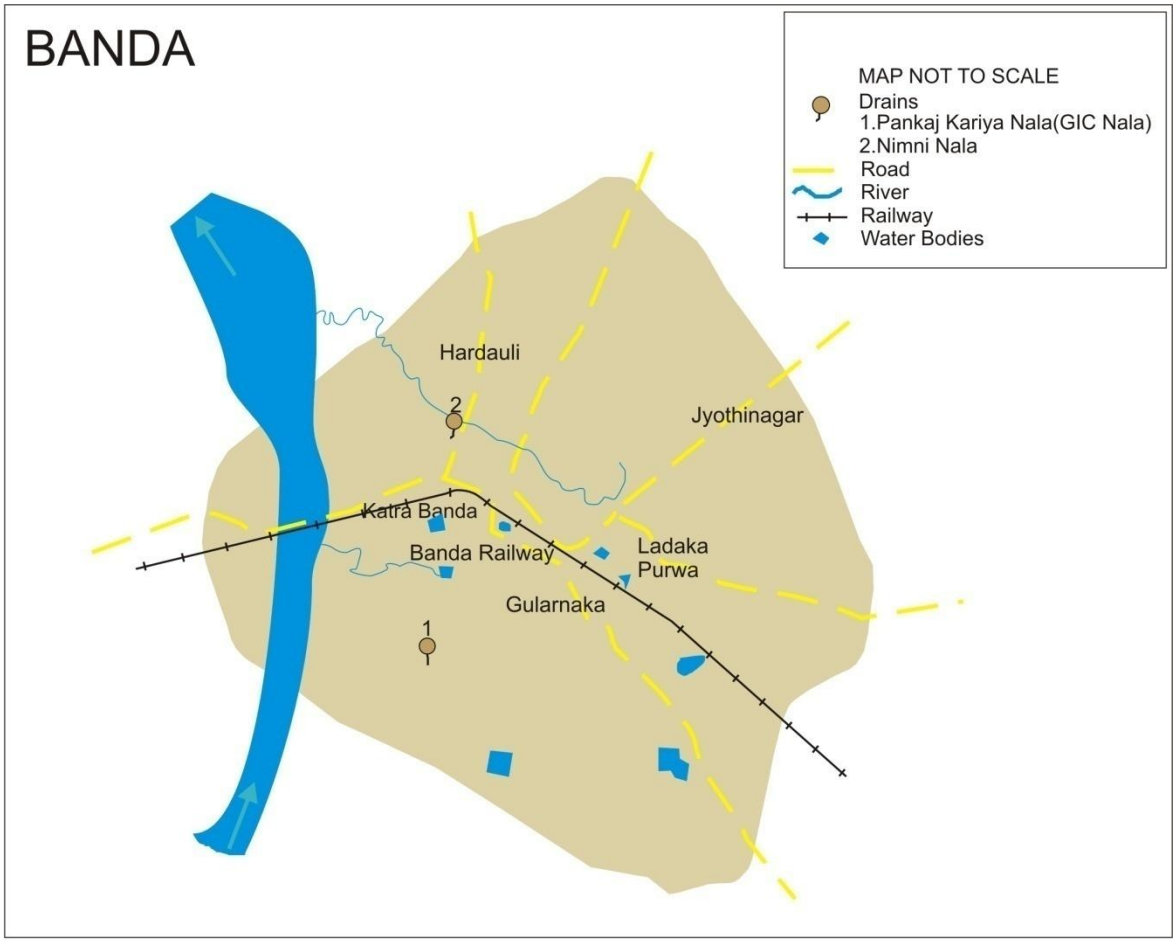
Water Balance & Pollution Load (Domestic) Data Sheet

City: Ballia				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.00
2	Population as in 2011		:	104424
3	Population Growth Rate as in 2011 (%)		:	2.92
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4,177
6	Total Number of Household as in 2011		:	15772
7	Number of Household per Ward		:	631
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	20
10	Number of Bore Wells		:	10
11	Ground Water Extraction per Bore Well (MLD)		:	2
12	Number of Hand Pumps/ Tubewells		:	330
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NIL
15	Total Pumping Capacity (MLD)		:	NIL
16	Average Water Supply Rate from ULB Sources (lpcd)		:	191.53
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	20.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	193.10
19	Total Sewage Generation (MLD)*		:	18.70
20	Per Capita Sewage Generation (lpcd)*		:	178.80
21	Sewage Collection (MLD)		:	18.70
22	Percentage of Sewage Collection (%)		:	92.70
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2819.40
		COD	:	4793.10
		TKN	:	563.90
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	12
33	Number of Water Bodies		:	2
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	NA


Ballia
MAP NOT TO SCALE
Drains
1.Midhi Nala
2.Bedua Chabhi Nala
3.Markandey Singh Chauraha Nala
4.Police Line Nala*
5.Chhittu Pandey Chauraha Nala
6.Biswanipur Police Station Nala
7.Kadam Chauraha Nala
8.Gudri Bazar Nala*
9.Dalpatti Nala*
10.Bankatta Nala
11.Jagdishpur Nala
12.Durga Mandir Nala
Road
River
Railway
Jira Basti
Ballia Bairiya Rd
Parikhara
Deokali
Roopnagar
Tikhampur
Ballia
Railway
Sahras Pali
Jamuwa
Haiderpur

Water Balance & Pollution Load (Domestic) Data Sheet

City: Banda				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.00
2	Population as in 2011		:	160473
3	Population Growth Rate as in 2011 (%)		:	15.09
4	Total Number of Wards		:	28
5	Population per Ward (Thousands)		:	4980
6	Total Number of Household as in 2011		:	29162
7	Number of Household per Ward		:	1042
8	Surface Water Supply (MLD)		:	9.57
9	Ground Water (GW) Supply (MLD)		:	13.11
10	Number of Bore Wells		:	21
11	Ground Water Extraction per Bore Well (MLD)		:	0.62
12	Number of Hand Pumps/ Tubewells		:	834
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	9.57
16	Average Water Supply Rate from ULB Sources (lpcd)		:	141.14
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	23.10
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	143.90
19	Total Sewage Generation (MLD)*		:	13.50
20	Per Capita Sewage Generation (lpcd)*		:	84.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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)		:	4
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	:	4332.80
		COD	:	7365.70
		TKN	:	866.60
30	Wastewater Disposal Means		:	Land & River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ken River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<1

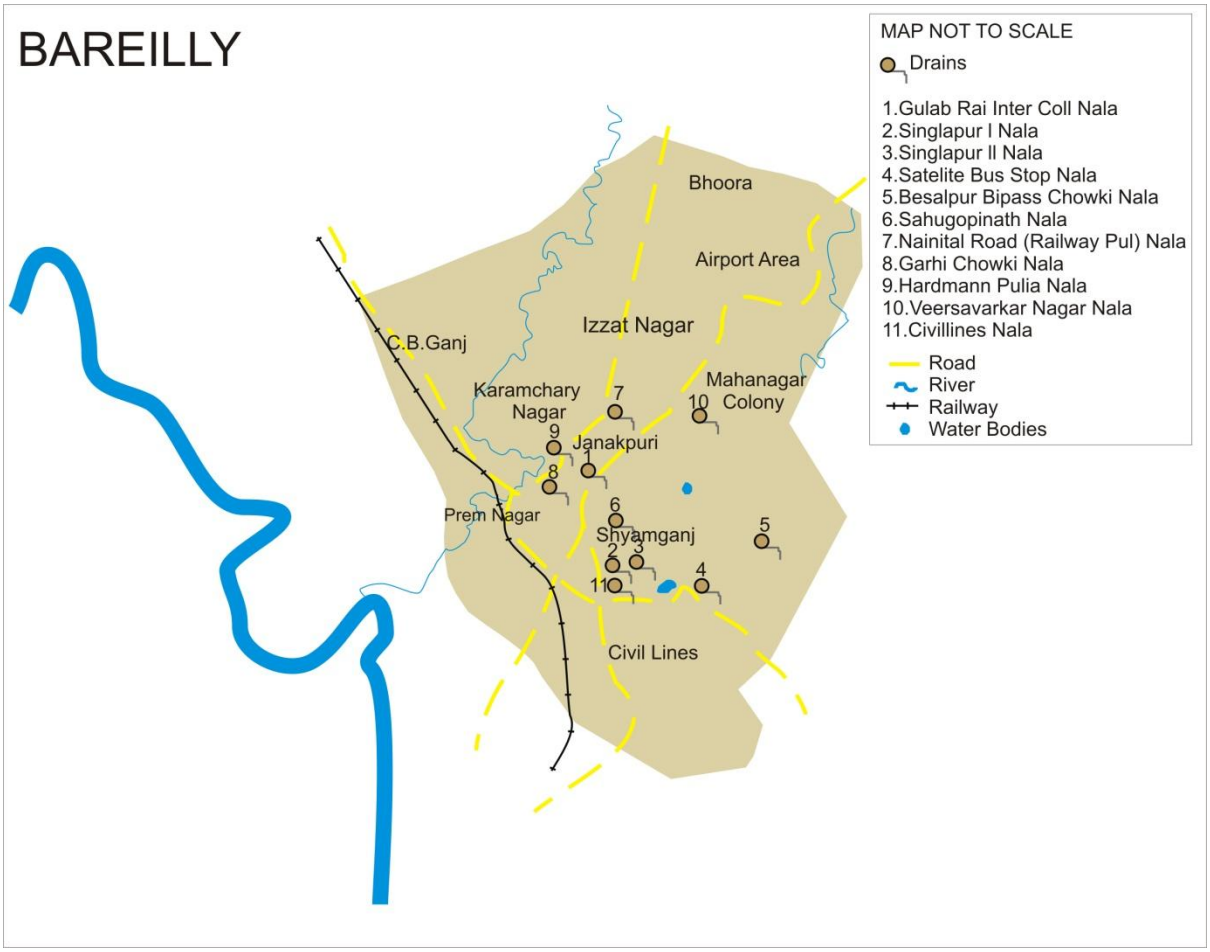

BANDA
MAP NOT TO SCALE
Drains
1.Pankaj Kariya Nala(GIC Nala)
2.Nimni Nala
Road
River
Railway
Water Bodies
Hardauli
2
Jyothinagar
Katra Banda
Banda Railway
Ladaka
Purwa
Gularnaka
1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Baraut				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.36
2	Population as in 2011		:	103764
3	Population Growth Rate as in 2011 (%)		:	21.07
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4,151
6	Total Number of Household as in 2011		:	17924
7	Number of Household per Ward		:	717
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	21
10	Number of Bore Wells		:	18
11	Ground Water Extraction per Bore Well (MLD)		:	1.17
12	Number of Hand Pumps/ Tubewells		:	424
13	Ground Water Extraction per Hand Pump (lpd)		:	600
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	202.40
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	21.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	204.80
19	Total Sewage Generation (MLD)*		:	7.90
20	Per Capita Sewage Generation (lpcd)*		:	76.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2801.60
		COD	:	4762.80
		TKN	:	560.30
30	Wastewater Disposal Means		:	Land & River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

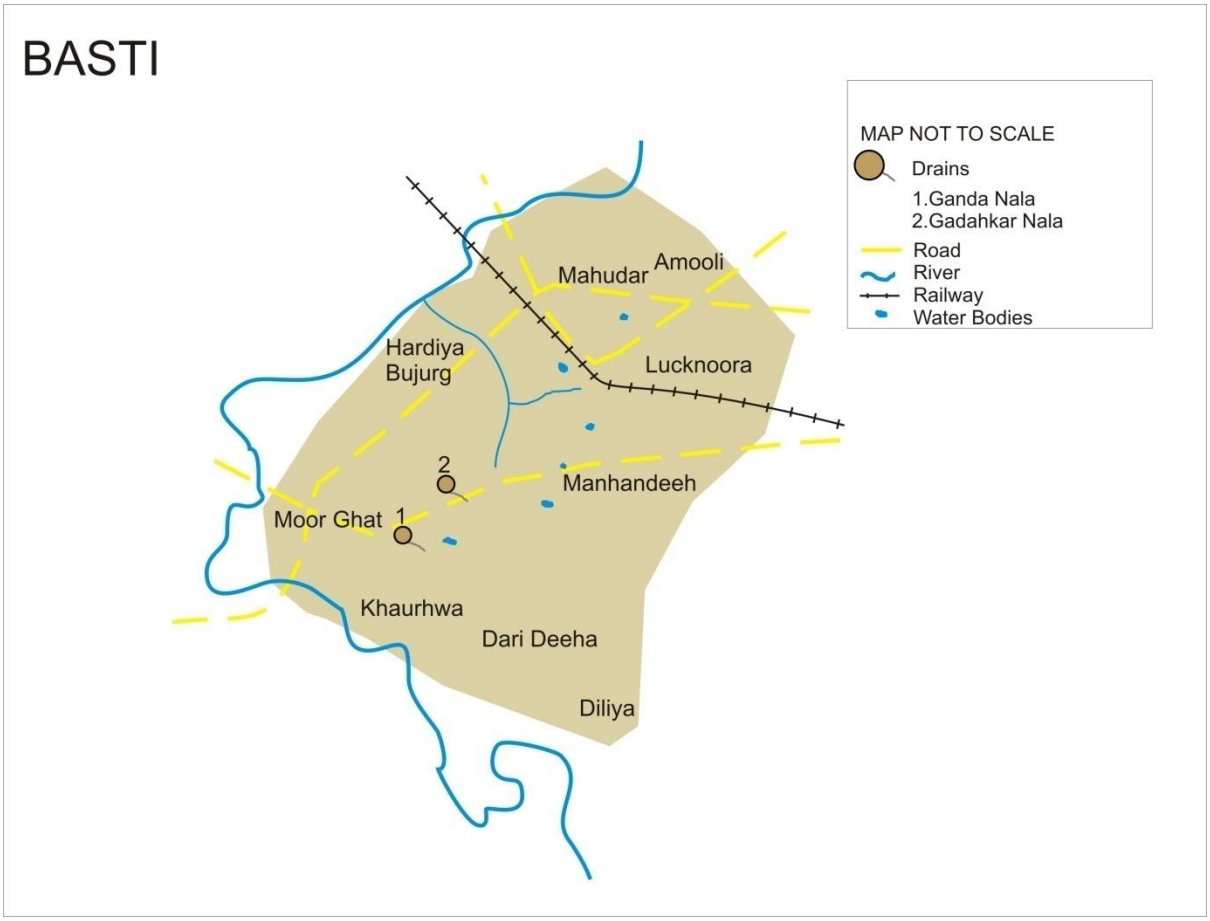
Water Balance & Pollution Load (Domestic) Data Sheet

City: Bareilly				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	106.43
2	Population as in 2011		:	904797
3	Population Growth Rate as in 2011 (%)		:	25.61
4	Total Number of Wards		:	70
5	Population per Ward (Thousands)		:	10,290
6	Total Number of Household as in 2011		:	166447
7	Number of Household per Ward		:	2378
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	102
10	Number of Bore Wells		:	49
11	Ground Water Extraction per Bore Well (MLD)		:	2.08
12	Number of Hand Pumps/ Tubewells		:	3122
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	103.60
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	114.50
19	Total Sewage Generation (MLD)*		:	129.00
20	Per Capita Sewage Generation (lpcd)*		:	142.60
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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		24429.52
		COD		41530.18
		TKN		4885.90
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ramganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	11
33	Number of Water Bodies		:	164
34	Gross Area of Water Bodies (Hectare)		:	43.43
35	Area of Water Bodies as % of Total Area		:	<<< 1


BAREILLY
MAP NOT TO SCALE
Drains
1.Gulab Rai Inter Coll Nala
2.Singlapur I Nala
3.Singlapur II Nala
4.Satelite Bus Stop Nala
5.Besalpur Bipass Chowki Nala
6.Sahugopinath Nala
7.Nainital Road (Railway Pul) Nala
8.Garhi Chowki Nala
9.Hardmann Pulia Nala
10.Veersavarkar Nagar Nala
11.Civillines Nala
Road
River
Railway
Water Bodies
Bhoora
Airport Area
Izzat Nagar
C.B.Ganj
Karamchary Nagar
Mahanagar Colony
Janakpuri
Prem Nagar
Shyamganj
Civil Lines

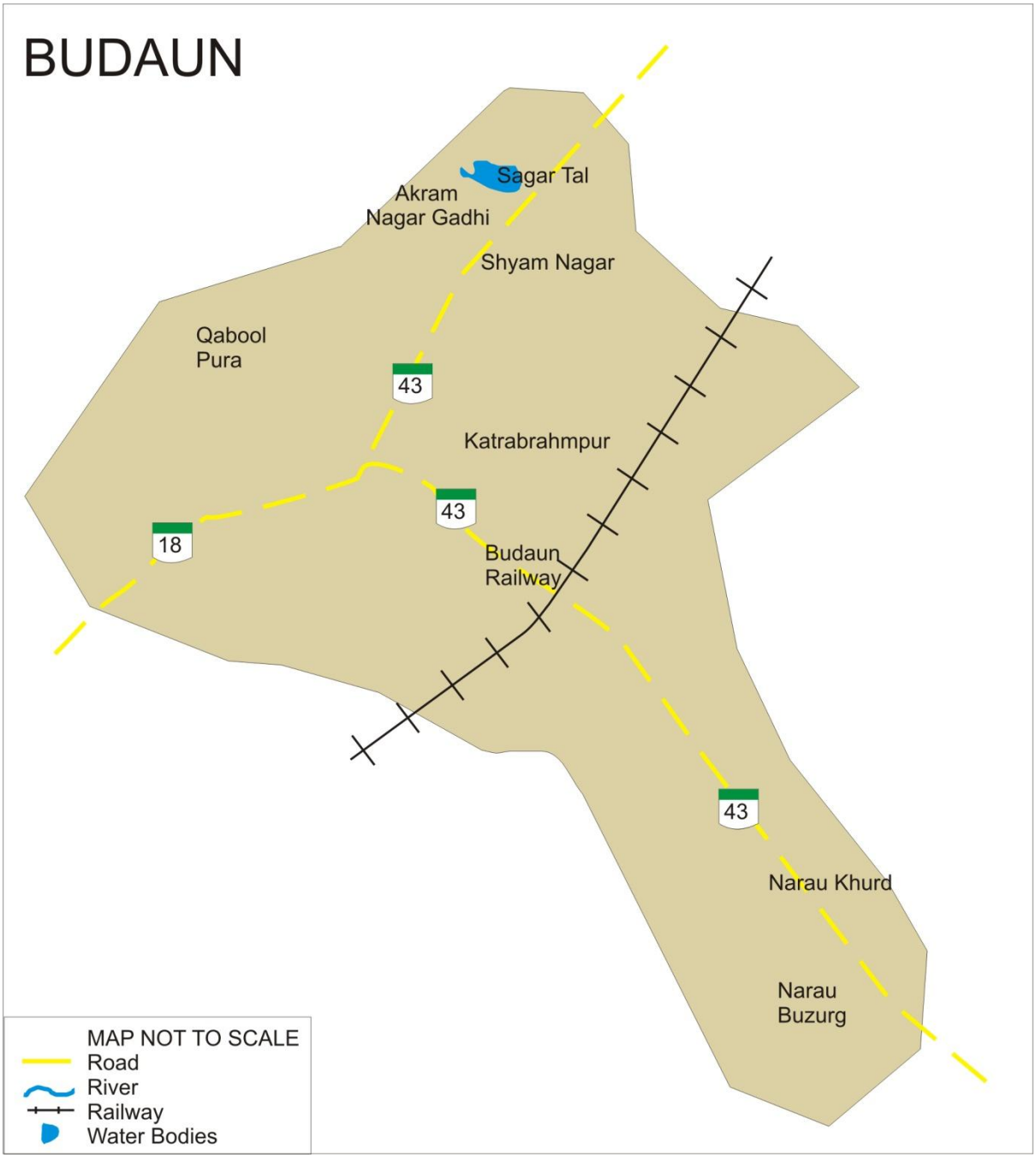
Water Balance & Pollution Load (Domestic) Data Sheet

City: Basti		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	19.47
2	Population as in 2011		:	114657
3	Population Growth Rate as in 2011 (%)		:	6.56
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4,586
6	Total Number of Household as in 2011		:	17894
7	Number of Household per Ward		:	716
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	19
10	Number of Bore Wells		:	18
11	Ground Water Extraction per Bore Well (MLD)		:	1.06
12	Number of Hand Pumps/ Tubewells		:	19982
13	Ground Water Extraction per Hand Pump (lpd)		:	200
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	165.71
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	23.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	200.60
19	Total Sewage Generation (MLD)*		:	11.10
20	Per Capita Sewage Generation (lpcd)		:	97.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3095.70
		COD	:	5262.80
		TKN	:	619.10
30	Wastewater Disposal Means		:	Land & River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kuwano River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	11
34	Gross Area of Water Bodies (Hectare)		:	1.60
35	Area of Water Bodies as % of Total Area		:	<<< 1


BASTI
MAP NOT TO SCALE
Drains
1.Ganda Nala
2.Gadahkar Nala
Road
River
Railway
Water Bodies
Mahudar
Amooli
Hardiya
Bujurg
Lucknoora
2
Manhandeeh
Moor Ghat
1
Khaurhwa
Dari Deeha
Diliya

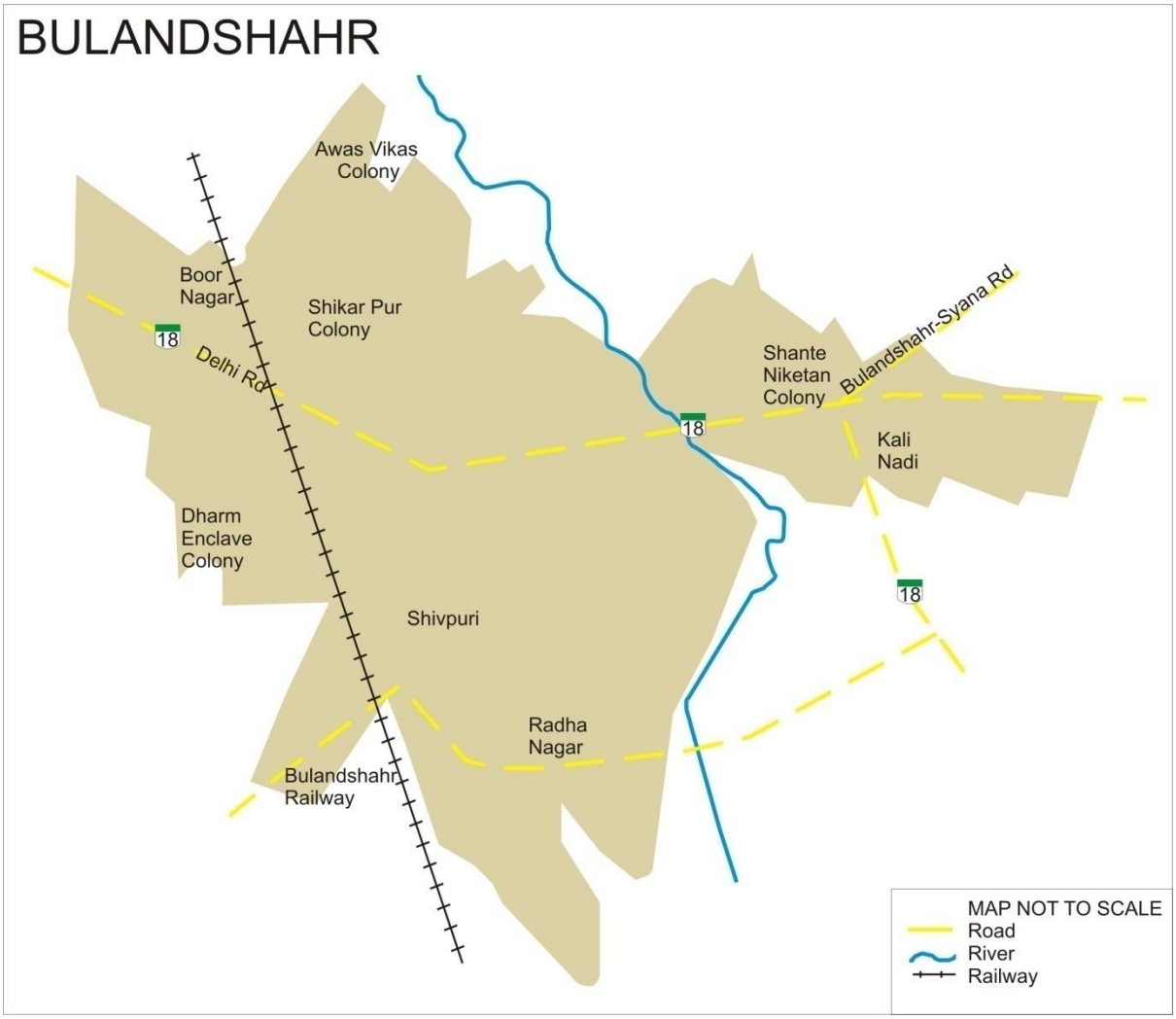
Water Balance & Pollution Load (Domestic) Data Sheet

City: Badaun				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.10
2	Population as in 2011		:	159285
3	Population Growth Rate as in 2011 (%)		:	7.60
4	Total Number of Wards		:	29
5	Population per Ward (Thousands)		:	5,104
6	Total Number of Household as in 2011		:	29061
7	Number of Household per Ward		:	1002
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	22.09
10	Number of Bore Wells		:	20
11	Ground Water Extraction per Bore Well (MLD)		:	1.00
12	Number of Hand Pumps/ Tubewells		:	617
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	138.69
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	22.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	140.60
19	Total Sewage Generation (MLD)*		:	46.10
20	Per Capita Sewage Generation (lpcd)*		:	289.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	4300.70
		COD	:	7311.20
		TKN	:	860.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sot River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1


BUDAUN
Sagar Tal
Akram
Nagar Gadhi
Shyam Nagar
Qabool
Pura
43
Katrabrahmpur
43
18
Budaun
Railway
43
Narau Khurd
Narau
Buzurg
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

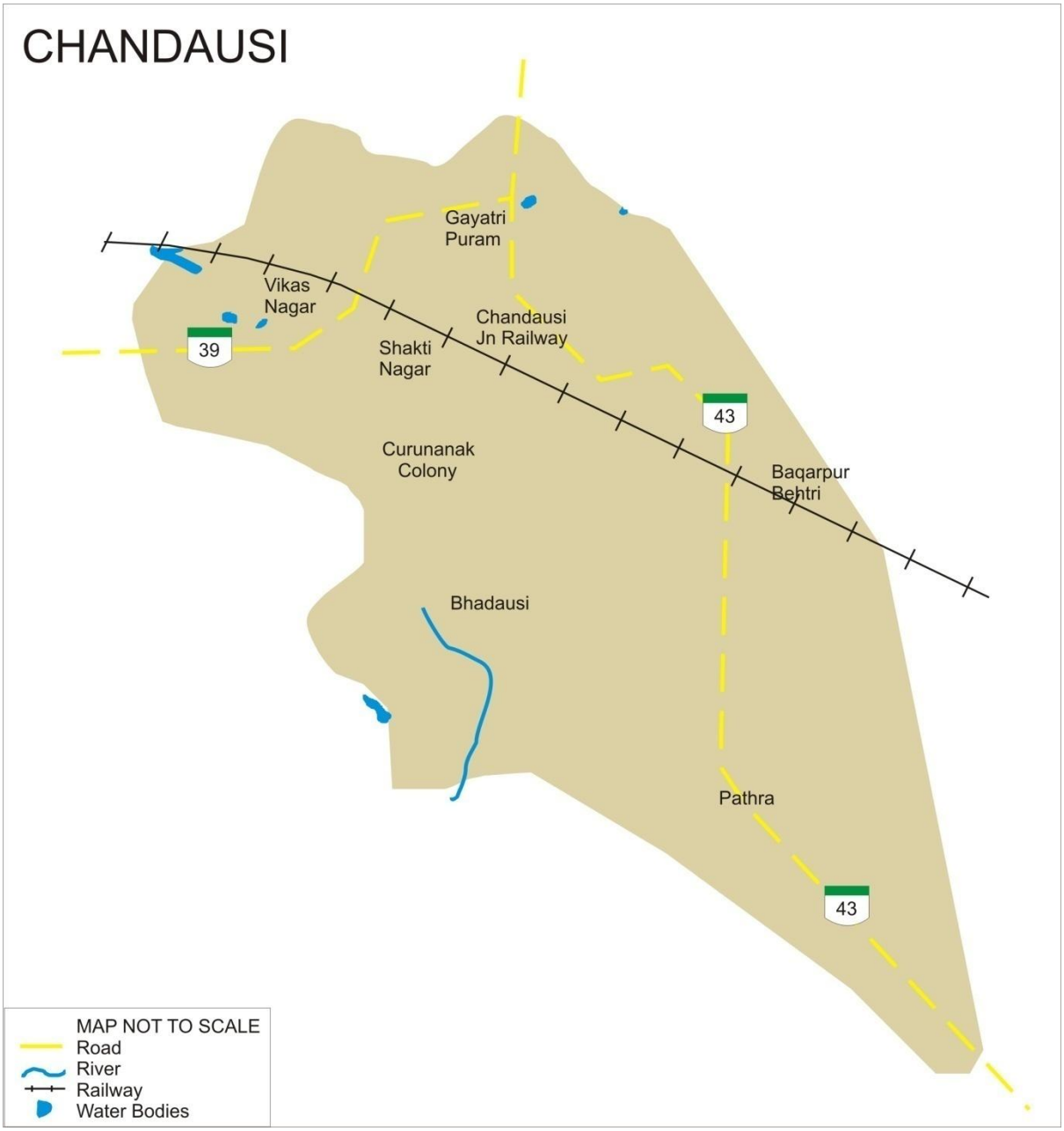
Water Balance & Pollution Load (Domestic) Data Sheet

City: Bulandshahar		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	37.00
2	Population as in 2011		:	230024
3	Population Growth Rate as in 2011 (%)		:	30.38
4	Total Number of Wards		:	32
5	Population per Ward (Thousands)		:	7,188
6	Total Number of Household as in 2011		:	41505
7	Number of Household per Ward		:	1297
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	36.00
10	Number of Bore Wells		:	30
11	Ground Water Extraction per Bore Well (MLD)		:	1.20
12	Number of Hand Pumps/ Tubewells		:	926
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	156.50
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	36.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	158.50
19	Total Sewage Generation (MLD)*		:	28.30
20	Per Capita Sewage Generation (lpcd)		:	122.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	6210.60
		COD	:	10558.10
		TKN	:	1242.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kali River
32	Number of Drains/Nallah for Wastewater Disposal		:	8
33	Number of Water Bodies		:	31
34	Gross Area of Water Bodies (Hectare)		:	6.23
35	Area of Water Bodies as % of Total Area		:	<<< 1


BULANDSHAHR
Awas Vikas Colony
Boor Nagar
Shikar Pur Colony
18
Delhi Rd
Shante Niketan Colony
Bulandshahr-Syana Rd
18
Kali Nadi
Dharm Enclave Colony
18
Shivpuri
Radha Nagar
Bulandshahr Railway
MAP NOT TO SCALE
Road
River
Railway

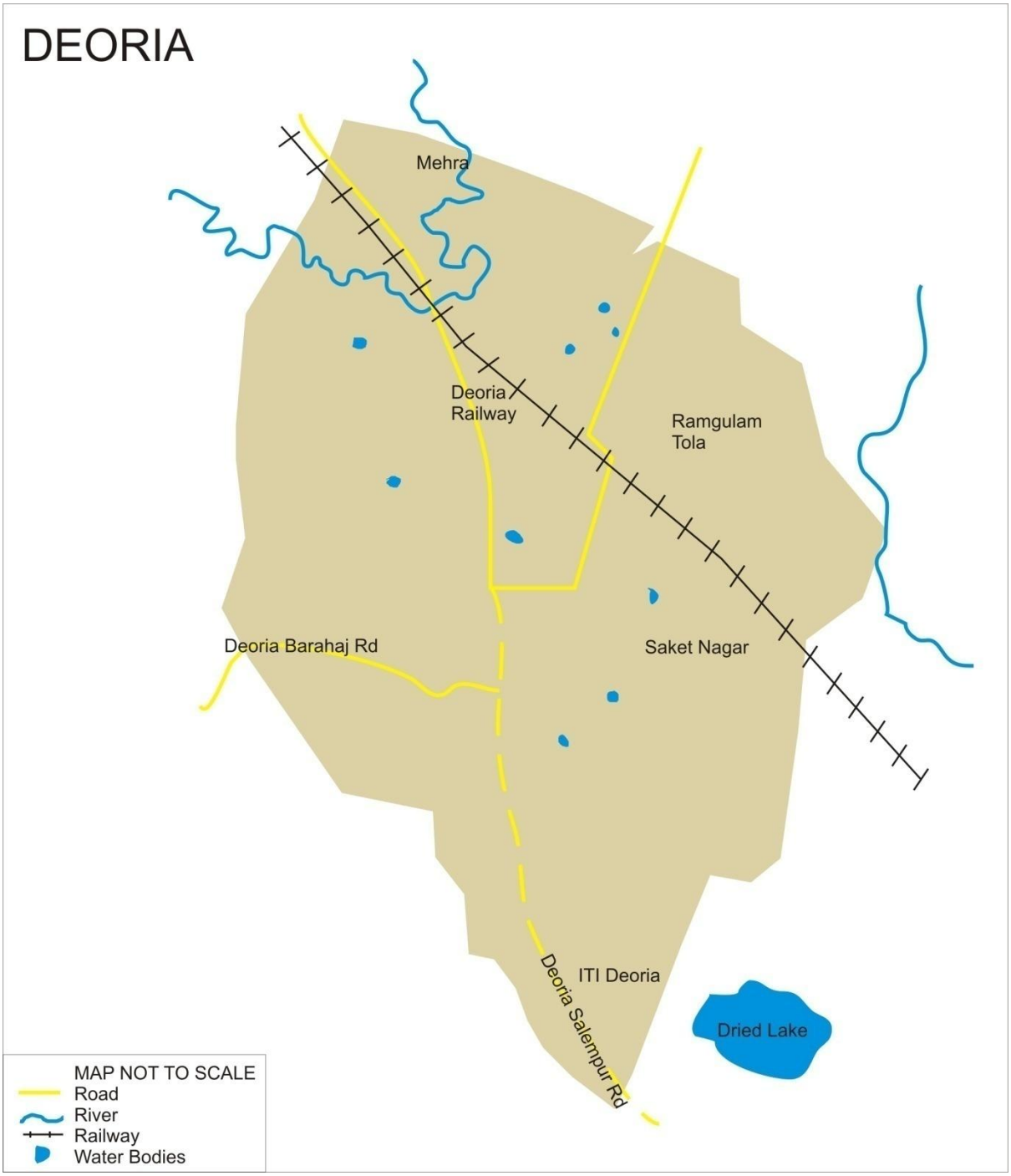
Water Balance & Pollution Load (Domestic) Data Sheet

City: Chandausi		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	8.80
2	Population as in 2011		:	114383
3	Population Growth Rate as in 2011 (%)		:	10.25
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4,575
6	Total Number of Household as in 2011		:	20726
7	Number of Household per Ward		:	829
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	9.00
10	Number of Bore Wells		:	9
11	Ground Water Extraction per Bore Well (MLD)		:	1.00
12	Number of Hand Pumps/ Tubewells		:	1372
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	78.68
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	9.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	84.70
19	Total Sewage Generation (MLD)*		:	10.00
20	Per Capita Sewage Generation (lpcd)		:	87.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3088.30
		COD	:	5250.20
		TKN	:	617.70
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sote River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1


CHANDAUSI
Gayatri
Puram
Vikas
Nagar
39
Shakti
Nagar
Chandausi
Jn Railway
43
Curunanak
Colony
Baqarpur
Behtri
Bhadausi
Pathra
43
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Deoria		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.19
2	Population as in 2011		:	129479
3	Population Growth Rate as in 2011 (%)		:	24.23
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	5179
6	Total Number of Household as in 2011		:	20,076
7	Number of Household per Ward		:	803
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	15.50
10	Number of Bore Wells		:	8
11	Ground Water Extraction per Bore Well (MLD)		:	1.93
12	Number of Hand Pumps/ Tubewells		:	505
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	119.63
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	15.75
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	121.60
19	Total Sewage Generation (MLD)*		:	14.84
20	Per Capita Sewage Generation (lpcd)		:	114.58
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3495.93
		COD	:	5943.09
		TKN	:	699.19
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kurna River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	13
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<<1%

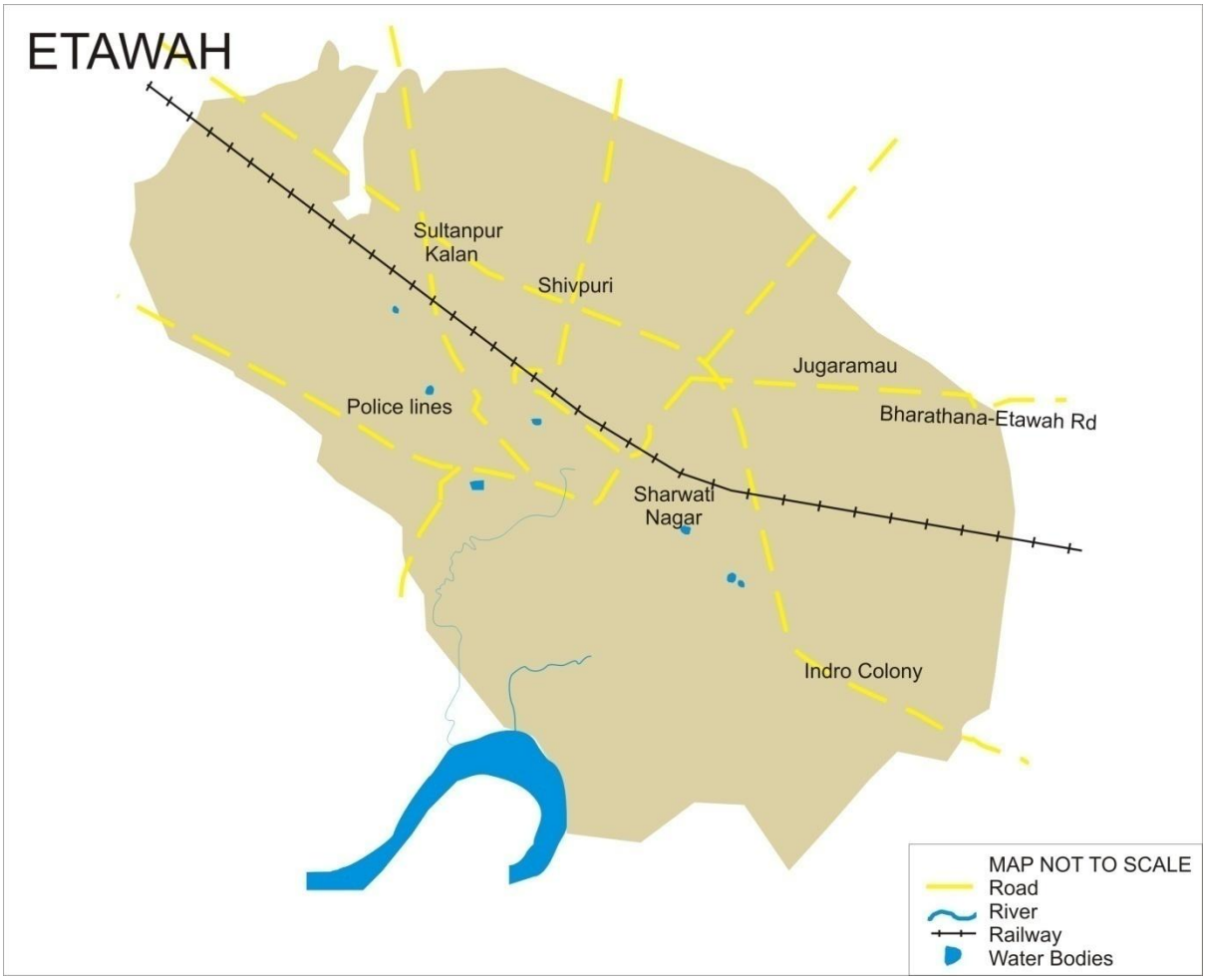

DEORIA
Mehra
Deoria
Railway
Ramgulam
Tola
Deoria Barahaj Rd
Saket Nagar
ITI Deoria
Deoria Salempur Rd
Dried Lake
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Etah		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	13.49
2	Population as in 2001		:	118517
3	Population Growth Rate as in 2001 (%)		:	10.65
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4,284
6	Total Number of Household as in 2001		:	20303
7	Number of Household per Ward		:	812
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	9.60
10	Number of Bore Wells		:	16
11	Ground Water Extraction per Bore Well (MLD)		:	0.60
12	Number of Hand Pumps/ Tubewells		:	855
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	81.00
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	10.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	84.60
19	Total Sewage Generation (MLD)*		:	8.70
20	Per Capita Sewage Generation (lpcd)		:	73.50
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3200.00
		COD	:	5439.90
		TKN	:	640.00
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ishan River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	1.84
35	Area of Water Bodies as % of Total Area		:	<<< 1

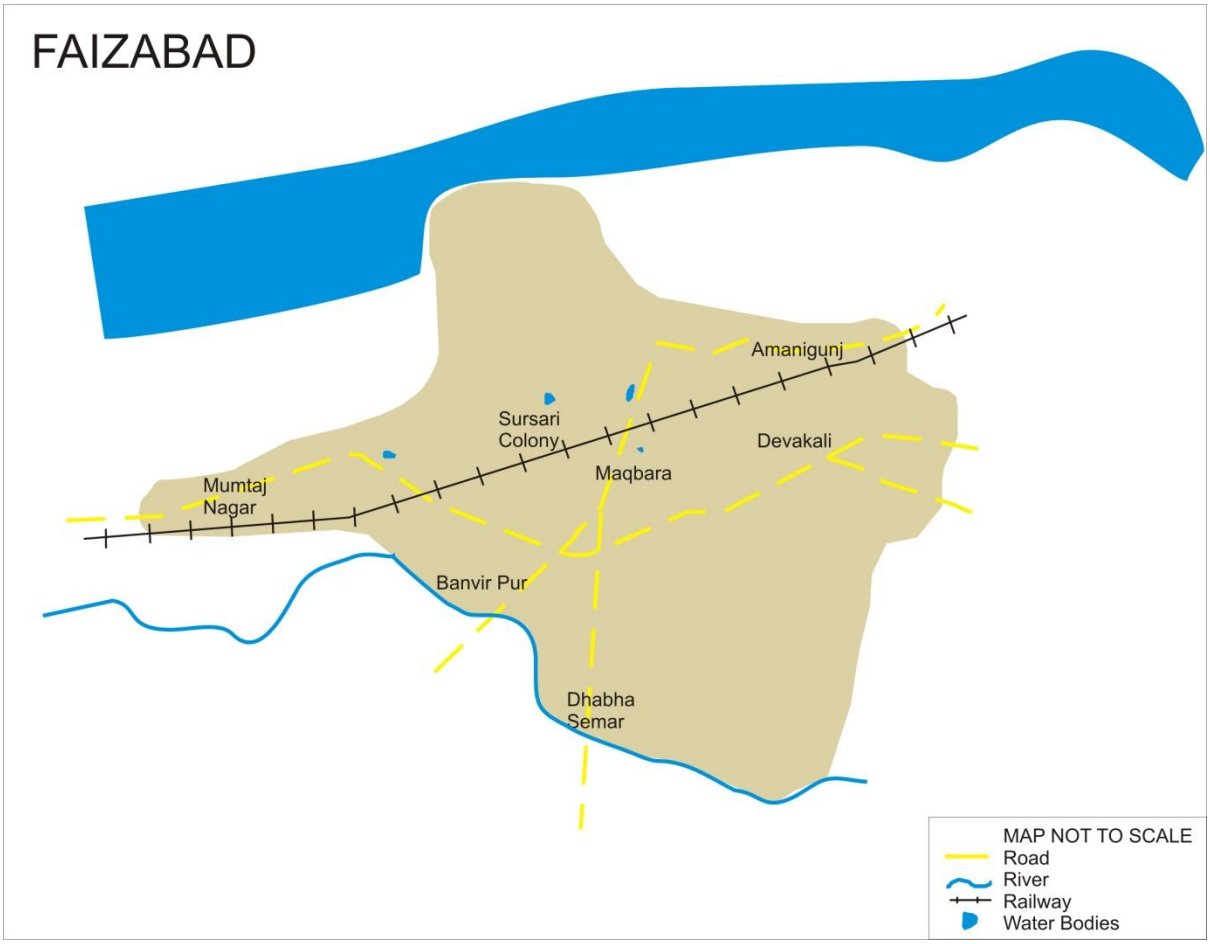
Water Balance & Pollution Load (Domestic) Data Sheet

City: Etawah		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	28.94
2	Population as in 2011		:	256838
3	Population Growth Rate as in 2011 (%)		:	22.04
4	Total Number of Wards		:	36
5	Population per Ward (Thousands)		:	5,846
6	Total Number of Household as in 2011		:	44659
7	Number of Household per Ward		:	1241
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	23.00
10	Number of Bore Wells		:	43
11	Ground Water Extraction per Bore Well (MLD)		:	0.47
12	Number of Hand Pumps/ Tubewells		:	930
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	89.55
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	23.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	91.40
19	Total Sewage Generation (MLD)		:	22.40
20	Per Capita Sewage Generation (lpcd)		:	87.30
21	Sewage Collection (MLD)		:	10.45
22	Percentage of Sewage Collection (%)		:	46.60
23	Number of STPs		:	1
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	10.45
25	Current Utilized Capacity of STPs (MLD)		:	10.45
26	Percentage Utilization of Installed Capacity (%)		:	100
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	:	6934.60
		COD	:	11788.90
		TKN	:	1386.90
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	19
34	Gross Area of Water Bodies (Hectare)		:	7.29
35	Area of Water Bodies as % of Total Area		:	<<< 1


ETAWAH
Sultanpur Kalan
Shivpuri
Jugaramau
Police lines
Bharathana-Etawah Rd
Sharwati Nagar
Indro Colony
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

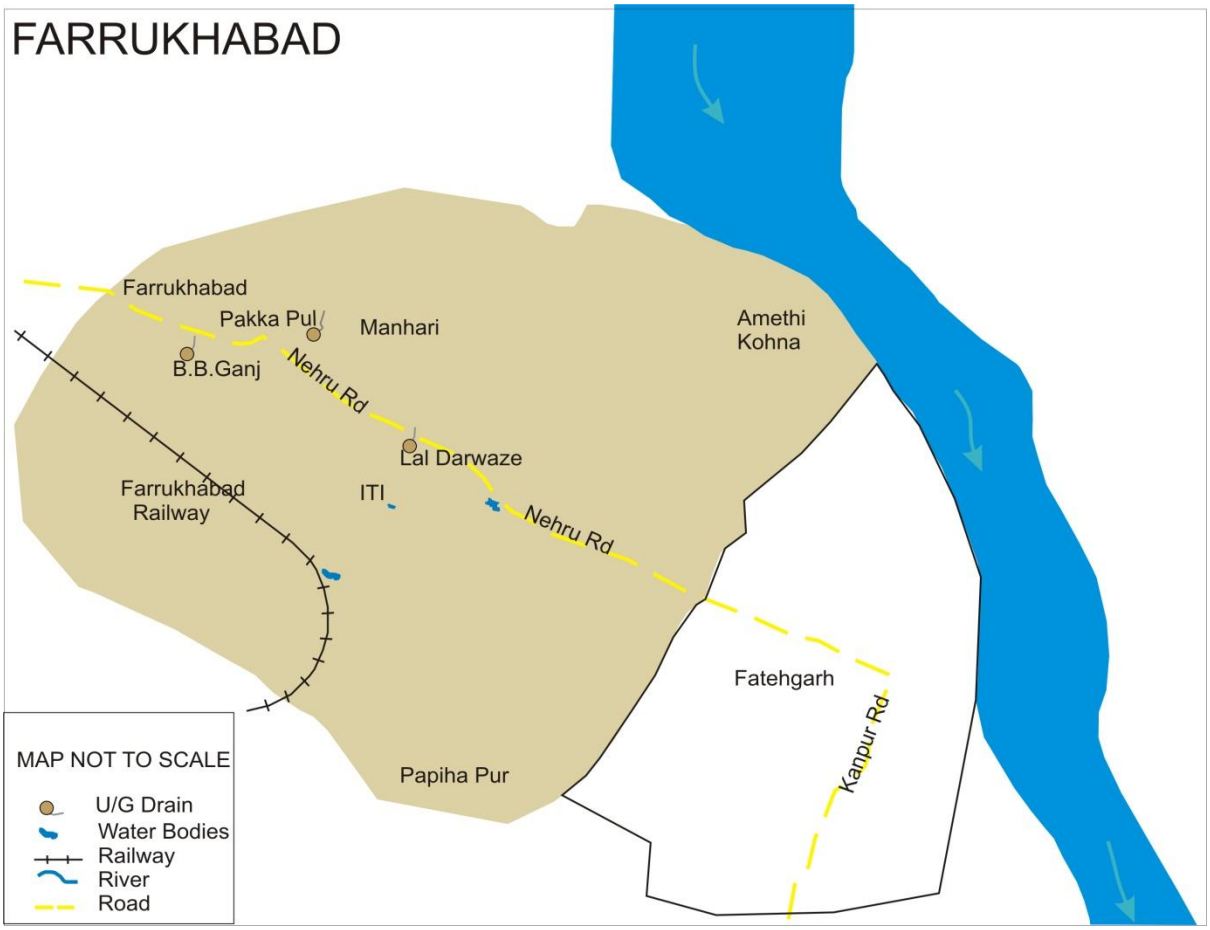
Water Balance & Pollution Load (Domestic) Data Sheet

City: Faizabad		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.02
2	Population as in 2011		:	165228
3	Population Growth Rate as in 2011 (%)		:	14.18
4	Total Number of Wards		:	28
5	Population per Ward (Thousands)		:	5,901
6	Total Number of Household as in 2011		:	28150
7	Number of Household per Ward		:	1005
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	15.50
10	Number of Bore Wells		:	34
11	Ground Water Extraction per Bore Well (MLD)		:	0.46
12	Number of Hand Pumps		:	792
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	93.81
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	15.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	96.20
19	Total Sewage Generation (MLD)		:	27.90
20	Per Capita Sewage Generation (lpcd)		:	168.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	4461.20
		COD	:	7584.00
		TKN	:	892.20
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sai River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	0.45
35	Area of Water Bodies as % of Total Area		:	<< 1


FAIZABAD
Amanigunj
Sursari
Colony
Devakali
Maqbara
Mumtaj
Nagar
Banvir Pur
Dhabha
Semar
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

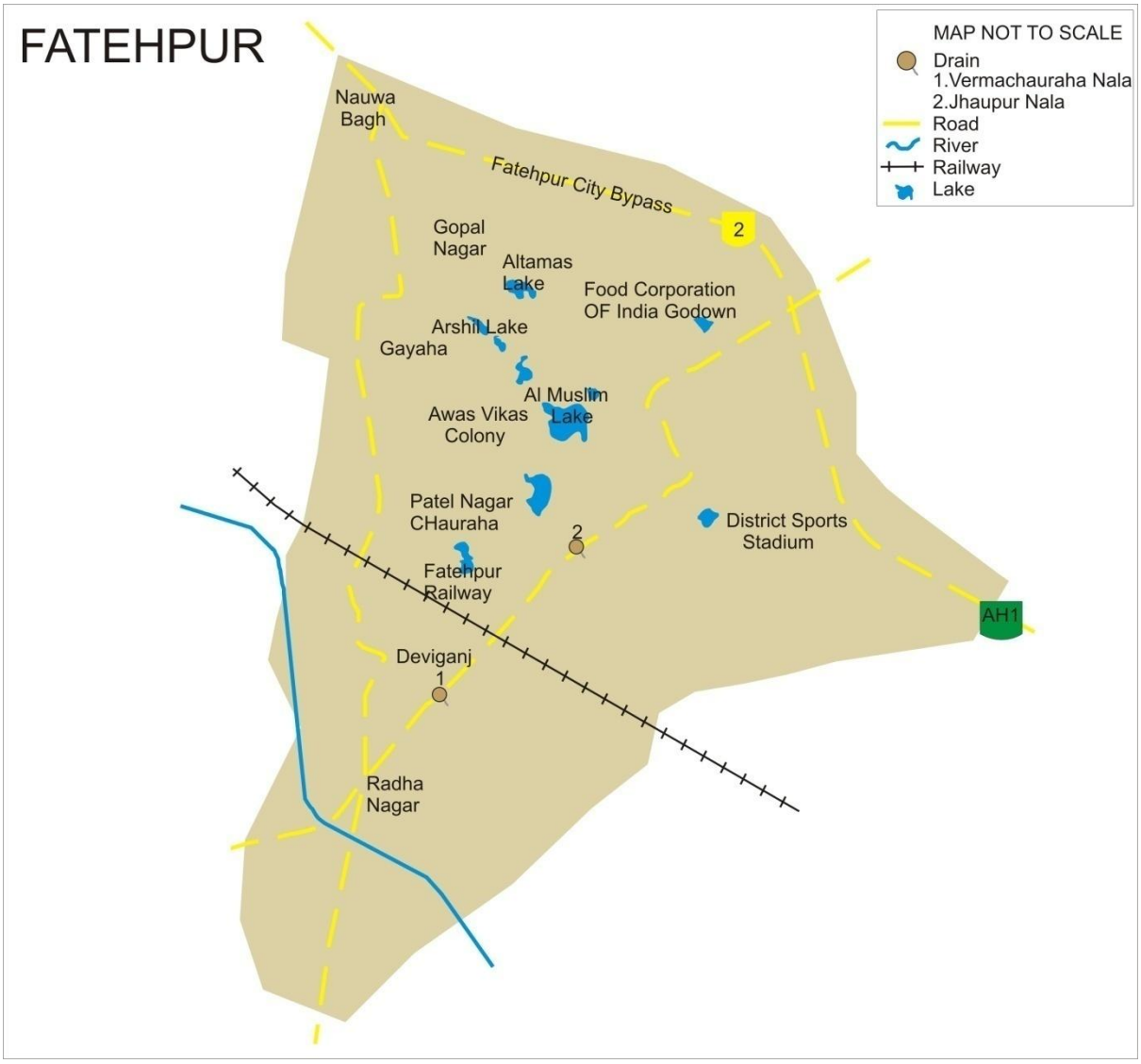
Water Balance & Pollution Load (Domestic) Data Sheet

City: Farrukhabad		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	19.11
2	Population as in 2011		:	276581
3	Population Growth Rate as in 2011 (%)		:	21.13
4	Total Number of Wards		:	37
5	Population per Ward (Thousands)		:	7,475
6	Total Number of Household as in 2011		:	48850
7	Number of Household per Ward		:	1320
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	24.10
10	Number of Bore Wells		:	44
11	Ground Water Extraction per Bore Well (MLD)		:	0.55
12	Number of Hand Pumps/ Tubewells		:	2800
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	87.14
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	25.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	92.20
19	Total Sewage Generation (MLD)*		:	32.40
20	Per Capita Sewage Generation (lpcd)		:	117.10
21	Sewage Collection (MLD)		:	1.80
22	Percentage of Sewage Collection (%)		:	5.50
23	Number of STPs		:	1
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	2.70
25	Current Utilized Capacity of STPs (MLD)		:	1.50
26	Percentage Utilization of Installed Capacity (%)		:	55.55
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	:	7467.70
		COD	:	12695.10
		TKN	:	1493.50
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	9
34	Gross Area of Water Bodies (Hectare)		:	2.67
35	Area of Water Bodies as % of Total Area		:	<<< 1


FARRUKHABAD
Farrukhabad
Pakka Pul
Manhari
B.B.Ganj
Nehru Rd
Amethi
Kohna
Lal Darwaze
Farrukhabad
Railway
ITI
Nehru Rd
Fatehgarh
Kanpur Rd
Papiha Pur
MAP NOT TO SCALE
U/G Drain
Water Bodies
Railway
River
Road

Water Balance & Pollution Load (Domestic) Data Sheet

City: Fatehpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	56.98
2	Population as in 2011		:	193193
3	Population Growth Rate as in 2011 (%)		:	27.04
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	6,440
6	Total Number of Household as in 2011		:	34745
7	Number of Household per Ward		:	1158
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	29.61
10	Number of Bore Wells		:	47
11	Ground Water Extraction per Bore Well (MLD)		:	0.63
12	Number of Hand Pumps		:	786
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	153.27
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	30.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	155.30
19	Total Sewage Generation (MLD)*		:	11.80
20	Per Capita Sewage Generation (lpcd)		:	60.90
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	5216.20
		COD	:	8867.60
		TKN	:	1043.20
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	7
34	Gross Area of Water Bodies (sq km)		:	2.30
35	Area of Water Bodies as % of Total Area		:	<<<1


FATEHPUR
MAP NOT TO SCALE
Drain
1.Vermachauraha Nala
2.Jhaupur Nala
Road
River
Railway
Lake
Nauwa Bagh
Fatehpur City Bypass
2
Gopal Nagar
Altamas Lake
Food Corporation OF India Godown
Arshil Lake
Gayaha
Al Muslim Lake
Awas Vikas Colony
Patel Nagar CHauraha
2
District Sports Stadium
Fatehpur Railway
AH1
Deviganj
1
Radha Nagar

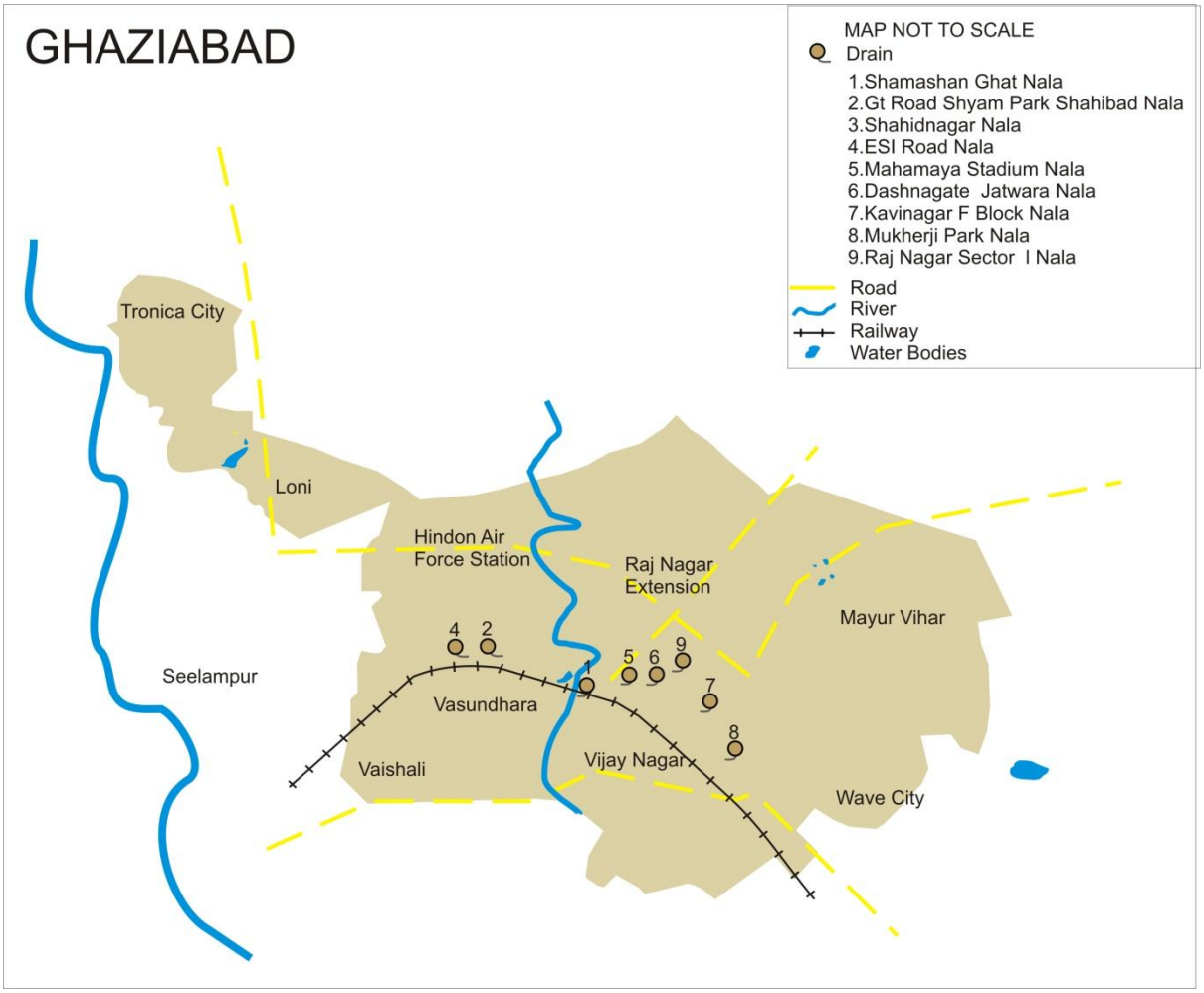
Water Balance & Pollution Load (Domestic) Data Sheet

City: Firozabad				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	21.35
2	Population as in 2011		:	604214
3	Population Growth Rate as in 2011 (%)		:	51.96
4	Total Number of Wards		:	42
5	Population per Ward (Thousands)		:	14,386
6	Total Number of Household as in 2011		:	99833
7	Number of Household per Ward		:	2377
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	42.65
10	Number of Bore Wells		:	194
11	Ground Water Extraction per Bore Well (MLD)		:	0.22
12	Number of Hand Pumps/ Tubewells		:	1415
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	70.59
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	43.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	71.80
19	Total Sewage Generation (MLD)		:	85.30
20	Per Capita Sewage Generation (lpcd)		:	141.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	16313.80
		COD	:	27733.40
		TKN	:	3262.80
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	16
34	Gross Area of Water Bodies (Hectare)		:	5.35
35	Area of Water Bodies as % of Total Area		:	<<< 1


FIROZABAD
Dholpura
Rehna
Sukhmalpur
Nizamabad
Kotla road
Saanti Road
Sailai
Humaunpur
Kashmri gate
Sadar Bazaar
Didamai
Newbypass
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

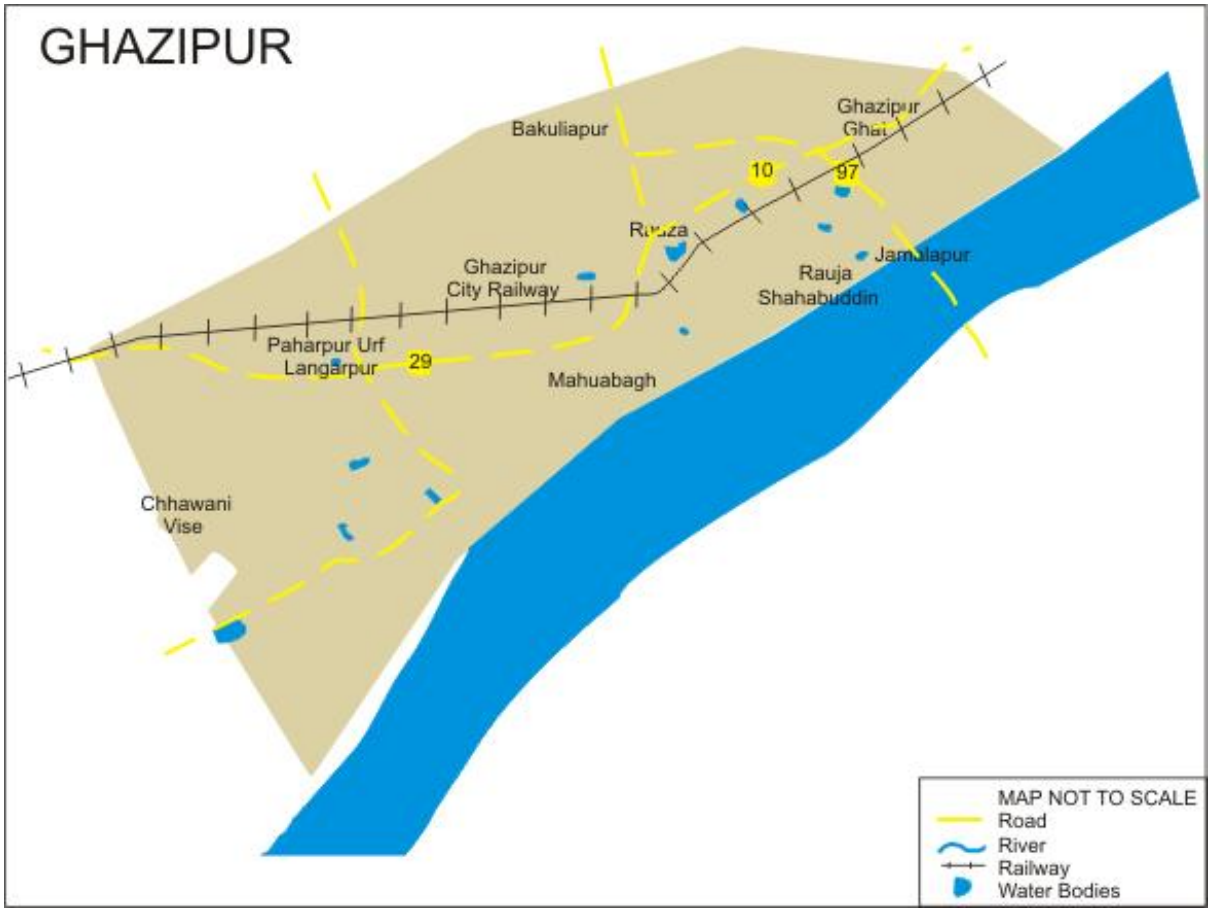
Water Balance & Pollution Load (Domestic) Data Sheet

City: Ghaziabad		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	220.00
2	Population as in 2011		:	1648643
3	Population Growth Rate as in 2011 (%)		:	70.27
4	Total Number of Wards		:	80
5	Population per Ward (Thousands)		:	20,608
6	Total Number of Household as in 2011		:	336069
7	Number of Household per Ward		:	4201
8	Surface Water Supply (MLD)		:	73
9	Ground Water (GW) Supply (MLD)		:	320
10	Number of Bore Wells		:	334
11	Ground Water Extraction per Bore Well (MLD)		:	0.96
12	Number of Hand Pumps/ Tubewells		:	5353
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	73
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	395.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	240.00
19	Total Sewage Generation (MLD)*		:	163.80
20	Per Capita Sewage Generation (lpcd)		:	99.40
21	Sewage Collection (MLD)		:	120.00
22	Percentage of Sewage Collection (%)		:	73.26
23	Number of STPs		:	3
24	Total Installed Capacity of STPs under YAP I & II (MLD)		:	126
25	Current Utilized Capacity of STPs (MLD)		:	120
26	Percentage Utilization of Installed Capacity (%)		:	95.24
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	224
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	:	44513.40
		COD	:	75672.70
		TKN	:	8902.70
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna &Hindon River
32	Number of Drains/Nallah for Wastewater Disposal		:	9
33	Number of Water Bodies		:	121
34	Gross Area of Water Bodies (Hectare)		:	50.00
35	Area of Water Bodies as % of Total Area		:	<<< 1


GHAZIABAD
MAP NOT TO SCALE
Drain
1.Shamashan Ghat Nala
2.Gt Road Shyam Park Shahibad Nala
3.Shahidnagar Nala
4.ESI Road Nala
5.Mahamaya Stadium Nala
6.Dashnagate Jatwara Nala
7.Kavinagar F Block Nala
8.Mukherji Park Nala
9.Raj Nagar Sector I Nala
Road
River
Railway
Water Bodies
Tronica City
Loni
Hindon Air Force Station
Raj Nagar Extension
Mayur Vihar
Seelampur
Vasundhara
Vaishali
Vijay Nagar
Wave City
4
2
5
6
9
1
7
8

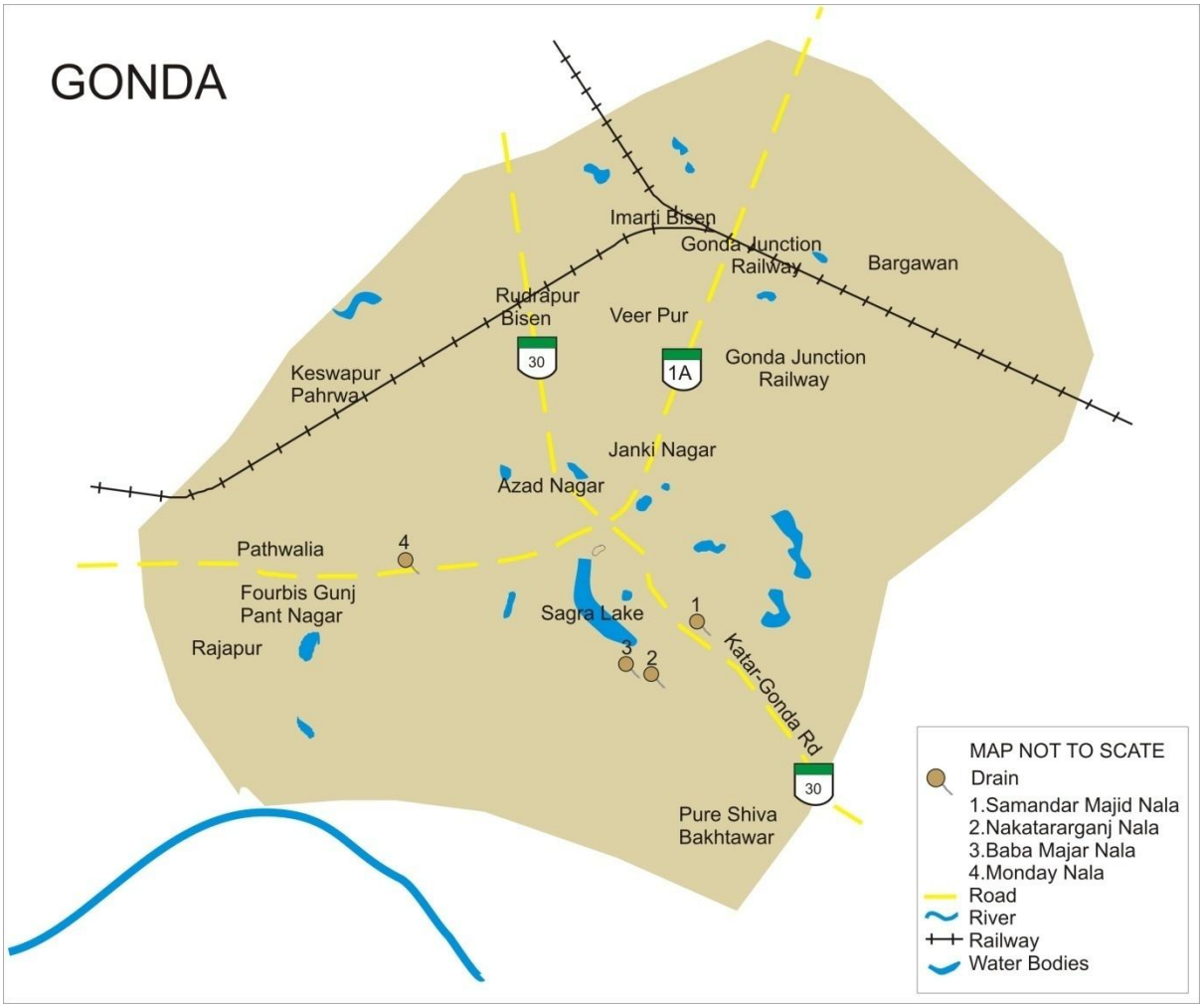
Water Balance & Pollution Load (Domestic) Data Sheet

City: Ghazipur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	18.3
2	Population as in 2011/2001		:	121020
3	Population Growth Rate as in 2011 (%)		:	17.16
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	4034
6	Total Number of Household as in 2011		:	19,556
7	Number of Household per Ward		:	652
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	15.90
10	Number of Bore Wells		:	37
11	Ground Water Extraction per Bore Well (MLD)		:	0.43
12	Number of Hand Pumps/ Tubewells		:	465
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	131.38
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	16.13
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	133.30
19	Total Sewage Generation (MLD)*		:	11.82
20	Per Capita Sewage Generation (lpcd)		:	110.00
21	Sewage Collection (MLD)		:	11.82
22	Percentage of Sewage Collection (%)		:	75.40
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3267.54
		COD	:	5554.82
		TKN	:	653.51
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	7
33	Number of Water Bodies		:	7
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	NA


GHAZIPUR
Bakuliapur
Ghazipur
Ghat
10
97
Ghazipur
City Railway
Rauja
Shahabuddin
Paharpur Urf
Langarpur
29
Mahuabagh
Chhawani
Vise
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

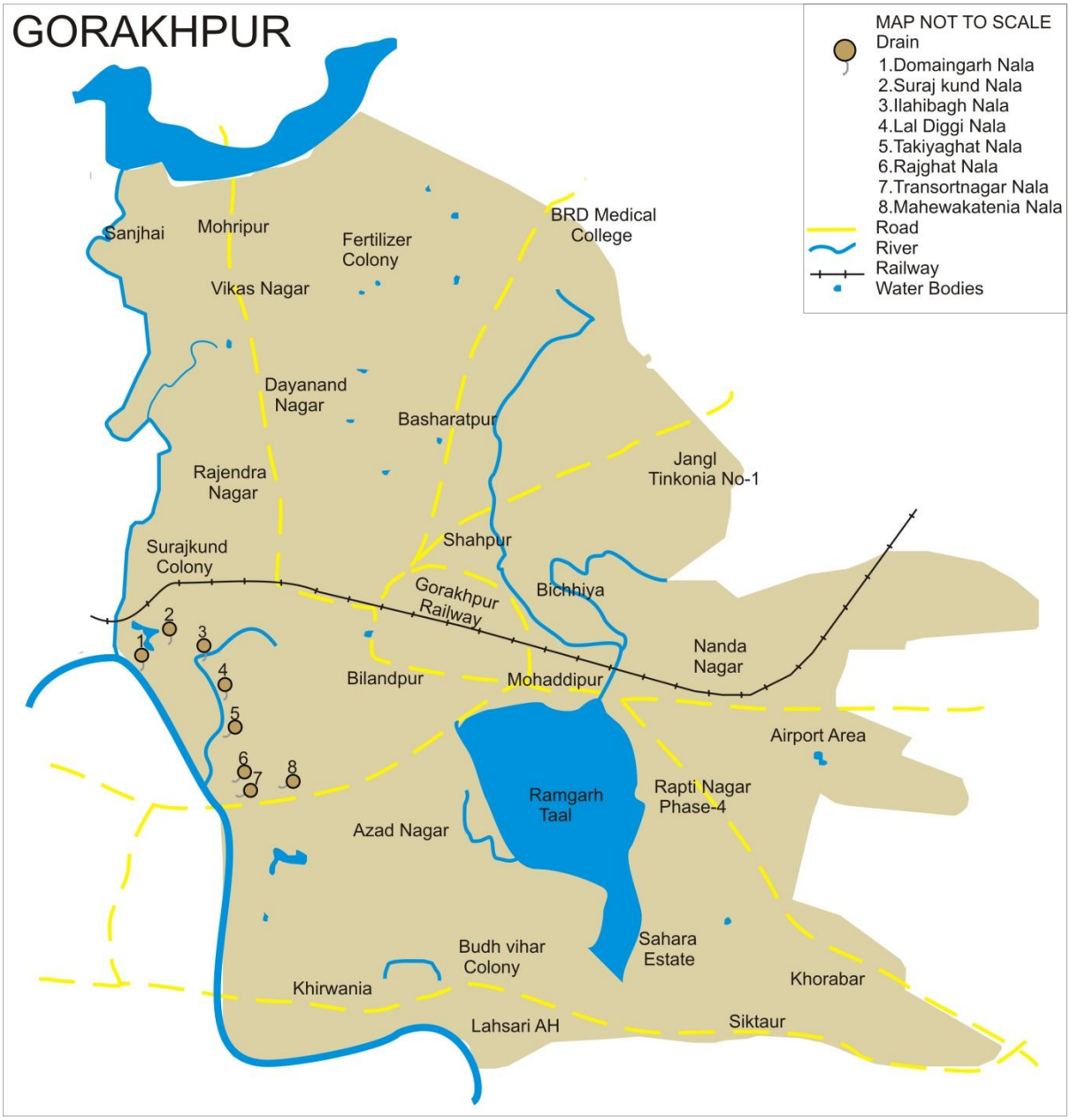
Water Balance & Pollution Load (Domestic) Data Sheet

City: Gonda				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	24.62
2	Population as in 2011		:	114046
3	Population Growth Rate as in 2011 (%)		:	(-) 5.20
4	Total Number of Wards		:	27
5	Population per Ward (Thousands)		:	4,224
6	Total Number of Household as in 2011		:	19293
7	Number of Household per Ward		:	715
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	22.46
10	Number of Bore Wells		:	12
11	Ground Water Extraction per Bore Well (MLD)		:	1.87
12	Number of Hand Pumps/ Tubewells		:	11351
13	Ground Water Extraction per Hand Pump (lpd)		:	200
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	196.97
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	24.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	216.90
19	Total Sewage Generation (MLD)		:	20.30
20	Per Capita Sewage Generation (lpcd)		:	178.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3079.20
		COD	:	5234.70
		TKN	:	615.80
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Teri River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	6
34	Gross Area of Water Bodies (Hectare)		:	9.30
35	Area of Water Bodies as % of Total Area		:	<<< 1


GONDA
Imarti Bisen
Gonda Junction Railway
Bargawan
Rudrapur Bisen
Veer Pur
30
1A
Gonda Junction Railway
Keswapur Pahrwa
Janki Nagar
Azad Nagar
Pathwalia
4
Fourbis Gunj
Pant Nagar
Sagra Lake
1
Rajapur
3
2
Katar-Gonda Rd
30
Pure Shiva Bakhtawar
MAP NOT TO SCATE
Drain
1.Samandar Majid Nala
2.Nakatararganj Nala
3.Baba Majar Nala
4.Monday Nala
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Gorakhpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	141.02
2	Population as in 2011		:	673446
3	Population Growth Rate as in 2011 (%)		:	8.15
4	Total Number of Wards		:	70
5	Population per Ward (Thousands)		:	9,621
6	Total Number of Household as in 2011		:	112237
7	Number of Household per Ward		:	1603
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	82
10	Number of Bore Wells		:	96
11	Ground Water Extraction per Bore Well (MLD)		:	0.85
12	Number of Hand Pumps/ Tubewells		:	3694
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	121.80
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	83.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	124.50
19	Total Sewage Generation (MLD)		:	35.00
20	Per Capita Sewage Generation (lpcd)		:	52.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	18183.00
		COD	:	30911.20
		TKN	:	3636.60
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Rapti River
32	Number of Drains/Nallah for Wastewater Disposal		:	8
33	Number of Water Bodies		:	48
34	Gross Area of Water Bodies (Hectare)		:	32.63
35	Area of Water Bodies as % of Total Area		:	<<< 1


GORAKHPUR
MAP NOT TO SCALE
Drain
1.Domaingarh Nala
2.Suraj kund Nala
3.Ilahibagh Nala
4.Lal Diggi Nala
5.Takiyaghat Nala
6.Rajghat Nala
7.Transortnagar Nala
8.Mahewakatenia Nala
Road
River
Railway
Water Bodies
Sanjhai
Mohripur
Fertilizer Colony
BRD Medical College
Vikas Nagar
Dayanand Nagar
Basharatpur
Jangl Tinkonia No-1
Rajendra Nagar
Shahpur
Surajkund Colony
Gorakhpur Railway
Bichhiya
Nanda Nagar
Bilandpur
Mohaddipur
Airport Area
Ramgarh Taal
Rapti Nagar Phase-4
Azad Nagar
Budh vihar Colony
Sahara Estate
Khirwania
Khorabar
Lahsari AH
Siktaur

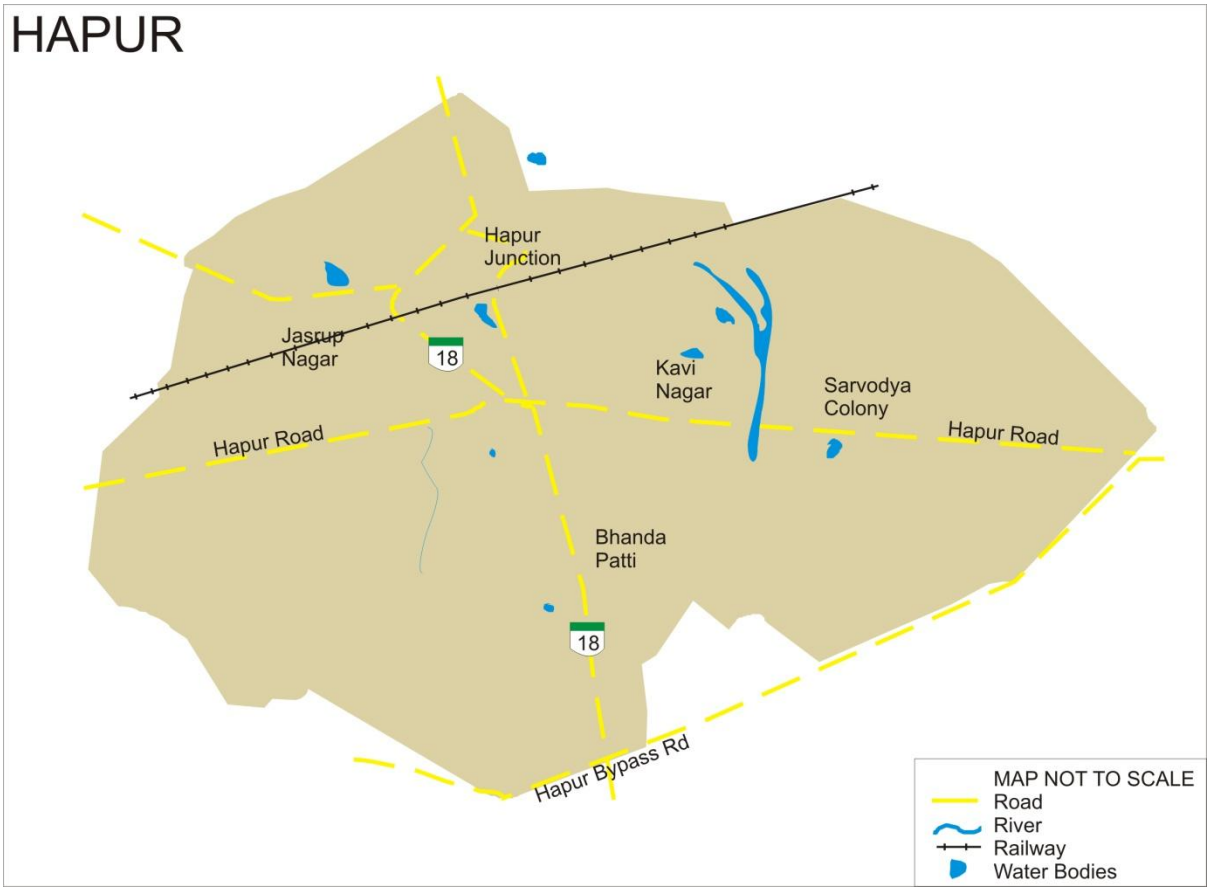
Water Balance & Pollution Load (Domestic) Data Sheet

City: Greater Noida		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	20.00
2	Population as in 2011		:	102054
3	Population Growth Rate as in 2011 (%)		:	NA
4	Total Number of Wards		:	58
5	Population per Ward (Thousands)		:	1,760
6	Total Number of Household as in 2011		:	20779
7	Number of Household per Ward		:	358
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	74.00
10	Number of Bore Wells		:	108
11	Ground Water Extraction per Bore Well (MLD)		:	0.69
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	1000
14	Number of Pumping Stations for Water Supply		:	1
15	Total Pumping Capacity (MLD)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	74.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	725.10
19	Total Sewage Generation (MLD)*		:	110.20
20	Per Capita Sewage Generation (lpcd)		:	1080.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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)		:	47
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	:	2755.50
		COD	:	4684.30
		TKN	:	551.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1


GREATER
NOIDA
Ithaira
Vaidpura
Deri Skaner
Ecotech III
Village
Tilpatta
Malakpur
Makora
Ansal Golf
Links I
Maincha
Surajpur
Site V
Yamuna Expy
MAP NOT TO SCALE
Road
River

Water Balance & Pollution Load (Domestic) Data Sheet

City: Hapur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	14.20
2	Population as in 2011		:	262983
3	Population Growth Rate as in 2011 (%)		:	24.06
4	Total Number of Wards		:	36
5	Population per Ward (Thousands)		:	7,305
6	Total Number of Household as in 2011		:	45356
7	Number of Household per Ward		:	1260
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	24.00
10	Number of Bore Wells		:	18
11	Ground Water Extraction per Bore Well (MLD)		:	1.33
12	Number of Hand Pumps/ Tubewells		:	932
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	91.30
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	24.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	93.00
19	Total Sewage Generation (MLD)*		:	22.90
20	Per Capita Sewage Generation (lpcd)		:	87.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	7100.50
		COD	:	12070.90
		TKN	:	1420.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kali River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1


HAPUR
Hapur Junction
Jasrup Nagar
18
Kavi Nagar
Sarvodya Colony
Hapur Road
Hapur Road
Bhanda Patti
18
Hapur Bypass Rd
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

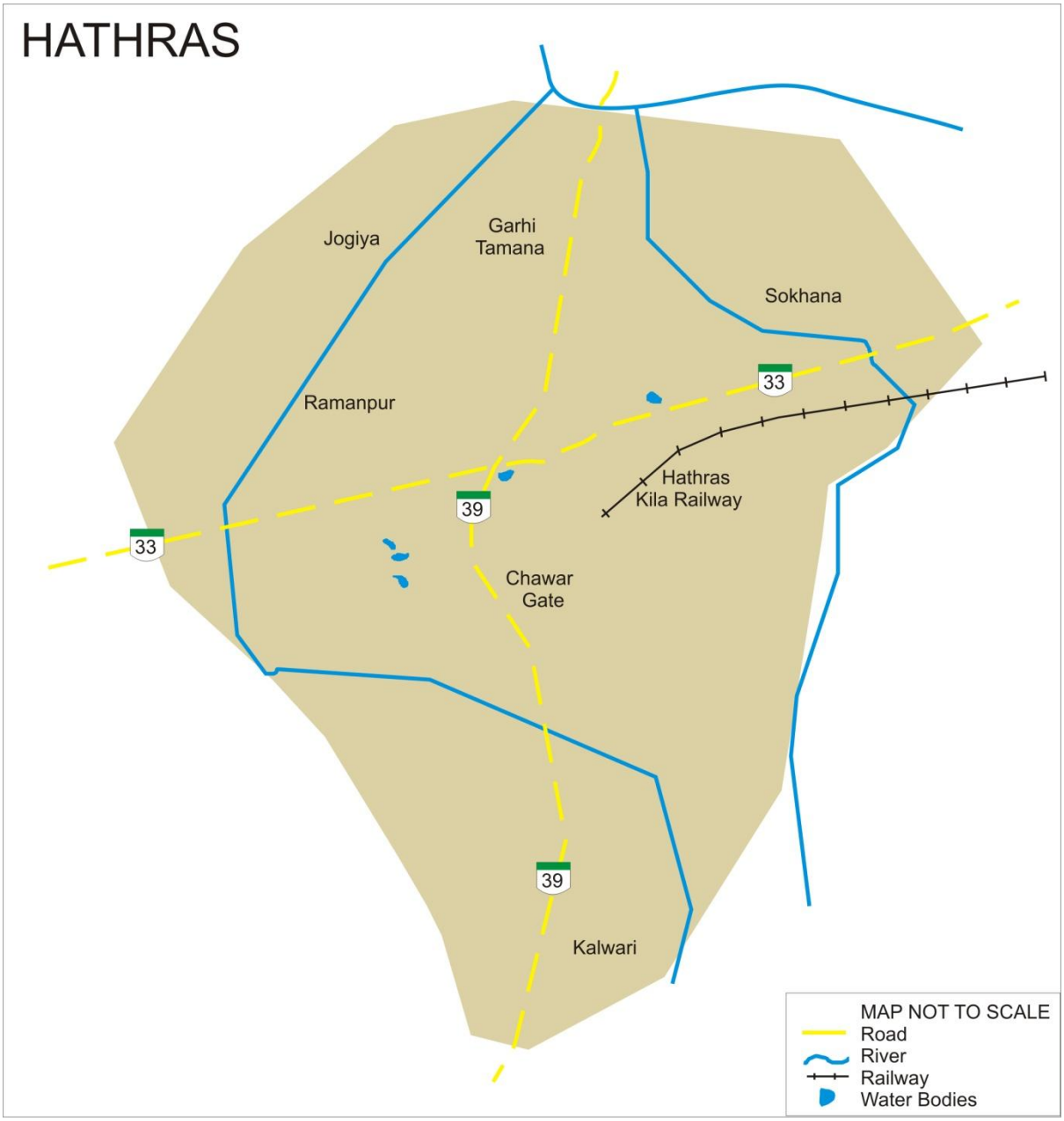
Water Balance & Pollution Load (Domestic) Data Sheet

City: Hardoi		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.42
2	Population as in 2001		:	197029
3	Population Growth Rate as in 2001 (%)		:	75.16
4	Total Number of Wards		:	26
5	Population per Ward (Thousands)		:	7,578
6	Total Number of Household as in 2001		:	34312
7	Number of Household per Ward		:	1320
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	7.5
10	Number of Bore Wells		:	13
11	Ground Water Extraction per Bore Well (MLD)		:	0.58
12	Number of Hand Pumps		:	889
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	59.00
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	40.30
19	Total Sewage Generation (MLD)		:	2.20
20	Per Capita Sewage Generation (lpcd)		:	30.50
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	5319.80
		COD	:	9043.60
		TKN	:	1064.00
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sai River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	13
34	Gross Area of Water Bodies (sq km)		:	4.20
35	Area of Water Bodies as % of Total Area		:	<<<1


HARDOI
Aneg Behta
21
Subhash Nagar
Hardoi Railway
Industrial Area
Dhear Mahaliya
Mammarpur
25
Behta Chand
25
Naya Gawn Muvarkpur
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Hathras		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.76
2	Population as in 2001		:	143020
3	Population Growth Rate as in 2001 (%)		:	13.19
4	Total Number of Wards		:	27
5	Population per Ward (Thousands)		:	4,680
6	Total Number of Household as in 2001		:	25402
7	Number of Household per Ward		:	941
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	10.23
10	Number of Bore Wells		:	14
11	Ground Water Extraction per Bore Well (MLD)		:	0.73
12	Number of Hand Pumps/ Tubewells		:	530
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	80.96
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	10.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	83.10
19	Total Sewage Generation (MLD)*		:	9.10
20	Per Capita Sewage Generation (lpcd)		:	64.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3861.50
		COD	:	6564.60
		TKN	:	772.30
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Karvan River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	1.30
35	Area of Water Bodies as % of Total Area		:	<<< 1


HATHRAS
Jogiya
Garhi
Tamana
Sokhana
Ramanpur
33
39
33
Hathras
Kila Railway
Chawar
Gate
39
Kalwari
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Jaunpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	25.30
2	Population as in 2011		:	180362
3	Population Growth Rate as in 2011 (%)		:	12.69
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	5,818
6	Total Number of Household as in 2011		:	26216
7	Number of Household per Ward		:	846
8	Surface Water Supply (MLD)		:	5.40
9	Ground Water (GW) Supply (MLD)		:	11
10	Number of Bore Wells		:	25
11	Ground Water Extraction per Bore Well (MLD)		:	0.44
12	Number of Hand Pumps/ Tubewells		:	844
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	90.93
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	16.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	93.30
19	Total Sewage Generation (MLD)*		:	15.30
20	Per Capita Sewage Generation (lpcd)		:	84.70
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	4869.80
		COD	:	8278.60
		TKN	:	974.00
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gomati River
32	Number of Drains/Nallah for Wastewater Disposal		:	9
33	Number of Water Bodies		:	3
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

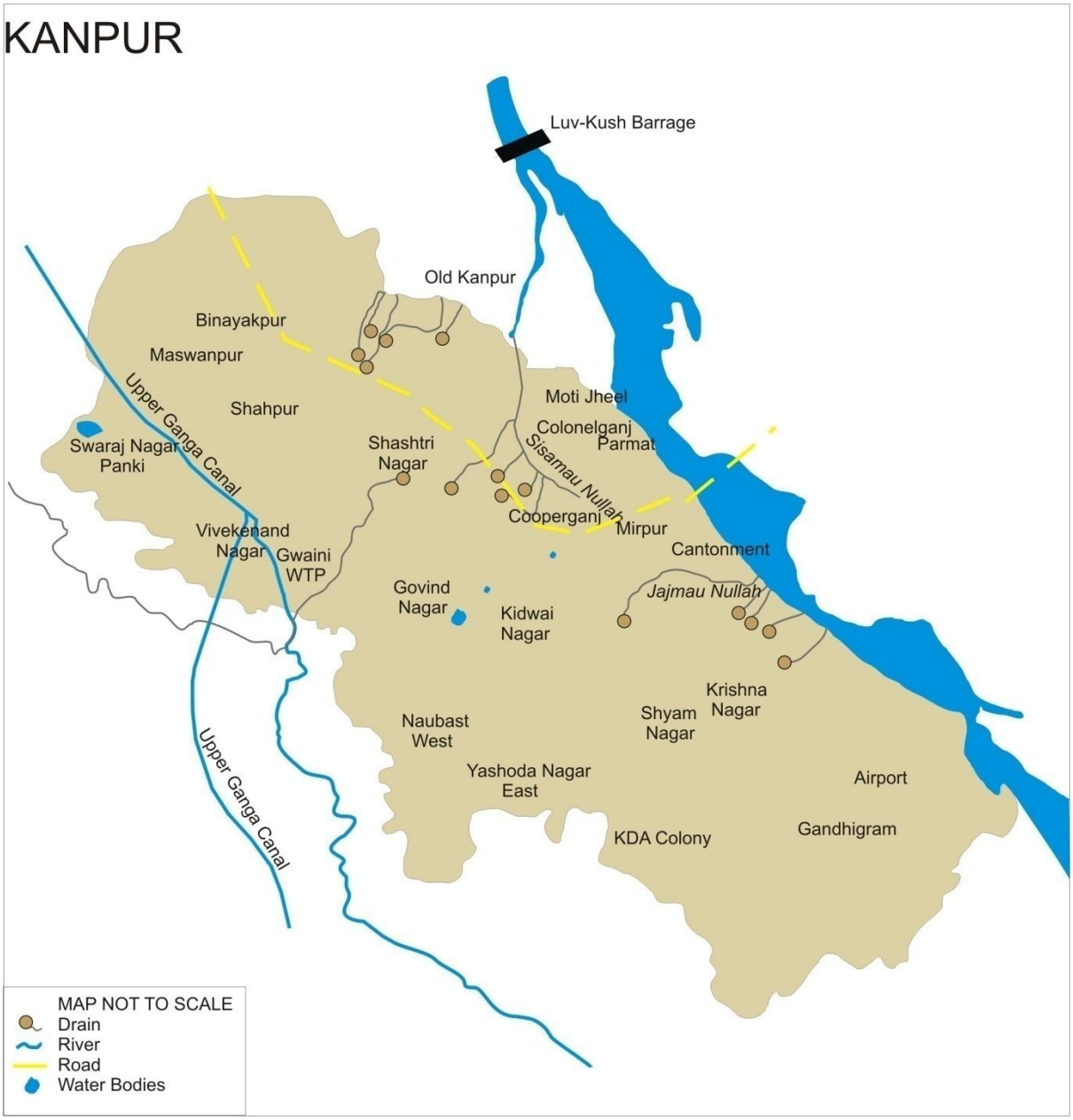

JAUNPUR
Haiderpur
Arazi
Mainipur
Kutubpur
Chaukipur
Jaunpur
Junction
Railway
35
Shekh
Mohamid
Vishesharpur
Olandganj
35
Mainpur
Jamaitha
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Jhansi		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	150.00
2	Population as in 2011		:	505693
3	Population Growth Rate as in 2011 (%)		:	18.65
4	Total Number of Wards		:	60
5	Population per Ward (Thousands)		:	8,428
6	Total Number of Household as in 2011		:	91150
7	Number of Household per Ward		:	1519
8	Surface Water Supply (MLD)		:	66
9	Ground Water (GW) Supply (MLD)		:	9.00
10	Number of Bore Wells		:	29
11	Ground Water Extraction per Bore Well (MLD)		:	0.31
12	Number of Hand Pumps/ Tubewells		:	2812
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	66
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	76.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	151.10
19	Total Sewage Generation (MLD)*		:	12.00
20	Per Capita Sewage Generation (lpcd)		:	23.70
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1365.40
		COD	:	23211.30
		TKN	:	2730.70
30	Wastewater Disposal Means		:	Land & River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Betwa River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	3
34	Gross Area of Water Bodies (Hectare)		:	1.80
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Kanpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	266.74
2	Population as in 2011		:	27,68,057
3	Population Growth Rate as in 2011 (%)		:	22.1
4	Total Number of Wards		:	110
5	Population per Ward (Thousands)		:	28314
6	Total Number of Household as in 2011		:	4,69,562
7	Number of Household per Ward		:	4696
8	Surface Water Supply (MLD)		:	419
9	Ground Water (GW) Supply (MLD)		:	120
10	Number of Bore Wells		:	165
11	Ground Water Extraction per Bore Well (MLD)		:	1.00
12	Number of Hand Pumps/ Tubewells		:	11,827
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	3
15	Total Pumping Capacity (MLD)		:	430
16	Average Water Supply Rate from ULB Sources (lpcd)		:	194.72
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	545.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	197.00
19	Total Sewage Generation (MLD)*		:	544.70
20	Per Capita Sewage Generation (lpcd)		:	175.00
21	Sewage Collection (MLD)		:	107.70
22	Percentage of Sewage Collection (%)		:	19.80
23	Number of STPs		:	3
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	171
25	Current Utilized Capacity of STPs (MLD)		:	107.70
26	Percentage Utilization of Installed Capacity (%)		:	63
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	310
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	233416.00
		COD	:	534051.50
		TKN	:	39606.70
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	74737.539
		COD	:	127053.82
		TKN	:	14947.5
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Ganga & Pandu River
32	Number of Drains/Nallah for Wastewater Disposal		:	23
33	Number of Water Bodies		:	One (Motijheel)
34	Gross Area of Water Bodies (sq km)		:	0.0162 (4 acre)
35	Area of Water Bodies as % of Total Area		:	<<1.0


KANPUR
Luv-Kush Barrage
Old Kanpur
Binayakpur
Maswanpur
Upper Ganga Canal
Shahpur
Swaraj Nagar
Panki
Shashtri Nagar
Moti Jheel
Colonelganj
Parmat
Sisamau Nullah
Cooperganj
Mirpur
Cantonment
Vivekanand Nagar
Gwaini WTP
Govind Nagar
Kidwai Nagar
Jajmau Nullah
Krishna Nagar
Shyam Nagar
Naubast West
Yashoda Nagar East
Airport
KDA Colony
Gandhigram
Upper Ganga Canal
MAP NOT TO SCALE
Drain
River
Road
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Kasganj		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.54
2	Population as in 2011		:	101277
3	Population Growth Rate as in 2011 (%)		:	9.44
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	3,376
6	Total Number of Household as in 2011		:	17899
7	Number of Household per Ward		:	597
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	8.30
10	Number of Bore Wells		:	14
11	Ground Water Extraction per Bore Well (MLD)		:	0.59
12	Number of Hand Pumps/ Tubewells		:	350
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	82.00
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	83.70
19	Total Sewage Generation (MLD)*		:	1.40
20	Per Capita Sewage Generation (lpcd)		:	13.90
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2734.50
		COD	:	4648.60
		TKN	:	546.90
30	Wastewater Disposal Means		:	Land&River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kali River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
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) Data Sheet

City: Khora		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.26
2	Population as in 2011		:	190005
3	Population Growth Rate as in 2011 (%)		:	6.68
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	7,600
6	Total Number of Household as in 2011		:	37467
7	Number of Household per Ward		:	1499
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)		:	25.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	20.50
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	5130.10
		COD	:	8721.20
		TKN	:	1026.00
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Hindan River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (sq km)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Khurja		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.70
2	Population as in 2011		:	121207
3	Population Growth Rate as in 2011 (%)		:	22.92
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4,848
6	Total Number of Household as in 2011		:	21548
7	Number of Household per Ward		:	862
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)		:	16.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	13.10
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3272.60
		COD	:	5563.40
		TKN	:	654.50
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Hindan River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (sq km)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Lakhimpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.00
2	Population as in 2011		:	151993
3	Population Growth Rate as in 2011 (%)		:	25.11
4	Total Number of Wards		:	27
5	Population per Ward (Thousands)		:	5,629
6	Total Number of Household as in 2011		:	28199
7	Number of Household per Ward		:	1044
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	15.00
10	Number of Bore Wells		:	20
11	Ground Water Extraction per Bore Well (MLD)		:	0.75
12	Number of Hand Pumps/ Tubewells		:	900
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	98.69
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	15.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	101.60
19	Total Sewage Generation (MLD)*		:	22.20
20	Per Capita Sewage Generation (lpcd)		:	146.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	4103.80
		COD	:	6976.50
		TKN	:	820.80
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ull River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	9
34	Gross Area of Water Bodies (sq km)		:	6.30
35	Area of Water Bodies as % of Total Area		:	<<<1

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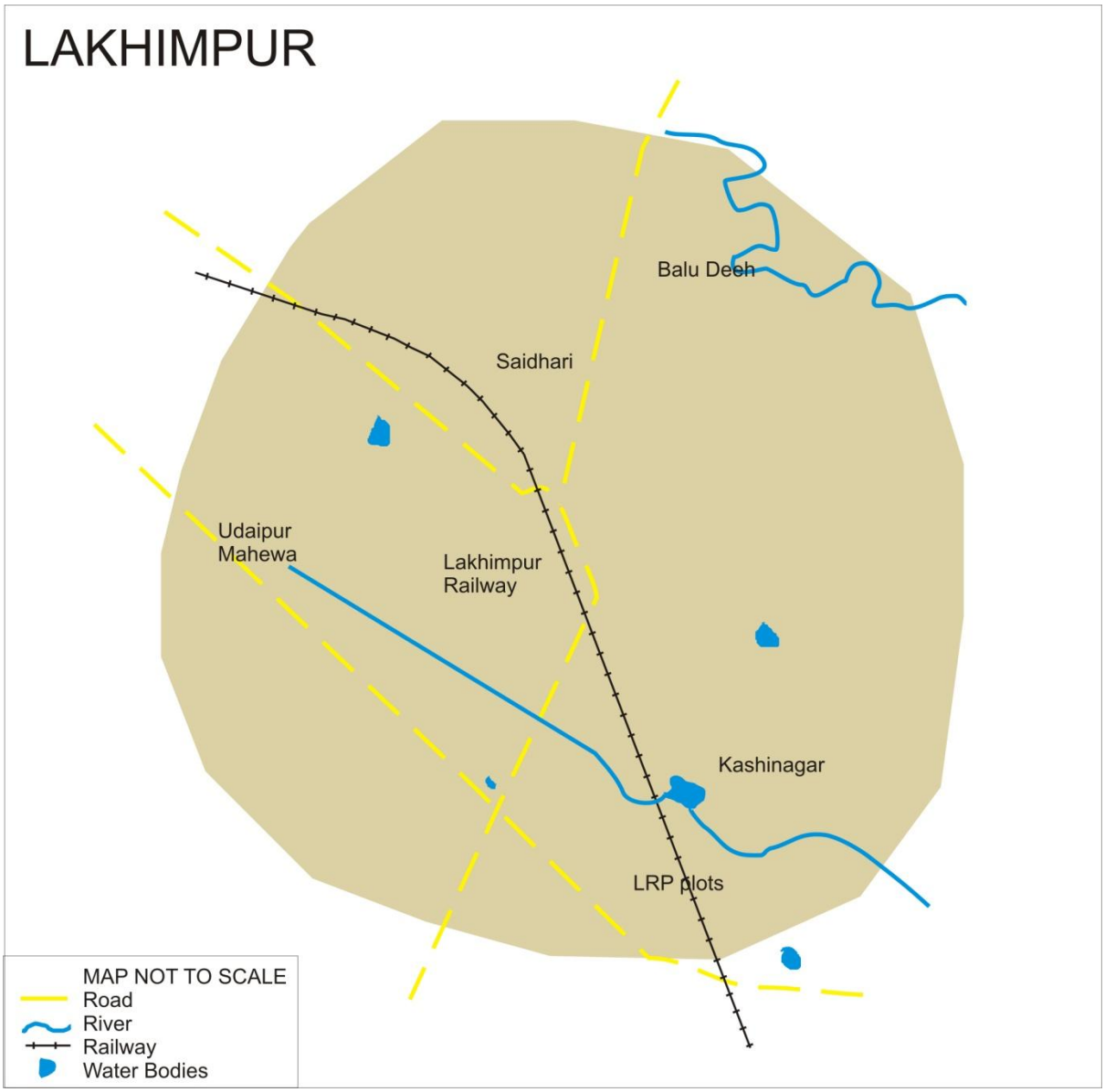

LAKHIMPUR
Balu Deeh
Saidhari
Udaipur
Mahewa
Lakhimpur
Railway
Kashinagar
LRP plots
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Lalitpur				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	17.35
2	Population as in 2011		:	133305
3	Population Growth Rate as in 2011 (%)		:	9.36
4	Total Number of Wards		:	26
5	Population per Ward (Thousands)		:	5,127
6	Total Number of Household as in 2011		:	24424
7	Number of Household per Ward		:	939
8	Surface Water Supply (MLD)		:	12.10
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		:	736
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	1
15	Total Pumping Capacity (MLD)		:	12.10
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	12.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	93.50
19	Total Sewage Generation (MLD)*		:	8.60
20	Per Capita Sewage Generation (lpcd)		:	64.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3599.20
		COD	:	6118.70
		TKN	:	719.80
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Betwa River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	20.23
35	Area of Water Bodies as % of Total Area		:	<<< 1


LALITPUR
AH 43
Rani Laxmi Bai
Public School
Vasundhara
Colony
Subhaspura
Civil
Lines
Lalitpur
Junction
Sumera
Talab
AH 43
Nehru
Mahavidyalaya
AH 43
Gobind
Sagar
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Loni		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	34.48
2	Population as in 2011		:	516082
3	Population Growth Rate as in 2011 (%)		:	326.71
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	11,468
6	Total Number of Household as in 2011		:	89634
7	Number of Household per Ward		:	1992
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	24.00
10	Number of Bore Wells		:	10
11	Ground Water Extraction per Bore Well (MLD)		:	2.40
12	Number of Hand Pumps/ Tubewells		:	1400
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	24.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	47.90
19	Total Sewage Generation (MLD)*		:	61.20
20	Per Capita Sewage Generation (lpcd)		:	118.60
21	Sewage Collection (MLD)		:	30.00
22	Percentage of Sewage Collection (%)		:	49.02
23	Number of STPs		:	1
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	30
25	Current Utilized Capacity of STPs (MLD)		:	30
26	Percentage Utilization of Installed Capacity (%)		:	100
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	:	13934.20
		COD	:	23688.20
		TKN	:	2786.80
30	Wastewater Disposal Means		:	Land & River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

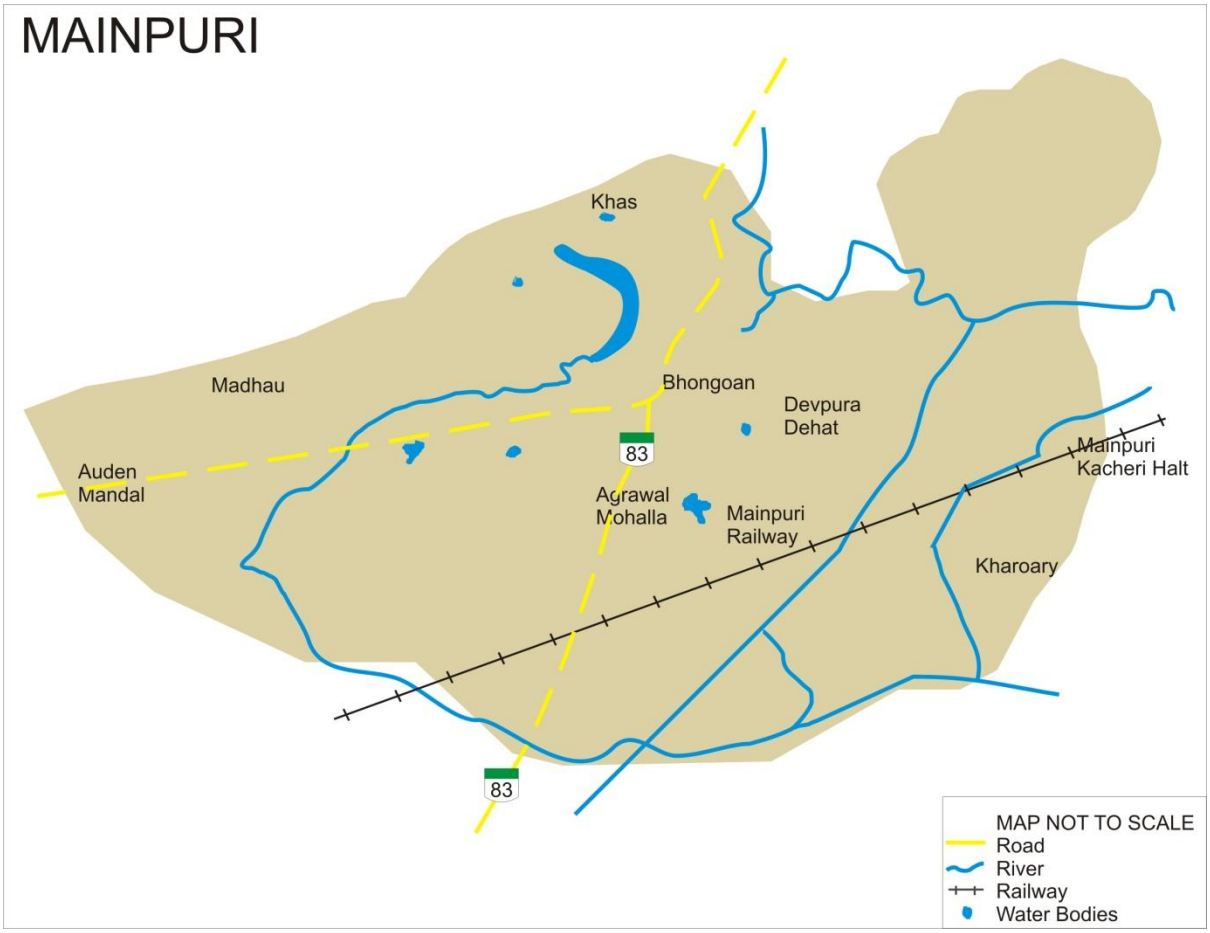
Water Balance & Pollution Load (Domestic) Data Sheet

City: Lucknow				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	348.80
2	Population as in 2011		:	2817105
3	Population Growth Rate as in 2011 (%)		:	28.87
4	Total Number of Wards		:	110
5	Population per Ward (Thousands)		:	25,610
6	Total Number of Household as in 2011		:	538149
7	Number of Household per Ward		:	4892
8	Surface Water Supply (MLD)		:	105
9	Ground Water (GW) Supply (MLD)		:	360
10	Number of Bore Wells		:	628
11	Ground Water Extraction per Bore Well (MLD)		:	4.97
12	Number of Hand Pumps/ Tubewells		:	9936
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	19
15	Total Pumping Capacity (MLD)		:	105
16	Average Water Supply Rate from ULB Sources (lpcd)		:	165.06
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	470.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	166.80
19	Total Sewage Generation (MLD)		:	381.30
20	Per Capita Sewage Generation (lpcd)		:	135.30
21	Sewage Collection (MLD)		:	401.00
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	2
24	Total Installed Capacity of STPs under GAP & YAP I & II (MLD)		:	401
25	Current Utilized Capacity of STPs (MLD)		:	401
26	Percentage Utilization of Installed Capacity (%)		:	100
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	:	76061.80
		COD	:	129305.10
		TKN	:	15212.40
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gomati River
32	Number of Drains/Nallah for Wastewater Disposal		:	23
33	Number of Water Bodies		:	924
34	Gross Area of Water Bodies (Hectare)		:	286.88
35	Area of Water Bodies as % of Total Area		:	<<< 1


LUCKNOW
MAP NOT TO SCALE
Drain
1.Gaughat Nala
2.Nagariya Nala
3.Sarkata Nala
4.Pata Nala
5.Wazirganj Nala
6.Ghasiyarimandi Nala
7.Chaina Bazar Nala
8.Laplas Nala
9.Moti Mehal Nala (River)
10.CGPS
11.Jopling Road Nala
12.GH Canal
13.Jiyamau Nala
14.NER SPS
15.Daaliganj I Nala
16.Daaliganj II Nala
17.Mohon Maken Nala
18.Rooppur Khadra Nala
19.Hanuman Setu
20.TGPS
21.Mahanagar Nala
22.Nishatganj Nala
23.Babukapurva Nala
24.Arts College Nala
Road
River
Railway
Water Bodied
Jankipuram
Adil Nagar
Aliganj
Indira Nagar
Ujariyaon
Rajajipuram
Alambagh
Contonment
LDA Colony
Telibagh
Sindhunagar
Eldecoll

Water Balance & Pollution Load (Domestic) Data Sheet

City: Mainpuri				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.00
2	Population as in 2001		:	136557
3	Population Growth Rate as in 2001 (%)		:	9.30
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4,194
6	Total Number of Household as in 2001		:	24498
7	Number of Household per Ward		:	980
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	8.05
10	Number of Bore Wells		:	21
11	Ground Water Extraction per Bore Well (MLD)		:	0.46
12	Number of Hand Pumps/ Tubewells		:	928
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	58.95
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	62.30
19	Total Sewage Generation (MLD)		:	22.20
20	Per Capita Sewage Generation (lpcd)		:	162.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3687.00
		COD	:	6268.00
		TKN	:	737.40
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ishan River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	106.00
35	Area of Water Bodies as % of Total Area		:	<< 1


MAINPURI
Khas
Madhau
Bhongoan
Devpura
Dehat
Auden
Mandal
83
Agrawal
Mohalla
Mainpuri
Railway
Mainpuri
Kacheri Halt
Kharoary
83
MAP NOT TO SCALE
Road
River
Railway
Water Bodies

Water Balance & Pollution Load (Domestic) Data Sheet

City: Mathura		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	28.05
2	Population as in 2011		:	349909
3	Population Growth Rate as in 2011 (%)		:	15.57
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	7,776
6	Total Number of Household as in 2011		:	59781
7	Number of Household per Ward		:	1328
8	Surface Water Supply (MLD)		:	11
9	Ground Water (GW) Supply (MLD)		:	18.36
10	Number of Bore Wells		:	90
11	Ground Water Extraction per Bore Well (MLD)		:	0.20
12	Number of Hand Pumps/ Tubewells		:	1447
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	11
16	Average Water Supply Rate from ULB Sources (lpcd)		:	92
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	32.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	93.70
19	Total Sewage Generation (MLD)*		:	117.90
20	Per Capita Sewage Generation (lpcd)		:	337.10
21	Sewage Collection (MLD)		:	28.10
22	Percentage of Sewage Collection (%)		:	22.98
23	Number of STPs		:	2
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	28.10
25	Current Utilized Capacity of STPs (MLD)		:	28.10
26	Percentage Utilization of Installed Capacity (%)		:	100
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	:	9447.50
		COD	:	16060.80
		TKN	:	1889.50
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		:	3
33	Number of Water Bodies		:	11
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Mau		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	39.00
2	Population as in 2011/2001		:	278745
3	Population Growth Rate as in 2011 (%)		:	31.08
4	Total Number of Wards		:	36
5	Population per Ward (Thousands)		:	7751
6	Total Number of Household as in 2011		:	41,078
7	Number of Household per Ward		:	1141
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	13.00
10	Number of Bore Wells		:	44
11	Ground Water Extraction per Bore Well (MLD)		:	0.30
12	Number of Hand Pumps/ Tubewells		:	652
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	46.64
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	13.33
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	47.81
19	Total Sewage Generation (MLD)*		:	18.07
20	Per Capita Sewage Generation (lpcd)		:	81.34
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	7526.12
		COD	:	12794.40
		TKN	:	1505.20
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Tauns/Tamsa River
32	Number of Drains/Nallah for Wastewater Disposal		:	10
33	Number of Water Bodies		:	111
34	Gross Area of Water Bodies (Hectare)		:	0.30
35	Area of Water Bodies as % of Total Area		:	<<1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Meerut				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	141.94
2	Population as in 2011		:	1305429
3	Population Growth Rate as in 2011 (%)		:	22.14
4	Total Number of Wards		:	80
5	Population per Ward (Thousands)		:	16,318
6	Total Number of Household as in 2011		:	232144
7	Number of Household per Ward		:	2902
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	150.00
10	Number of Bore Wells		:	122
11	Ground Water Extraction per Bore Well (MLD)		:	1.23
12	Number of Hand Pumps/ Tubewells		:	7500
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	114.90
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	153.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	117.80
19	Total Sewage Generation (MLD)*		:	150.40
20	Per Capita Sewage Generation (lpcd)		:	115.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	35246.60
		COD	:	59919.20
		TKN	:	7049.30
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kali River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	161
34	Gross Area of Water Bodies (Hectare)		:	43.04
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Mirzapur-cum-Vindhyachal				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	38.85
2	Population as in 2011		:	234871
3	Population Growth Rate as in 2011 (%)		:	14.54
4	Total Number of Wards		:	35
5	Population per Ward (Thousands)		:	6,711
6	Total Number of Household as in 2011		:	38185
7	Number of Household per Ward		:	1091
8	Surface Water Supply (MLD)		:	6.00
9	Ground Water (GW) Supply (MLD)		:	20.00
10	Number of Bore Wells		:	62
11	Ground Water Extraction per Bore Well (MLD)		:	0.32
12	Number of Hand Pumps/ Tubewells		:	1510
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	1
15	Total Pumping Capacity (MLD)		:	6.00
16	Average Water Supply Rate from ULB Sources (lpcd)		:	111.11
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	26.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	114.30
19	Total Sewage Generation (MLD)*		:	28.20
20	Per Capita Sewage Generation (lpcd)		:	120.10
21	Sewage Collection (MLD)		:	14.00
22	Percentage of Sewage Collection (%)		:	50
23	Number of STPs		:	1
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	14
25	Current Utilized Capacity of STPs (MLD)		:	14
26	Percentage Utilization of Installed Capacity (%)		:	100
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	:	6341.50
		COD	:	10780.60
		TKN	:	1268.30
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	13
33	Number of Water Bodies		:	30
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	NA

Water Balance & Pollution Load (Domestic) Data Sheet

City: Modinagar		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	14.00
2	Population as in 2011		:	130325
3	Population Growth Rate as in 2011 (%)		:	15.11
4	Total Number of Wards		:	26
5	Population per Ward (Thousands)		:	5,013
6	Total Number of Household as in 2011		:	24777
7	Number of Household per Ward		:	953
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	12.00
10	Number of Bore Wells		:	17
11	Ground Water Extraction per Bore Well (MLD)		:	0.71
12	Number of Hand Pumps/ Tubewells		:	780
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	92.08
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	12.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	95.10
19	Total Sewage Generation (MLD)*		:	93.40
20	Per Capita Sewage Generation (lpcd)*		:	716.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3518.80
		COD	:	5981.90
		TKN	:	703.80
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	-
32	Number of Drains/Nallah for Wastewater Disposal		:	2
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) Data Sheet

City: Moradabad				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	75.00
2	Population as in 2011		:	887871
3	Population Growth Rate as in 2011 (%)		:	38.39
4	Total Number of Wards		:	70
5	Population per Ward (Thousands)		:	12,684
6	Total Number of Household as in 2011		:	161329
7	Number of Household per Ward		:	2305
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	162.00
10	Number of Bore Wells		:	83
11	Ground Water Extraction per Bore Well (MLD)		:	1.95
12	Number of Hand Pumps/ Tubewells		:	4098
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	182.50
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	164.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	184.80
19	Total Sewage Generation (MLD)*		:	103.50
20	Per Capita Sewage Generation (lpcd)		:	116.50
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	23972.50
		COD	:	40753.30
		TKN	:	4794.50
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ramganga &Ganghan
32	Number of Drains/Nallah for Wastewater Disposal		:	7
33	Number of Water Bodies		:	71
34	Gross Area of Water Bodies (Hectare)		:	15.14
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

Mughalsarai		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.55
2	Population as in 2011/2001		:	109650
3	Population Growth Rate as in 2011 (%)		:	24.06
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4386
6	Total Number of Household as in 2011		:	16,796
7	Number of Household per Ward		:	672
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	13.40
10	Number of Bore Wells		:	14
11	Ground Water Extraction per Bore Well (MLD)		:	0.96
12	Number of Hand Pumps/ Tubewells		:	312
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	122.21
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	13.56
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	123.63
19	Total Sewage Generation (MLD)*		:	12.69
20	Per Capita Sewage Generation (lpcd)		:	115.73
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2960.55
		COD	:	5032.94
		TKN	:	592.11
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	NA

Water Balance & Pollution Load (Domestic) Data Sheet

City: Muzaffarnagar		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.04
2	Population as in 2011		:	392768
3	Population Growth Rate as in 2011 (%)		:	18.42
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	8,728
6	Total Number of Household as in 2011		:	68975
7	Number of Household per Ward		:	1533
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	50.00
10	Number of Bore Wells		:	40
11	Ground Water Extraction per Bore Well (MLD)		:	0.43
12	Number of Hand Pumps/ Tubewells		:	858
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	127.30
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	50.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	128.40
19	Total Sewage Generation (MLD)		:	46.70
20	Per Capita Sewage Generation (lpcd)		:	118.80
21	Sewage Collection (MLD)		:	22.00
22	Percentage of Sewage Collection (%)		:	47.13
23	Number of STPs		:	1
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	35.00
26	Percentage Utilization of Installed Capacity (%)		:	62.86
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	12
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		10604.70
		COD		18028.10
		TKN		2120.90
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kali River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	2
34	Gross Area of Water Bodies (Hectare)		:	12.50
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Noida				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	92.10
2	Population as in 2011		:	637272
3	Population Growth Rate as in 2011 (%)		:	108.90
4	Total Number of Wards		:	198
5	Population per Ward (Thousands)		:	3,219
6	Total Number of Household as in 2011		:	153474
7	Number of Household per Ward		:	775
8	Surface Water Supply (MLD)		:	48
9	Ground Water (GW) Supply (MLD)		:	264.82
10	Number of Bore Wells		:	249
11	Ground Water Extraction per Bore Well (MLD)		:	1.06
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	1000
14	Number of Pumping Stations for Water Supply		:	1
15	Total Pumping Capacity (MLD)		:	48
16	Average Water Supply Rate from ULB Sources (lpcd)		:	521.33
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	312.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	521.30
19	Total Sewage Generation (MLD)*		:	481.80
20	Per Capita Sewage Generation (lpcd)		:	756.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	17206.30
		COD	:	29250.80
		TKN	:	3441.30
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
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) Data Sheet

City: Orai				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	23.20
2	Population as in 2011		:	190575
3	Population Growth Rate as in 2001 (%)		:	36.79
4	Total Number of Wards		:	28
5	Population per Ward (Thousands)		:	4,976
6	Total Number of Household as in 2001		:	33919
7	Number of Household per Ward		:	1211
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	12
10	Number of Bore Wells		:	27
11	Ground Water Extraction per Bore Well (MLD)		:	0.37
12	Number of Hand Pumps/ Tubewells		:	523
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	86.13
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	12.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	88.00
19	Total Sewage Generation (MLD)*		:	16.20
20	Per Capita Sewage Generation (lpcd)		:	85.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD	:	5145.525
		COD	:	8747.3925
		TKN	:	1029.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Betwa River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	3.20
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Pilibhit			State: Uttar Pradesh	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	9.97
2	Population as in 2011		:	127988
3	Population Growth Rate as in 2011 (%)		:	3.01
4	Total Number of Wards		:	27
5	Population per Ward (Thousands)		:	4,602
6	Total Number of Household as in 2011		:	24341
7	Number of Household per Ward		:	902
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	13.05
10	Number of Bore Wells		:	9
11	Ground Water Extraction per Bore Well (MLD)		:	1.45
12	Number of Hand Pumps/ Tubewells		:	382
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	13.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	103.50
19	Total Sewage Generation (MLD)*		:	34.70
20	Per Capita Sewage Generation (lpcd)		:	271.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3455.70
		COD	:	5874.60
		TKN	:	691.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Devha River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
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) Data Sheet

City: Raibareilly		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	50.12
2	Population as in 2011		:	191316
3	Population Growth Rate as in 2011 (%)		:	12.98
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	6,171
6	Total Number of Household as in 2011		:	35197
7	Number of Household per Ward		:	1135
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	20.64
10	Number of Bore Wells		:	37
11	Ground Water Extraction per Bore Well (MLD)		:	1.70
12	Number of Hand Pumps		:	3400
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	107.88
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	22.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	116.80
19	Total Sewage Generation (MLD)*		:	4.10
20	Per Capita Sewage Generation (lpcd)		:	21.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	5165.50
		COD	:	8781.40
		TKN	:	1033.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sai River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	179
34	Gross Area of Water Bodies (Hectare)		:	92.74
35	Area of Water Bodies as % of Total Area		:	>> 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Rampur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	20.20
2	Population as in 2011		:	325313
3	Population Growth Rate as in 2011 (%)		:	15.57
4	Total Number of Wards		:	43
5	Population per Ward (Thousands)		:	6,546
6	Total Number of Household as in 2011		:	58981
7	Number of Household per Ward		:	1372
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	54.00
10	Number of Bore Wells		:	26
11	Ground Water Extraction per Bore Well (MLD)		:	2.08
12	Number of Hand Pumps/ Tubewells		:	1222
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	165.99
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	54.60
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	167.90
19	Total Sewage Generation (MLD)*		:	68.60
20	Per Capita Sewage Generation (lpcd)		:	NA
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	8783.50
		COD	:	14931.90
		TKN	:	1756.70
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Koshi River
32	Number of Drains/Nallah for Wastewater Disposal		:	5
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) Data Sheet

City: Saharanpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	46.74
2	Population as in 2011		:	705478
3	Population Growth Rate as in 2011 (%)		:	14.05
4	Total Number of Wards		:	60
5	Population per Ward (Thousands)		:	7,596
6	Total Number of Household as in 2011		:	129856
7	Number of Household per Ward		:	2164
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	79.00
10	Number of Bore Wells		:	60
11	Ground Water Extraction per Bore Well (MLD)		:	0.76
12	Number of Hand Pumps/ Tubewells		:	1511
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	173.34
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	79.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	175.00
19	Total Sewage Generation (MLD)*		:	97.60
20	Per Capita Sewage Generation (lpcd)		:	138.30
21	Sewage Collection (MLD)		:	35.00
22	Percentage of Sewage Collection (%)		:	57.66
23	Number of STPs		:	1
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
25	Current Utilized Capacity of STPs (MLD)		:	35
26	Percentage Utilization of Installed Capacity (%)		:	92
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	12
28	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	10038.80
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	19047.90
		COD	:	32381.40
		TKN	:	3809.60
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Dhamola River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	365
34	Gross Area of Water Bodies (Hectare)		:	122.34
35	Area of Water Bodies as % of Total Area		:	1.65

Water Balance & Pollution Load (Domestic) Data Sheet

City: Sambhal		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	15.65
2	Population as in 2011		:	220813
3	Population Growth Rate as in 2011 (%)		:	21.01
4	Total Number of Wards		:	33
5	Population per Ward (Thousands)		:	6,691
6	Total Number of Household as in 2011		:	34784
7	Number of Household per Ward		:	1054
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	14.40
10	Number of Bore Wells		:	12
11	Ground Water Extraction per Bore Well (MLD)		:	1.20
12	Number of Hand Pumps/ Tubewells		:	385
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	65.21
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	14.60
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	66.10
19	Total Sewage Generation (MLD)*		:	5.60
20	Per Capita Sewage Generation (lpcd)		:	25.50
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	5962.00
		COD	:	10135.30
		TKN	:	1192.40
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	10
34	Gross Area of Water Bodies (Hectare)		:	13.30
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Shahjahanpur			State: Uttar Pradesh	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	11.37
2	Population as in 2011		:	329736
3	Population Growth Rate as in 2011 (%)		:	9.40
4	Total Number of Wards		:	44
5	Population per Ward (Thousands)		:	6,850
6	Total Number of Household as in 2011		:	57931
7	Number of Household per Ward		:	1317
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	52.00
10	Number of Bore Wells		:	19
11	Ground Water Extraction per Bore Well (MLD)		:	2.74
12	Number of Hand Pumps/ Tubewells		:	2500
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	157.70
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	53.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	161.50
19	Total Sewage Generation (MLD)*		:	80.90
20	Per Capita Sewage Generation (lpcd)		:	245.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	8902.90
		COD	:	15134.90
		TKN	:	1780.60
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Khanaut&Garra River
32	Number of Drains/Nallah for Wastewater Disposal		:	9
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	1.25
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Shamli		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	26.23
2	Population as in 2011		:	107266
3	Population Growth Rate as in 2011 (%)		:	19.11
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4,291
6	Total Number of Household as in 2011		:	18622
7	Number of Household per Ward		:	745
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)		:	14.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	11.60
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2896.20
		COD	:	4923.50
		TKN	:	579.20
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) Data Sheet

City: Shikohabad		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	8.48
2	Population as in 2011		:	107404
3	Population Growth Rate as in 2011 (%)		:	21.83
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4,296
6	Total Number of Household as in 2011		:	18622
7	Number of Household per Ward		:	745
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)		:	14.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	11.60
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2899.90
		COD	:	4929.80
		TKN	:	580.00
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) Data Sheet

City: Sitapur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	35.00
2	Population as in 2011		:	177234
3	Population Growth Rate as in 2011 (%)		:	16.67
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	5,908
6	Total Number of Household as in 2011		:	30792
7	Number of Household per Ward		:	1026
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	21.08
10	Number of Bore Wells		:	27
11	Ground Water Extraction per Bore Well (MLD)		:	0.36
12	Number of Hand Pumps/ Tubewells		:	719
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	118.90
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	21.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	121.00
19	Total Sewage Generation (MLD)*		:	5.00
20	Per Capita Sewage Generation (lpcd)		:	28.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	4785.30
		COD	:	8135.00
		TKN	:	957.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sarayan River
32	Number of Drains/Nallah for Wastewater Disposal		:	6
33	Number of Water Bodies		:	6
34	Gross Area of Water Bodies (sq km)		:	2.30
35	Area of Water Bodies as % of Total Area		:	<<<1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Sultanpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.00
2	Population as in 2011		:	107640
3	Population Growth Rate as in 2011 (%)		:	7.57
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	4,306
6	Total Number of Household as in 2011		:	17954
7	Number of Household per Ward		:	718
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	9.00
10	Number of Bore Wells		:	22
11	Ground Water Extraction per Bore Well (MLD)		:	0.36
12	Number of Hand Pumps		:	710
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	83.61
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	9.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	86.90
19	Total Sewage Generation (MLD)		:	0.00
20	Per Capita Sewage Generation (lpcd)		:	86.70
21	Sewage Collection (MLD)		:	5.00
22	Percentage of Sewage Collection (%)		:	53.20
23	Number of STPs		:	1
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	5
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	:	2906.30
		COD	:	4940.70
		TKN	:	581.30
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gomati River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	0.12
35	Area of Water Bodies as % of Total Area		:	<< 1.0

Water Balance & Pollution Load (Domestic) Data Sheet

City: Unnao				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	21.50
2	Population as in 2011/2001		:	177658
3	Population Growth Rate as in 2011 (%)		:	NA
4	Total Number of Wards		:	29
5	Population per Ward (Thousands)		:	4,988
6	Total Number of Household as in 2011		:	33273
7	Number of Household per Ward		:	1147
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	11.00
10	Number of Bore Wells		:	21
11	Ground Water Extraction per Bore Well (MLD)		:	0.25
12	Number of Hand Pumps/ Tubewells		:	1000
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	61.92
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	11.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	64.70
19	Total Sewage Generation (MLD)*		:	5.00
20	Per Capita Sewage Generation (lpcd)		:	28.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	4796.80
		COD	:	8154.50
		TKN	:	959.40
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		:	5
33	Number of Water Bodies		:	3
34	Gross Area of Water Bodies (Hectare)		:	1.30
35	Area of Water Bodies as % of Total Area		:	<<<1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Varanasi			State: Uttar Pradesh	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	82.10
2	Population as in 2011/2001		:	1198491
3	Population Growth Rate as in 2011 (%)		:	8.56
4	Total Number of Wards		:	91
5	Population per Ward (Thousands)		:	13170
6	Total Number of Household as in 2011		:	190835
7	Number of Household per Ward		:	2097
8	Surface Water Supply (MLD)		:	125.00
9	Ground Water (GW) Supply (MLD)		:	201.00
10	Number of Bore Wells		:	141
11	Ground Water Extraction per Bore Well (MLD)		:	1.43
12	Number of Hand Pumps/ Tubewells		:	2358
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	1
15	Total Pumping Capacity (MLD)		:	125
16	Average Water Supply Rate from ULB Sources (lpcd)		:	272.01
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	327.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	273.00
19	Total Sewage Generation (MLD)*		:	318.00
20	Per Capita Sewage Generation (lpcd)		:	265.30
21	Sewage Collection (MLD)		:	100.00
22	Percentage of Sewage Collection (%)		:	31.45
23	Number of STPs		:	3
24	Total Installed Capacity of STPs under GAP I & II (MLD)		:	88
25	Current Utilized Capacity of STPs (MLD)		:	88
26	Percentage Utilization of Installed Capacity (%)		:	100
27	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	120
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	:	32359.30
		COD	:	55010.70
		TKN	:	6471.90
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga &Varuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	35
33	Number of Water Bodies		:	138
34	Gross Area of Water Bodies (Hectare)		:	43.34
35	Area of Water Bodies as % of Total Area		:	<<< 1

Appendix-2

Compilation of Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class II Cities/Towns in Uttar Pradesh

Water Balance & Pollution Load (Domestic) Data Sheet

City: Aonla		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	15.00
2	Population as in 2011		:	55629
3	Population Growth Rate as in 2011 (%)		:	22.89
4	Total Number of Wards		:	26
5	Population per Ward (Thousands)		:	2,140
6	Total Number of Household as in 2011		:	9103
7	Number of Household per Ward		:	350
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)		:	7.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	6.00
20	Per Capita Sewage Generation (lpcd)		:	88.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1502.00
		COD	:	2553.40
		TKN	:	300.40
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) Data Sheet

City: Atrauli		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.25
2	Population as in 2011		:	50412
3	Population Growth Rate as in 2011 (%)		:	15.24
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,016
6	Total Number of Household as in 2011		:	8093
7	Number of Household per Ward		:	324
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)		:	6.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.40
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1361.10
		COD	:	2313.90
		TKN	:	272.20
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kali 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) Data Sheet

City: Auraiya		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	9.00
2	Population as in 2011		:	87736
3	Population Growth Rate as in 2011 (%)		:	35.52
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,590
6	Total Number of Household as in 2011		:	15898
7	Number of Household per Ward		:	636
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	5.53
10	Number of Bore Wells		:	14
11	Ground Water Extraction per Bore Well (MLD)		:	0.22
12	Number of Hand Pumps/ Tubewells		:	440
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	66.11
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	68.60
19	Total Sewage Generation (MLD)*		:	5.40
20	Per Capita Sewage Generation (lpcd)		:	61.50
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2368.90
		COD	:	4027.10
		TKN	:	473.80
30	Wastewater Disposal Means		:	Land & River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	5
34	Gross Area of Water Bodies (Hectare)		:	11.15
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Ayodhya		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.24
2	Population as in 2011		:	55890
3	Population Growth Rate as in 2011 (%)		:	13.10
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,236
6	Total Number of Household as in 2011		:	10026
7	Number of Household per Ward		:	401
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)		:	7.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	6.00
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1509.00
		COD	:	2565.40
		TKN	:	301.80
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ghaghara 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) Data Sheet

City: Baghpat		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.83
2	Population as in 2011		:	50310
3	Population Growth Rate as in 2011 (%)		:	38.28
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,012
6	Total Number of Household as in 2011		:	7880
7	Number of Household per Ward		:	315
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	3.71
10	Number of Bore Wells		:	7
11	Ground Water Extraction per Bore Well (MLD)		:	0.53
12	Number of Hand Pumps/ Tubewells		:	457
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	73.74
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	3.90
18	Average Water Supply Rate from ULB & Non-ULB Sources		:	78.30
19	Total Sewage Generation (MLD)*		:	1.10
20	Per Capita Sewage Generation (lpcd)		:	21.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1358.40
		COD	:	2309.20
		TKN	:	271.70
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
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) Data Sheet

City: Baheri		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.98
2	Population as in 2011		:	68413
3	Population Growth Rate as in 2011 (%)		:	16.96
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,737
6	Total Number of Household as in 2011		:	11182
7	Number of Household per Ward		:	447
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)		:	9.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	8.90
20	Per Capita Sewage Generation (lpcd)		:	129.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1847.20
		COD	:	3140.20
		TKN	:	369.40
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) Data Sheet

City: Balrampur			State: Uttar Pradesh
S. No.	**Items**		**Value**
1	Total Area (sq km)	:	36.28
2	Population as in 2011	:	82488
3	Population Growth Rate as in 2011 (%)	:	13.77
4	Total Number of Wards	:	25
5	Population per Ward (Thousands)	:	3,300
6	Total Number of Household as in 2011	:	12638
7	Number of Household per Ward	:	506
8	Surface Water Supply (MLD)	:	NA
9	Ground Water (GW) Supply (MLD)	:	7.40
10	Number of Bore Wells	:	9
11	Ground Water Extraction per Bore Well (MLD)	:	0.82
12	Number of Hand Pumps/ Tubewells	:	272
13	Ground Water Extraction per Hand Pump (lpd)	:	500
14	Number of Pumping Stations for Water Supply	:	NA
15	Total Pumping Capacity (MLD)	:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)	:	89.71
17	Total Water Supply from ULB and Non-ULB Sources (MLD)	:	7.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)	:	91.40
19	Total Sewage Generation (MLD)*	:	6.70
20	Per Capita Sewage Generation (lpcd)	:	81.70
21	Sewage Collection (MLD)	:	NA
22	Percentage of Sewage Collection (%)	:	NA
23	Number of STPs	:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2227.20
	COD	:	3786.20
	TKN	:	445.40
30	Wastewater Disposal Means	:	River Disposal
31	Name of River/Streams for Wastewater Disposal	:	Rapti River
32	Number of Drains/Nallah for Wastewater Disposal	:	1
33	Number of Water Bodies	:	3
34	Gross Area of Water Bodies (Hectare)	:	6.30
35	Area of Water Bodies as % of Total Area	:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bela Pratapgarh		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.00
2	Population as in 2011		:	76133
3	Population Growth Rate as in 2011 (%)		:	5.74
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,045
6	Total Number of Household as in 2011		:	12484
7	Number of Household per Ward		:	499
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	10.82
10	Number of Bore Wells		:	11
11	Ground Water Extraction per Bore Well (MLD)		:	0.98
12	Number of Hand Pumps		:	670
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	140.98
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	11.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	145.30
19	Total Sewage Generation (MLD)		:	7.10
20	Per Capita Sewage Generation (lpcd)		:	93.90
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2055.60
		COD	:	3494.50
		TKN	:	411.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sai River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
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) Data Sheet

City: Bhadohi				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	8.00
2	Population as in 2011		:	94620
3	Population Growth Rate as in 2011 (%)		:	26.97
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3784
6	Total Number of Household as in 2011		:	13274
7	Number of Household per Ward		:	531
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	7.47
10	Number of Bore Wells		:	10
11	Ground Water Extraction per Bore Well (MLD)		:	0.75
12	Number of Hand Pumps/ Tubewells		:	255
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	78.99
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.60
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	80.29
19	Total Sewage Generation (MLD)*		:	14.69
20	Per Capita Sewage Generation (lpcd)		:	155.23
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2554.74
		COD	:	4343.05
		TKN	:	510.95
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Varuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	4.33
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bijnor		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.65
2	Population as in 2011		:	93297
3	Population Growth Rate as in 2011 (%)		:	17.58
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,732
6	Total Number of Household as in 2011		:	17715
7	Number of Household per Ward		:	709
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	16.32
10	Number of Bore Wells		:	20
11	Ground Water Extraction per Bore Well (MLD)		:	0.82
12	Number of Hand Pumps/ Tubewells		:	309
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	174.93
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	16.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	176.60
19	Total Sewage Generation (MLD)*		:	2.10
20	Per Capita Sewage Generation (lpcd)		:	22.90
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2519.00
		COD	:	4282.30
		TKN	:	503.80
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land
32	Number of Drains/Nallah for Wastewater Disposal		:	4
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) Data Sheet

City: Bisalpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.00
2	Population as in 2011		:	73551
3	Population Growth Rate as in 2011 (%)		:	21.21
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,942
6	Total Number of Household as in 2011		:	12624
7	Number of Household per Ward		:	505
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	1.40
10	Number of Bore Wells		:	2
11	Ground Water Extraction per Bore Well (MLD)		:	0.70
12	Number of Hand Pumps/ Tubewells		:	173
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	19.03
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	1.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	20.20
19	Total Sewage Generation (MLD)*		:	4.40
20	Per Capita Sewage Generation (lpcd)		:	59.60
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1985.90
		COD	:	3376.00
		TKN	:	397.20
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Katna&Devha River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	12
34	Gross Area of Water Bodies (Hectare)		:	0.99
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Biswan		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.77
2	Population as in 2011		:	55780
3	Population Growth Rate as in 2011 (%)		:	15.64
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,231
6	Total Number of Household as in 2011		:	8754
7	Number of Household per Ward		:	350
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)		:	7.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	6.00
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1506.10
		COD	:	2560.30
		TKN	:	301.20
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ull 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) Data Sheet

City: Budhana		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.61
2	Population as in 2011		:	53722
3	Population Growth Rate as in 2011 (%)		:	63.04
4	Total Number of Wards		:	17
5	Population per Ward (Thousands)		:	3,160
6	Total Number of Household as in 2011		:	8252
7	Number of Household per Ward		:	485
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)		:	7.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.80
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1450.50
		COD	:	2465.80
		TKN	:	290.10
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kali 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) Data Sheet

City: Chandpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	23.40
2	Population as in 2011		:	83441
3	Population Growth Rate as in 2011 (%)		:	22.19
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,338
6	Total Number of Household as in 2011		:	13670
7	Number of Household per Ward		:	547
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	0.57
10	Number of Bore Wells		:	4
11	Ground Water Extraction per Bore Well (MLD)		:	0.14
12	Number of Hand Pumps/ Tubewells		:	138
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	6.81
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	0.60
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	7.60
19	Total Sewage Generation (MLD)*		:	6.30
20	Per Capita Sewage Generation (lpcd)		:	75.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2252.90
		COD	:	3829.90
		TKN	:	450.60
30	Wastewater Disposal Means		:	River and Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	9
33	Number of Water Bodies		:	5
34	Gross Area of Water Bodies (Hectare)		:	1.75
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Chibramau		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	11.00
2	Population as in 2011		:	60986
3	Population Growth Rate as in 2011 (%)		:	21.32
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,011
6	Total Number of Household as in 2011		:	10363
7	Number of Household per Ward		:	415
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	4.12
10	Number of Bore Wells		:	13
11	Ground Water Extraction per Bore Well (MLD)		:	0.32
12	Number of Hand Pumps/ Tubewells		:	599
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	67.56
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	72.50
19	Total Sewage Generation (MLD)*		:	3.90
20	Per Capita Sewage Generation (lpcd)		:	63.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1646.6
		COD	:	2799.3
		TKN	:	329.3
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	9
34	Gross Area of Water Bodies (Hectare)		:	2.51
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Chitrakoot		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.77
2	Population as in 2011		:	57402
3	Population Growth Rate as in 2011 (%)		:	17.41
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,296
6	Total Number of Household as in 2011		:	10250
7	Number of Household per Ward		:	410
8	Surface Water Supply (MLD)		:	5.12
9	Ground Water (GW) Supply (MLD)		:	1.21
10	Number of Bore Wells		:	4
11	Ground Water Extraction per Bore Well (MLD)		:	0.30
12	Number of Hand Pumps/ Tubewells		:	298
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	5.12
16	Average Water Supply Rate from ULB Sources (lpcd)		:	110.17
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	113.10
19	Total Sewage Generation (MLD)*		:	19.40
20	Per Capita Sewage Generation (lpcd)		:	337.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1549.90
		COD	:	2634.80
		TKN	:	310.00
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Mandakini River
32	Number of Drains/Nallah for Wastewater Disposal		:	6
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	1.00
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Dadri		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.50
2	Population as in 2011		:	91189
3	Population Growth Rate as in 2011 (%)		:	58.82
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,648
6	Total Number of Household as in 2011		:	16215
7	Number of Household per Ward		:	649
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	2.10
10	Number of Bore Wells		:	2
11	Ground Water Extraction per Bore Well (MLD)		:	1.05
12	Number of Hand Pumps/ Tubewells		:	1200
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	23.00
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	2.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	29.60
19	Total Sewage Generation (MLD)*		:	12.20
20	Per Capita Sewage Generation (lpcd)		:	134.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2462.10
		COD	:	4185.60
		TKN	:	492.40
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	-
32	Number of Drains/Nallah for Wastewater Disposal		:	1
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) Data Sheet

City: Deoband		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.90
2	Population as in 2011		:	97037
3	Population Growth Rate as in 2011 (%)		:	18.86
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,881
6	Total Number of Household as in 2011		:	15630
7	Number of Household per Ward		:	625
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	6.00
10	Number of Bore Wells		:	11
11	Ground Water Extraction per Bore Well (MLD)		:	0.55
12	Number of Hand Pumps/ Tubewells		:	175
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	61.81
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.10
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	62.70
19	Total Sewage Generation (MLD)*		:	36.20
20	Per Capita Sewage Generation (lpcd)		:	372.70
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	976.50
		COD	:	1660.10
		TKN	:	524.00
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	-
32	Number of Drains/Nallah for Wastewater Disposal		:	2
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) Data Sheet

City: Dhampur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.87
2	Population as in 2011		:	50997
3	Population Growth Rate as in 2011 (%)		:	8.81
4	Total Number of Wards		:	26
5	Population per Ward (Thousands)		:	1,961
6	Total Number of Household as in 2011		:	9659
7	Number of Household per Ward		:	372
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)		:	6.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.50
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1376.90
		COD	:	2340.80
		TKN	:	275.40
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) Data Sheet

City: Faridpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	9.43
2	Population as in 2011		:	78249
3	Population Growth Rate as in 2011 (%)		:	27.99
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,130
6	Total Number of Household as in 2011		:	12928
7	Number of Household per Ward		:	517
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	1.00
10	Number of Bore Wells		:	2
11	Ground Water Extraction per Bore Well (MLD)		:	0.50
12	Number of Hand Pumps/ Tubewells		:	120
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	12.78
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	1.10
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	13.50
19	Total Sewage Generation (MLD)*		:	2.90
20	Per Capita Sewage Generation (lpcd)		:	37.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2112.70
		COD	:	3591.60
		TKN	:	422.50
30	Wastewater Disposal Means		:	Land&River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ramganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	7
34	Gross Area of Water Bodies (Hectare)		:	6.96
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Gajraula		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	14.20
2	Population as in 2011		:	55048
3	Population Growth Rate as in 2011 (%)		:	38.35
4	Total Number of Wards		:	18
5	Population per Ward (Thousands)		:	3,058
6	Total Number of Household as in 2011		:	10574
7	Number of Household per Ward		:	587
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)		:	7.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.90
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1486.30
		COD	:	2526.70
		TKN	:	297.30
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) Data Sheet

City: Gangaghat		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.91
2	Population as in 2011		:	84072
3	Population Growth Rate as in 2011 (%)		:	18.74
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,363
6	Total Number of Household as in 2011		:	17210
7	Number of Household per Ward		:	688
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	1.27
10	Number of Bore Wells		:	3
11	Ground Water Extraction per Bore Well (MLD)		:	0.42
12	Number of Hand Pumps/ Tubewells		:	271
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	15.07
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	1.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	16.70
19	Total Sewage Generation (MLD)*		:	6.30
20	Per Capita Sewage Generation (lpcd)		:	74.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2269.90
		COD	:	3858.90
		TKN	:	454.00
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		:	5
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) Data Sheet

City: Gangoh		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.00
2	Population as in 2011		:	59279
3	Population Growth Rate as in 2011 (%)		:	9.95
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,371
6	Total Number of Household as in 2011		:	9657
7	Number of Household per Ward		:	386
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	5.50
10	Number of Bore Wells		:	13
11	Ground Water Extraction per Bore Well (MLD)		:	0.42
12	Number of Hand Pumps/ Tubewells		:	315
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	92.46
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	5.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	95.10
19	Total Sewage Generation (MLD)*		:	12.40
20	Per Capita Sewage Generation (lpcd)		:	209.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1600.50
		COD	:	2720.90
		TKN	:	320.10
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Buriyamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
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) Data Sheet

City: GolaGokaran Nath		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.04
2	Population as in 2011		:	60172
3	Population Growth Rate as in 2011 (%)		:	11.76
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,154
6	Total Number of Household as in 2011		:	11087
7	Number of Household per Ward		:	443
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	4.80
10	Number of Bore Wells		:	4
11	Ground Water Extraction per Bore Well (MLD)		:	1.20
12	Number of Hand Pumps/ Tubewells		:	158
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	89.14
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	90.60
19	Total Sewage Generation (MLD)*		:	5.20
20	Per Capita Sewage Generation (lpcd)		:	86.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1624.60
		COD	:	2761.90
		TKN	:	324.90
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gomati River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	15.00
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Gulaothi		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.23
2	Population as in 2011		:	50823
3	Population Growth Rate as in 2011 (%)		:	18.46
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,033
6	Total Number of Household as in 2011		:	7855
7	Number of Household per Ward		:	314
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)		:	6.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.50
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1372.20
		COD	:	2332.80
		TKN	:	274.40
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna &Hindon 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) Data Sheet

City: Hasanpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.72
2	Population as in 2011		:	61243
3	Population Growth Rate as in 2011 (%)		:	14.85
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,450
6	Total Number of Household as in 2011		:	10177
7	Number of Household per Ward		:	407
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)		:	500
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)		:	8.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	6.50
20	Per Capita Sewage Generation (lpcd)		:	106.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1653.60
		COD	:	2811.10
		TKN	:	330.70
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Bagad River
32	Number of Drains/Nallah for Wastewater Disposal		:	9
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) Data Sheet

City: Jahangirabad				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	14.46
2	Population as in 2011		:	59858
3	Population Growth Rate as in 2011 (%)		:	16.47
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,394
6	Total Number of Household as in 2011		:	9767
7	Number of Household per Ward		:	391
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	4.20
10	Number of Bore Wells		:	4
11	Ground Water Extraction per Bore Well (MLD)		:	1.05
12	Number of Hand Pumps/ Tubewells		:	482
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	70.15
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.40
18	Average Water Supply Rate from ULB & Non-ULB Sources		:	74.20
19	Total Sewage Generation (MLD)*		:	5.30
20	Per Capita Sewage Generation (lpcd)		:	88.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1616.20
		COD	:	2747.50
		TKN	:	323.20
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	-
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	4.68
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Jalaun		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.34
2	Population as in 2011		:	56909
3	Population Growth Rate as in 2011 (%)		:	13.69
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,276
6	Total Number of Household as in 2011		:	9560
7	Number of Household per Ward		:	382
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	4.32
10	Number of Bore Wells		:	6
11	Ground Water Extraction per Bore Well (MLD)		:	0.72
12	Number of Hand Pumps/ Tubewells		:	484
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	75.96
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.60
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	80.90
19	Total Sewage Generation (MLD)*		:	8.60
20	Per Capita Sewage Generation (lpcd)		:	151.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1536.50
		COD	:	2612.10
		TKN	:	307.30
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	9
34	Gross Area of Water Bodies (Hectare)		:	4.15
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Kairana		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.11
2	Population as in 2011		:	89000
3	Population Growth Rate as in 2011 (%)		:	21.90
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,560
6	Total Number of Household as in 2011		:	13951
7	Number of Household per Ward		:	558
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	12.43
10	Number of Bore Wells		:	23
11	Ground Water Extraction per Bore Well (MLD)		:	0.54
12	Number of Hand Pumps/ Tubewells		:	235
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	130.72
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	12.55
18	Average Water Supply Rate from ULB & Non-ULB Sources		:	131.95
19	Total Sewage Generation (MLD)*		:	5.31
20	Per Capita Sewage Generation (lpcd)		:	59.70
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2403.00
		COD	:	4085.10
		TKN	:	480.60
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
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) Data Sheet

City: Kalpi		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	9.73
2	Population as in 2011		:	51670
3	Population Growth Rate as in 2011 (%)		:	20.46
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,067
6	Total Number of Household as in 2011		:	8408
7	Number of Household per Ward		:	336
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)		:	7.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.60
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1395.10
		COD	:	2371.70
		TKN	:	279.00
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) Data Sheet

City: Kannauj		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	14.90
2	Population as in 2001		:	84862
3	Population Growth Rate as in 2001 (%)		:	18.31
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	2,391
6	Total Number of Household as in 2001		:	14762
7	Number of Household per Ward		:	492
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	7.29
10	Number of Bore Wells		:	19
11	Ground Water Extraction per Bore Well (MLD)		:	0.38
12	Number of Hand Pumps/ Tubewells		:	8
13	Ground Water Extraction per Hand Pump (lpd)		:	34800
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	101.70
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	101.80
19	Total Sewage Generation (MLD)*		:	3.30
20	Per Capita Sewage Generation (lpcd)		:	39.10
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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)		:	12
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	:	2291.30
		COD	:	3895.20
		TKN	:	458.30
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kali River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	17
34	Gross Area of Water Bodies (sq km)		:	5.70
35	Area of Water Bodies as % of Total Area		:	<<<1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Khatauli		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.76
2	Population as in 2011		:	72949
3	Population Growth Rate as in 2011 (%)		:	24.44
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,918
6	Total Number of Household as in 2011		:	12741
7	Number of Household per Ward		:	510
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	6.10
10	Number of Bore Wells		:	4
11	Ground Water Extraction per Bore Well (MLD)		:	1.53
12	Number of Hand Pumps/ Tubewells		:	153
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	84.16
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.20
18	Average Water Supply Rate from ULB & Non-ULB Sources		:	85.20
19	Total Sewage Generation (MLD)*		:	5.80
20	Per Capita Sewage Generation (lpcd)		:	79.90
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1969.60
		COD	:	3348.40
		TKN	:	393.90
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	1.30
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Kiratpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.45
2	Population as in 2011		:	61946
3	Population Growth Rate as in 2011 (%)		:	11.08
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,478
6	Total Number of Household as in 2011		:	10388
7	Number of Household per Ward		:	416
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	7
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	288
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	130.72
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	0.10
18	Average Water Supply Rate from ULB & Non-ULB Sources		:	132.00
19	Total Sewage Generation (MLD)*		:	11.60
20	Per Capita Sewage Generation (lpcd)		:	186.90
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1672.50
		COD	:	2843.30
		TKN	:	334.50
30	Wastewater Disposal Means		:	Land & River
31	Name of River/Streams for Wastewater Disposal		:	Malan River
32	Number of Drains/Nallah for Wastewater Disposal		:	9
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) Data Sheet

City: Konch		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.95
2	Population as in 2011		:	53412
3	Population Growth Rate as in 2011 (%)		:	5.05
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,136
6	Total Number of Household as in 2011		:	8655
7	Number of Household per Ward		:	346
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	4.70
10	Number of Bore Wells		:	9
11	Ground Water Extraction per Bore Well (MLD)		:	0.52
12	Number of Hand Pumps/ Tubewells		:	462
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	87.97
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	92.30
19	Total Sewage Generation (MLD)*		:	1.10
20	Per Capita Sewage Generation (lpcd)		:	20.50
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1442.10
		COD	:	2451.60
		TKN	:	288.40
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Betwa River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	3
34	Gross Area of Water Bodies (Hectare)		:	24.62
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Koshi Kalan		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.50
2	Population as in 2011		:	60074
3	Population Growth Rate as in 2011 (%)		:	31.39
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,403
6	Total Number of Household as in 2011		:	9879
7	Number of Household per Ward		:	395
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)		:	8.10
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	6.50
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1622.00
		COD	:	2757.40
		TKN	:	324.40
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) Data Sheet

City: Laharpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.98
2	Population as in 2011		:	61990
3	Population Growth Rate as in 2011 (%)		:	23.75
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,480
6	Total Number of Household as in 2011		:	9027
7	Number of Household per Ward		:	361
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	4.90
10	Number of Bore Wells		:	7
11	Ground Water Extraction per Bore Well (MLD)		:	0.70
12	Number of Hand Pumps/ Tubewells		:	480
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	79.96
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	5.10
18	Average Water Supply Rate from ULB & Non-ULB Sources		:	83.90
19	Total Sewage Generation (MLD)*		:	5.30
20	Per Capita Sewage Generation (lpcd)		:	85.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1673.70
		COD	:	2845.30
		TKN	:	334.70
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ull River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	5
34	Gross Area of Water Bodies (Hectare)		:	8.00
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Mahmudabad		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.78
2	Population as in 2011		:	50777
3	Population Growth Rate as in 2011 (%)		:	21.13
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,031
6	Total Number of Household as in 2011		:	8116
7	Number of Household per Ward		:	325
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)		:	6.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.50
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1371.00
		COD	:	2330.70
		TKN	:	274.20
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gomati 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) Data Sheet

City: Mahoba		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.15
2	Population as in 2011		:	95216
3	Population Growth Rate as in 2011 (%)		:	20.86
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,809
6	Total Number of Household as in 2011		:	17283
7	Number of Household per Ward		:	691
8	Surface Water Supply (MLD)		:	11.86
9	Ground Water (GW) Supply (MLD)		:	4.25
10	Number of Bore Wells		:	20
11	Ground Water Extraction per Bore Well (MLD)		:	0.21
12	Number of Hand Pumps/ Tubewells		:	1090
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	11.86
16	Average Water Supply Rate from ULB Sources (lpcd)		:	168.77
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	16.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	174.48
19	Total Sewage Generation (MLD)*		:	14.66
20	Per Capita Sewage Generation (lpcd)		:	153.91
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2570.80
		COD	:	4370.40
		TKN	:	514.20
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ken River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	194.70
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Mauranipur				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.53
2	Population as in 2011		:	61449
3	Population Growth Rate as in 2011 (%)		:	20.77
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,458
6	Total Number of Household as in 2011		:	10879
7	Number of Household per Ward		:	435
8	Surface Water Supply (MLD)		:	2.84
9	Ground Water (GW) Supply (MLD)		:	0.90
10	Number of Bore Wells		:	4
11	Ground Water Extraction per Bore Well (MLD)		:	0.23
12	Number of Hand Pumps/ Tubewells		:	453
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	2.84
16	Average Water Supply Rate from ULB Sources (lpcd)		:	63.98
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	67.90
19	Total Sewage Generation (MLD)*		:	10.20
20	Per Capita Sewage Generation (lpcd)		:	166.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1659.10
		COD	:	2820.50
		TKN	:	331.80
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Suknai River
32	Number of Drains/Nallah for Wastewater Disposal		:	6
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) Data Sheet

City: Mawana		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.50
2	Population as in 2011		:	81443
3	Population Growth Rate as in 2011 (%)		:	17.71
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,258
6	Total Number of Household as in 2011		:	13566
7	Number of Household per Ward		:	543
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	4.79
10	Number of Bore Wells		:	7
11	Ground Water Extraction per Bore Well (MLD)		:	0.68
12	Number of Hand Pumps/ Tubewells		:	146
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	59.13
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	59.70
19	Total Sewage Generation (MLD)*		:	6.00
20	Per Capita Sewage Generation (lpcd)		:	73.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2199.00
		COD	:	3738.20
		TKN	:	439.80
30	Wastewater Disposal Means		:	Land/ River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga river
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	7
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Mubarakpur		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	9.00
2	Population as in 2011		:	70463
3	Population Growth Rate as in 2011 (%)		:	23.85
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,819
6	Total Number of Household as in 2011		:	8709
7	Number of Household per Ward		:	348
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	0.93
10	Number of Bore Wells		:	5
11	Ground Water Extraction per Bore Well (MLD)		:	0.19
12	Number of Hand Pumps/ Tubewells		:	2180
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	13.06
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	2.02
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	28.31
19	Total Sewage Generation (MLD)*		:	9.93
20	Per Capita Sewage Generation (lpcd)		:	140.98
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1902.50
		COD	:	3234.30
		TKN	:	380.50
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land
32	Number of Drains/Nallah for Wastewater Disposal		:	5
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	0.41
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Muradnagar		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.00
2	Population as in 2011		:	95208
3	Population Growth Rate as in 2011 (%)		:	28.40
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,808
6	Total Number of Household as in 2011		:	15241
7	Number of Household per Ward		:	610
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	6.16
10	Number of Bore Wells		:	5
11	Ground Water Extraction per Bore Well (MLD)		:	1.23
12	Number of Hand Pumps/ Tubewells		:	294
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	61.60
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	63.10
19	Total Sewage Generation (MLD)*		:	6.80
20	Per Capita Sewage Generation (lpcd)		:	71.60
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2570.60
		COD	:	4370.00
		TKN	:	514.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Hindon River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	2
34	Gross Area of Water Bodies (Hectare)		:	1.57
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Nagina		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.30
2	Population as in 2001		:	95246
3	Population Growth Rate as in 2001 (%)		:	33.49
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,854
6	Total Number of Household as in 2011		:	13726
7	Number of Household per Ward		:	549
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	6.50
10	Number of Bore Wells		:	6
11	Ground Water Extraction per Bore Well (MLD)		:	1.08
12	Number of Hand Pumps/ Tubewells		:	230
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	91.10
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.60
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	92.70
19	Total Sewage Generation (MLD)*		:	6.20
20	Per Capita Sewage Generation (lpcd)		:	65.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2571.60
		COD	:	4371.80
		TKN	:	514.30
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ramganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	2.30
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Najibabad		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.06
2	Population as in 2011		:	88535
3	Population Growth Rate as in 2011 (%)		:	12.03
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,541
6	Total Number of Household as in 2011		:	14984
7	Number of Household per Ward		:	599
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	7.00
10	Number of Bore Wells		:	11
11	Ground Water Extraction per Bore Well (MLD)		:	0.64
12	Number of Hand Pumps/ Tubewells		:	275
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	78.97
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.10
18	Average Water Supply Rate from ULB & Non-ULB Sources		:	80.50
19	Total Sewage Generation (MLD)*		:	7.20
20	Per Capita Sewage Generation (lpcd)		:	81.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2390.40
		COD	:	4063.80
		TKN	:	478.10
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	2
34	Gross Area of Water Bodies (Hectare)		:	3.70
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Nawabganj		State: Uttar Pradesh		
S.	**Items**			**Value**
1	Total Area (sq km)		:	3.63
2	Population as in 2011		:	81486
3	Population Growth Rate as in 2011 (%)		:	7.68
4	Total Number of Wards		:	28
5	Population per Ward (Thousands)		:	2,910
6	Total Number of Household as in 2011		:	13567
7	Number of Household per Ward		:	485
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)		:	11.00
18	Average Water Supply Rate from ULB & Non-ULB Sources		:	135.00
19	Total Sewage Generation (MLD)*		:	8.80
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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		:	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	:	2200.10
		COD	:	3740.20
		TKN	:	440.00
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) Data Sheet

City: Pilkhuwa				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.30
2	Population as in 2011		:	83736
3	Population Growth Rate as in 2011 (%)		:	25.15
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,349
6	Total Number of Household as in 2011		:	13746
7	Number of Household per Ward		:	550
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	8.50
10	Number of Bore Wells		:	7
11	Ground Water Extraction per Bore Well (MLD)		:	1.21
12	Number of Hand Pumps/ Tubewells		:	740
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	106.25
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.87
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	110.87
19	Total Sewage Generation (MLD)*		:	22.40
20	Per Capita Sewage Generation (lpcd)		:	267.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2260.90
		COD	:	3843.50
		TKN	:	452.20
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	-
32	Number of Drains/Nallah for Wastewater Disposal		:	1
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) Data Sheet

City: Rath			State: Uttar Pradesh	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	8.12
2	Population as in 2001		:	65056
3	Population Growth Rate as in 2001 (%)		:	16.28
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,238
6	Total Number of Household as in 2001		:	11274
7	Number of Household per Ward		:	451
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	5.50
10	Number of Bore Wells		:	11
11	Ground Water Extraction per Bore Well (MLD)		:	0.50
12	Number of Hand Pumps/ Tubewells		:	348
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	84.49
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	5.70
18	Average Water Supply Rate from ULB & Non-ULB Sources		:	87.20
19	Total Sewage Generation (MLD)*		:	4.20
20	Per Capita Sewage Generation (lpcd)		:	65.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1756.50
		COD	:	2986.10
		TKN	:	351.30
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Betwa/ Dhasan River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	9
34	Gross Area of Water Bodies (Hectare)		:	19.90
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Sahaswan		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.45
2	Population as in 2011		:	66204
3	Population Growth Rate as in 2011 (%)		:	13.78
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,648
6	Total Number of Household as in 2011		:	11094
7	Number of Household per Ward		:	444
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	0.75
10	Number of Bore Wells		:	10
11	Ground Water Extraction per Bore Well (MLD)		:	0.08
12	Number of Hand Pumps/ Tubewells		:	147
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	11.30
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	0.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	12.40
19	Total Sewage Generation (MLD)*		:	3.80
20	Per Capita Sewage Generation (lpcd)		:	57.50
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1787.50
		COD	:	3038.80
		TKN	:	357.50
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	75.00
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Sandila				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	24.62
2	Population as in 2011/2001		:	58346
3	Population Growth Rate as in 2011 (%)		:	19.32
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,334
6	Total Number of Household as in 2011		:	9663
7	Number of Household per Ward		:	387
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)		:	7.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	6.30
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1575.30
		COD	:	2678.10
		TKN	:	315.10
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sai 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) Data Sheet

City: Sardhana		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.00
2	Population as in 2011/2001		:	58252
3	Population Growth Rate as in 2011 (%)		:	20.57
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,330
6	Total Number of Household as in 2011		:	13567
7	Number of Household per Ward		:	543
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)		:	7.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	6.30
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1572.80
		COD	:	2673.80
		TKN	:	314.60
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Hindan 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) Data Sheet

City: Seohara			State: Uttar Pradesh	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.72
2	Population as in 2011/2001		:	53296
3	Population Growth Rate as in 2011 (%)		:	12.03
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,132
6	Total Number of Household as in 2011		:	8840
7	Number of Household per Ward		:	354
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)		:	7.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.80
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1439.00
		COD	:	2446.30
		TKN	:	287.80
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) Data Sheet

City: Shahabad		State: Uttar Pradesh		
S.	**Items**			**Value**
1	Total Area (sq km)		:	9.7
2	Population as in 2011/2001		:	80226
3	Population Growth Rate as in 2011 (%)		:	18.41
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,209
6	Total Number of Household as in 2011		:	13958
7	Number of Household per Ward		:	558
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	1.0
10	Number of Bore Wells		:	2
11	Ground Water Extraction per Bore Well (MLD)		:	0.50
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	12.45
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	1.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	12.50
19	Total Sewage Generation (MLD)*		:	3.10
20	Per Capita Sewage Generation (lpcd)		:	39.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2166.10
		COD	:	3682.40
		TKN	:	433.20
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Garra River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	48.00
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Sherkot			State: Uttar Pradesh	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.00
2	Population as in 2011/2001		:	62226
3	Population Growth Rate as in 2011 (%)		:	17.67
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,489
6	Total Number of Household as in 2011		:	9668
7	Number of Household per Ward		:	387
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	4.50
10	Number of Bore Wells		:	3
11	Ground Water Extraction per Bore Well (MLD)		:	1.50
12	Number of Hand Pumps/ Tubewells		:	446
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	72.41
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	4.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	76.00
19	Total Sewage Generation (MLD)*		:	2.20
20	Per Capita Sewage Generation (lpcd)		:	35.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1680.10
		COD	:	2856.20
		TKN	:	336.00
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Khoh River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	0.08
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Sikandrabad				State: Uttar Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	1.14
2	Population as in 2011		:	81028
3	Population Growth Rate as in 2011 (%)		:	15.97
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,241
6	Total Number of Household as in 2011		:	13231
7	Number of Household per Ward		:	529
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	6.00
10	Number of Bore Wells		:	5
11	Ground Water Extraction per Bore Well (MLD)		:	1.20
12	Number of Hand Pumps/ Tubewells		:	235
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	75
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.10
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	76.47
19	Total Sewage Generation (MLD)*		:	48.79
20	Per Capita Sewage Generation (lpcd)		:	602.18
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2187.80
		COD	:	3719.20
		TKN	:	437.60
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
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) Data Sheet

City: Tanda		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.46
2	Population as in 2011		:	95516
3	Population Growth Rate as in 2011 (%)		:	14.44
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	3,821
6	Total Number of Household as in 2011		:	14597
7	Number of Household per Ward		:	584
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	6.40
10	Number of Bore Wells		:	6
11	Ground Water Extraction per Bore Well (MLD)		:	1.07
12	Number of Hand Pumps/ Tubewells		:	180
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	66.57
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	67.50
19	Total Sewage Generation (MLD)*		:	6.20
20	Per Capita Sewage Generation (lpcd)		:	64.60
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2578.90
		COD	:	4384.20
		TKN	:	515.80
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ghaghra River
32	Number of Drains/Nallah for Wastewater Disposal		:	5
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	0.41
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Tilhar		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.48
2	Population as in 2011		:	61444
3	Population Growth Rate as in 2011 (%)		:	16.13
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,116
6	Total Number of Household as in 2011		:	10106
7	Number of Household per Ward		:	404
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	3.60
10	Number of Bore Wells		:	3
11	Ground Water Extraction per Bore Well (MLD)		:	1.20
12	Number of Hand Pumps/ Tubewells		:	158
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	59.20
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	3.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	60.90
19	Total Sewage Generation (MLD)*		:	9.40
20	Per Capita Sewage Generation (lpcd)		:	153.60
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1659.00
		COD	:	2820.30
		TKN	:	331.80
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ramganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	11
33	Number of Water Bodies		:	2
34	Gross Area of Water Bodies (Hectare)		:	6.38
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Tundla		State: Uttar Pradesh		
S.	**Items**			**Value**
1	Total Area (sq km)		:	8.25
2	Population as in 2011		:	50423
3	Population Growth Rate as in 2011 (%)		:	24.63
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,017
6	Total Number of Household as in 2011		:	8744
7	Number of Household per Ward		:	350
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)		:	6.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.40
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1361.40
		COD	:	2314.40
		TKN	:	272.30
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) Data Sheet

City: Ujhani		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.50
2	Population as in 2011		:	62039
3	Population Growth Rate as in 2011 (%)		:	21.52
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,482
6	Total Number of Household as in 2011		:	10343
7	Number of Household per Ward		:	414
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	5.31
10	Number of Bore Wells		:	10
11	Ground Water Extraction per Bore Well (MLD)		:	0.53
12	Number of Hand Pumps/ Tubewells		:	147
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	85.59
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	5.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	86.80
19	Total Sewage Generation (MLD)*		:	6.10
20	Per Capita Sewage Generation (lpcd)		:	98.90
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1675.10
		COD	:	2847.60
		TKN	:	335.00
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	-
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	3
34	Gross Area of Water Bodies (Hectare)		:	7.50
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Vrinadavan		State: Uttar Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	13.49
2	Population as in 2011		:	63005
3	Population Growth Rate as in 2011 (%)		:	11.14
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,520
6	Total Number of Household as in 2011		:	11637
7	Number of Household per Ward		:	465
8	Surface Water Supply (MLD)		:	1.50
9	Ground Water (GW) Supply (MLD)		:	6
10	Number of Bore Wells		:	28
11	Ground Water Extraction per Bore Well (MLD)		:	0.21
12	Number of Hand Pumps/ Tubewells		:	400
13	Ground Water Extraction per Hand Pump (lpd)		:	600
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	1.50
16	Average Water Supply Rate from ULB Sources (lpcd)		:	119.04
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	122.80
19	Total Sewage Generation (MLD)*		:	13.00
20	Per Capita Sewage Generation (lpcd)		:	206.90
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1701.10
		COD	:	2891.90
		TKN	:	340.20
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna River
32	Number of Drains/Nallah for Wastewater Disposal		:	6
33	Number of Water Bodies		:	7
34	Gross Area of Water Bodies (Hectare)		:	2.00
35	Area of Water Bodies as % of Total Area		:	<<< 1

Appendix-3

Compilation of the Total Sewage Discharge through Point Sources in Ganga River Basin (Adopted from CPCB, 2013)

State	Region		Name of the Drains	Discharge	Remark
Uttarakhand	Uttarkashi &Devprayag	1	Storm Water Drain Uttarkashi	1.73	Domestic, industrial wastewater
		2	Kodianala, Devprayag	1.73	
	Rishikesh	1	Triveni Drain/ SaraswatiNala	11.5	
		2	Rambha nadi/drain	152	
		3	LakkarGhat STP Drain	12	
		4	IDPL- STP Drain	3	
		5	Swarg Ashram STP Drain	2.5	
		6	GadhiShyampur Drain	0	
	Haridwar	1	Jagjeetpur STP Drain	42	
		2	Kassavan Drain	11	
		3	Pandey wala Drain	0	
		4	MatraSadan Drain	3.8	
		5	Rawlirao Drain	2.8	
	Laksar	1	Laksar drain	196	
Uttar Pradesh	Sukratal	1	Banganga River (at confluence with river Ganga)	0	Domestic, industrial wastewater
	Bijnor	1	Hemraj Drain	0	
		2	Bijnor Sewage Drian	7.6	
		3	Malan River (at confluence with river Ganga)	16.5	
		4	Chhoiya Drain (at conf. with river Ganga)	124	
	Gajrola and Babrala	1	Bagad River	1.8	
	Garh	1	Garh Drain	14	
		2	Fuldehra Drain (at confluence with river Ganga)	32	
	Badaun	1	Badaun Sewage Drain	29.9	
		2	Sot River	42	
	Anupshar	1	Anupsahar STP Drain-1	0.85	
		2	Anupsahar STP Drain-2	1.75	
	Kanpur	1	Dabka Nalla-1 (Kachhanala)	94	
		2	Dabka Nalla-2 (Pakkanala)	25	
		3	Dabka Nalla-3 (Pakkanala)	0.26	
		4	Shetla Bazar (Kachhanala)	29	
		5	WazidpurNalla	54	
		6	SattiChaura	1.1	
		7	GolaghatNala	0.83	
		8	BhagwatdasNala	11	
		9	Sisamau Nala	197	
		10	PermiyaNala	186	
	Unnao	1	Loni Drain	41.9	
		2	City Jail Drain	35.86	

	Fatehpur to Raibareilly	1	Pandu River	1396	
		2	Seepage	0	
		3	Arihari Drain	34.25	
		4	NTPC drain	60.29	
	Allahabad	1	Rasulabad-1 (Pakkanala)	29.8	
		2	Rasulabad-2 (Pakkanala)	20.2	
		3	Rasulabad-3 (kachhanala)	14.2	
		4	Rasulabad-4 (Kachhanala)	48.5	
		5	Nehru Drain	7	
		6	Kodar Drain	20	
		7	Pongaghat Drain	8	
		8	Solari Drain	34.8	
		9	Maviya Drain	65	
		10	Mugalaha Drain	46	
	Mirzapur	1	GhoreSaheed drain	86.4	
		2	Khandwa drain	62.21	
	Varanasi	1	Rajghat drain	16.19	
		2	Nagwa drain	66.45	
		3	Ramnagar drain	23.65	
		4	Varuna drain	304.5	
		5	Shivala Drain	0	
Bihar	Buxer	1	Sidhharth Drain	7.5	Domestic,industrial wastewater
		2	Sati Ghat Drain	7.7	
		3	Nath Baba Drain	5.2	
		4	Tadka Drain	6.8	
		5	Sariupur Drain	6.7	
	Patna	1	Danapur Cantt Drain	10.1	
		2	DighaGhat Drain	9.6	
		3	Kurzi Drain	120.4	
		4	Rajapur Drain	40.7	
		5	BanshGhat Drain	6.6	
		6	CollectriateGhat Drain	14.3	
		7	MittanGhat Drain	5.4	
		8	Mahavir Drain	5.4	
		9	Badshahi Drain	21.4	
	Munger	1	ITC Drain	10.13	
		2	Lal Darwala Drain	8.5	
	Bhagalpur	1	Jamunia Drain	82.61	
		2	Adampur Drain	11.75	
		3	Sarkikal Drain	6.62	

		4	Saklichand Drain	7.7	
		5	Hathiya Drain	11.8	
		6	Chama Drain	10.6	
		7	BarariGhat Drain	9.7	
	Kahalgaon	1	Kowa Drain	147.28	
		2	Kagzi Drain	5.2	
West Bengal	Left bank	1	Circular Canal adjacent to River Hooghly	320.3	Domestic, industrial wastewater
		2	TollyNala adjacent to Dahighata	380.2	
		3	Dhankheti Khal Near CESE Intake Point	65.2	
		4	Akhra Food Ghar Adjacent to Hooghly River	83.4	
		5	Khardah Municipal Drain Connected to Hooghly River	63	
		6	DebitalaPancha Khal, Ichapore (Adjacent to R.N.S Brick Field)	46	
		7	Khal Near Nimtala Burning Ghat	20.7	
		8	MuniKhali Khal Adjacent to Arun MistriGhat	19.4	
		9	Kashipur Khal Adjacent to Khamarhati Jute Mill	16.1	
		10	In front of S.P Bunglow, S.N Banerjee Road, Mistry Ghat, Barrackpore	22.7	
		11	Adjacent to Cossiporeferryghat&gunshell factory	19.8	
		12	ChitpurGhat, Dilarjung Road	15	
		13	Majher Char Khal & Kalyani combined waste sewage near brick field with foam near sluice gate	16.5	
		14	Drain Opposite to Fort William , Judges Court Ghat	7.65	
		15	Adjacent to GarifaRly.Stn., Patterson road, adjacent to Ram Ghat	7.78	
		16	Adjacent to Garifa Rly. Stn.(North side) on Patterson road(domestic)	9.68	
		17	Baranagar Khal Adjacent to Ratan Babu Ghat	10.3	
		18	Mohan Misra lane & crossing of Ghosh para road, Halisahar, adjacent to Prabhat Sangha playground	10.7	
		19	Bagher Khal, adjacent to Hotel Dreamland, near sluice gate, open pucca drain	11.1	
		20	Drain between Pratapnagar and Rajbari	4.19	
		21	By the side of Alliance jute mill, Jagatdal Jetty, opposite side of bank Chandannagar Jetty	4.96	
		22	Adjacent to boundary wall of Gandhighat& near Upashak Social Welfare Organization, Gandhighat, South gate-1,Barrackpore	3.61	

		23	Balughat, Manirampur pucca drain	2.28	
		24	BishalakshmiGhat, adjacent to CESC Power House, Titagarh	4.01	
		25	Thanar Khal, adjacent to Thana & over tank by Naihati Municipality	5.29	
		26	Sasanghat	2.92	
		27	Open pucca drain carrying waste for ward nos. 9 & 10	1.2	
		28	Saidabad kunjaBhata(opposite to auto center)ward no. 25	1.26	
		29	Shovabazar Canal Near Shovabazar Launch Ghat	0.42	
		30	Open pucca drain flowing adjacent to Diamond club,	0.96	
		31	Open Kuccha drain carrying domestic waste for Ward 16	0.66	
		32	Adjacent to boundary wall of Jangipur College and B D Office	1.08	
		33	Shasan (burning) Ghat,Bhairabpur, Purbaparaword9 no16	0.54	
		34	RadharGhat(Old IchagrashasanGhat) Bhairabpur, Purbapara	0.48	
	Right bank	1	Bhagirathi lane, Mahesh, Serampore	41.5	
		2	Hastings Ghat road, adjacent to Hastings jute mill, Rishra, Hooghly	42	
		3	Najerganj Khal, north side of Shalimar paint, near Hans Khali Poll, Sankrail	326	
		4	Singhi More Khal (Singhimara Khal), Manikpur, Sankrail, near brick field	26.1	
		5	Chatra Khal, Beniapara, Serampore, Behind Ganga Darsan, Raja K. L Goswami street, Serampore	28.4	
		6	Bagh Khal, border of Rishra&Konnagar Municipality on G.T Road	18.4	
		7	TelkalGhat	21.9	
		8	RamkrishnaMullickghat Road	12.2	
		9	130 Foreshore Road Martin Burn	17.6	
		10	Shibpur Burning Ghat	13.3	
		11	Jagannath Ghat Road, opposite to China pharmacy, by the side of Bijoy lakshmi rolling mill	17.3	
		12	Combined of Swarasati Khal and Rajganj Khal, near Sankrail Police station, near PareshnathHazraGhat	2.77	
		13	Champdany Ferry Ghat, opposite nabalgarrage, Champdany ,Poura bhavan road, Pin-712222	4.15	
		1	South side of DawnagaziGhat, Bally	1.31	

		4	Municipality, Bally		
		15	JagatnathGhat, Ward No.-14, LalababuSaha Rd., South side of KathgolaGhat	9.33	
		16	101,Foreshore Road	6.24	
		17	Kuthighat South Side of Belur Math	5.76	
		18	N.C.Pal Khal, Sankrail	3.87	
		19	Adjacent to bazarpara and Garighat (ward no. 18) Kuccha drain	1.2	
		20	Shalimar Coal Deposit No 1Naresh Kumar Ward	0.16	
			Total Discharge	6088.4	

Appendix-4

Compilation of the Total Sewage Discharge through Point Sources in Ganga River Basin(Survey Assesment)

Region		Name of the Drains	Discharge	Remark
Farukkabad	1	HanthikhanaNala	1.78	
	2	BargadiyaGhatNala	3.96	
	3	TokaGhatNala	7.49	
	4	BibiganjNala	19.20	
	Sub Total:		**32.43**	
Kanpur	1	Airforce Nala	4.15	
	2	Outfall water for irrigation 1	170.0	
	3	Outfall water for irrigation 2		
	4	WazidpurNala	9.37	
	5	BuriaghatNala	1.40	
	6	Sheetla Bazar Nala	12.0	
	7	BangaliGhatNala		
	8	Golf Club Nala	43.20	
	9	DubkaNala	1.50	
	10	Cantonment Nala	0.00	
	11	Maskarghat/nanaraoghatNala	0.00	
	12	GolaghatNala	3.23	
	13	ShuklagangNala	0.15	
	14	GuptarghatNala	1.86	
	15	SarsaiyaghatNala	0.71	
	16	Jail Nala	1.70	
	17	Police Line Nala	4.04	
	18	Police Line Nala 2	1.40	
	19	Parmut + TEFCO Nala	0.41	
	20	Seshamau/power house Nala	130.0	
	21	RanighatNala	0.57	
	22	Nawabganj+Zevra+Khewra+ Roadways+KESA	20.0	
	23	COD Nala	50	
	24	Ganda Nala	130	
	25	HalwakhandaNala		
	Sub Total:		**585.69**	
Allahabad	1	MorigateNala	38.04	
	2	Daraganj Drain	3.27	
	3	AlenganjNala	27.0	
	4	SaloriNala		
	5	JondhwalNala	2.72	
	6	ShankarghatNala	0.22	
	7	RasulabadpaccaghatNala	0.04	
	8	ADA colony Nala	1.74	
	9	JondhwalRasulabadNala	0.08	
	10	Shankarghat Colony Nala	0.01	
	11	JondhwalghatNala	0.08	
	12	RajapurNala	7.62	
	13	TV Tower Nala	2.18	

	14	Sadar Bazar Nala	3.27	
	15	Unchwaghari Drain I	0.76	
	16	Unchwaghari Drain II	0.27	
	17	Beligaon Drain	0.27	
	18	Mumfordganj Drain	0.44	
	19	MuirabadNala	1.09	
	20	Nayapurwa Drain	0.07	
	21	Mehdauri Gaon Drain	0.22	
	22	MawaiyaNala	9.8	
	23	ShivkutiDrain No.1	0.02	
	24	ShivkutiDrain No.2	0.01	
	25	Shivkuti Drain No. 3	1.74	
	26	Shivkuti Drain No.4	0.01	
	27	Shivkuti Drain No. 5	0.03	
	28	Shivkuti Drain No. 6	0.02	
	29	Shivkuti Drain No. 7	0.78	
	30	Chilla Drain	0.00	
	31	GovindpurPurani Basti Drain	0.00	
	32	Govindpur Drain No. 1	0.00	
	33	Govindpur Drain No. 2	0.00	
	34	Govindpur Drain No. 3	0.00	
	35	Govindpur Drain No. 4	0.00	
	36	Co-operative Drain	0.00	
	37	Basna Drain	0.00	
	38	Indira Awas Drain	0.25	
	39	Shivpur Drain	0.00	
	40	Lotey Haran Nala	2.18	
	41	Shastri Bridge Nala	0.02	
	42	KodaraNala	9.50	
	43	Nehru park Nala	2.50	
	44	PonghatNala	5.60	
	Sub Total:		**121.85**	
Mirzapur	1	BiswandarpurNala	0.19	
	2	BarahmiliaNala	0.00	
	3	Left CanalNala	1.14	
	4	IRRJ Colony Nala	0.00	
	5	BadshahiNala	0.31	
	6	KachahariGhatNala	0.27	
	7	OliarGhatNala	0.09	
	8	BadleGhatNala	0.19	
	9	Court GhatNala	1.81	
	10	KandwaNala	10.06	
	11	ChorwaNala	0.00	
	12	LallaNala	0.16	
	Sub Total:		**14.22**	
Varanasi	1	NagwaNala	60.17	

	2	ShivalaGhatNala	0.19	
	3	Harishchandra ghatNala	0.16	
	4	MansarovarGhatNala	0.90	
	5	Pandey GhatNala*	0.00	
	6	R.P. Ghat	2.18	
	7	ManmandirGhatNala	0.10	
	8	Mir GhatNala*	0.00	
	9	ManikarnikaGhatNala*	0.00	
	10	JalasenGhatNala	0.00	
	11	SamneGhatNala	1.43	
	12	Rajghat Nala	133.30	
	13	BhaisasurGhatNala	0.22	
	14	TeliyaghatNala	0.30	
	15	TrilochanGhatNala	0.06	
	16	BrahmGhatNala	0.29	
	17	PanchgangaGhatNala*	0.00	
	18	Ganga Mahal GhatNala	0.11	
	Sub Total:		**199.41**	
Gazipur	1	Anjaighatnala	4.35	
	2	Sitlaghatnala	0.07	
	3	Sikandarpurnala	0.00	
	4	Collector ghatnala	2.27	
	5	Dadri ghatnala	1.37	
	6	Afeem Factory nala	1.54	
	7	DM AwasNala	2.21	
	Sub Total:		**11.81**	
Ballia	1	MidhiNala	1.08	
	2	BeduachabhiNala	10.05	
	3	Markandey Singh ChaurahaNala	1.04	
	4	Police Line Nala*	0.00	
	5	Chhittu Pandey ChaurahaNala	0.23	
	6	Biswanipur Police Station Nala	0.78	
	7	Kadam ChaurahaNala	0.00	
	8	Gudri Bazar Nala *	0.00	
	9	DalpattiNala*	0.00	
	10	BankattaNala	0.46	
	11	JagdishpurNala	0.00	
	12	Durga Mandir nala	5.04	
	Sub Total:		**18.68**	
Total Discharge of all the Class I towns directly in river Ganga in U.P. state			**984.09**	

	14	Sadar Bazar Nala	3.27	
	15	Unchwaghari Drain I	0.76	
	16	Unchwaghari Drain II	0.27	
	17	Beligaon Drain	0.27	
	18	Mumfordganj Drain	0.44	
	19	MuirabadNala	1.09	
	20	Nayapurwa Drain	0.07	
	21	Mehdauri Gaon Drain	0.22	
	22	MawaiyaNala	9.8	
	23	ShivkutiDrain No.1	0.02	
	24	ShivkutiDrain No.2	0.01	
	25	Shivkuti Drain No. 3	1.74	
	26	Shivkuti Drain No.4	0.01	
	27	Shivkuti Drain No. 5	0.03	
	28	Shivkuti Drain No. 6	0.02	
	29	Shivkuti Drain No. 7	0.78	
	30	Chilla Drain	0.00	
	31	GovindpurPurani Basti Drain	0.00	
	32	Govindpur Drain No. 1	0.00	
	33	Govindpur Drain No. 2	0.00	
	34	Govindpur Drain No. 3	0.00	
	35	Govindpur Drain No. 4	0.00	
	36	Co-operative Drain	0.00	
	37	Basna Drain	0.00	
	38	Indira Awas Drain	0.25	
	39	Shivpur Drain	0.00	
	40	Lotey Haran Nala	2.18	
	41	Shastri Bridge Nala	0.02	
	42	KodaraNala	9.50	
	43	Nehru park Nala	2.50	
	44	PonghatNala	5.60	
	Sub Total:		**121.85**	
Mirzapur	1	BiswandarpurNala	0.19	
	2	BarahmiliaNala	0.00	
	3	Left CanalNala	1.14	
	4	IRRJ Colony Nala	0.00	
	5	BadshahiNala	0.31	
	6	KachahariGhatNala	0.27	
	7	OliarGhatNala	0.09	
	8	BadleGhatNala	0.19	
	9	Court GhatNala	1.81	
	10	KandwaNala	10.06	
	11	ChorwaNala	0.00	
	12	LallaNala	0.16	
	Sub Total:		**14.22**	
Varanasi	1	NagwaNala	60.17	

	2	ShivalaGhatNala	0.19	
	3	Harishchandra ghatNala	0.16	
	4	MansarovarGhatNala	0.90	
	5	Pandey GhatNala*	0.00	
	6	R.P. Ghat	2.18	
	7	ManmandirGhatNala	0.10	
	8	Mir GhatNala*	0.00	
	9	ManikarnikaGhatNala*	0.00	
	10	JalasenGhatNala	0.00	
	11	SamneGhatNala	1.43	
	12	Rajghat Nala	133.30	
	13	BhaisasurGhatNala	0.22	
	14	TeliyaghatNala	0.30	
	15	TrilochanGhatNala	0.06	
	16	BrahmGhatNala	0.29	
	17	PanchgangaGhatNala*	0.00	
	18	Ganga Mahal GhatNala	0.11	
	Sub Total:		**199.41**	
Gazipur	1	Anjaighatnala	4.35	
	2	Sitlaghatnala	0.07	
	3	Sikandarpurnala	0.00	
	4	Collector ghatnala	2.27	
	5	Dadri ghatnala	1.37	
	6	Afeem Factory nala	1.54	
	7	DM AwasNala	2.21	
	Sub Total:		**11.81**	
Ballia	1	MidhiNala	1.08	
	2	BeduachabhiNala	10.05	
	3	Markandey Singh ChaurahaNala	1.04	
	4	Police Line Nala*	0.00	
	5	Chhittu Pandey ChaurahaNala	0.23	
	6	Biswanipur Police Station Nala	0.78	
	7	Kadam ChaurahaNala	0.00	
	8	Gudri Bazar Nala *	0.00	
	9	DalpattiNala*	0.00	
	10	BankattaNala	0.46	
	11	JagdishpurNala	0.00	
	12	Durga Mandir nala	5.04	
	Sub Total:		**18.68**	
Total Discharge of all the Class I towns directly in river Ganga in U.P. state			**984.09**	

Assessment of Domestic Pollution Load from Urban Agglomeration in Ganga Basin: Rajasthan

GRBMP: Ganga River Basin Management Plan

by

Consortium of 7 "Indian Institute of Technology"s (IITs)







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.

Dr Vinod Tare
Professor and Coordinator
Development of GRBMP
IIT Kanpur

The Team

1. A A Kazmi, IIT Roorkee *kazmifce@iitr.ernet.in*
2. A K Gupta, IIT Kharagpur *akgupta18@rediffmail.com, akgupta@iitkgp.ac.in*
3. A K Mittal, IIT Delhi *akmittal@civil.iitd.ernet.in*
4. A K Nema, IIT Delhi *aknema@gmail.com*
5. Ajay Kalmhad, IIT Guwahati *kajay@iitg.ernet.in*
6. Anirban Gupta, BESU Shibpur *guptaanirban@hotmail.com*
7. Arun Kumar, IIT Delhi *arunku@civil.iitd.ac.in*
8. G J Chakrapani, IIT Roorkkee *gjcurfes@iitr.ernet.in*
9. Gazala Habib, IIT Delhi *gazalahabib@gmail.com*
10. Himanshu Joshi, IIT Roorkee *himanshujoshi58@gmail.com*
11. Indu Mehrotra, IIT Roorkee *indumfce@iitr.ernet.in*
12. I M Mishra, IIT Roorkee *imishfch@iitr.ernet.in*
13. Ligy Philip, IIT Madras *ligy@iitm.ac.in*
14. M M Ghangrekar, IIT Kharagpur *ghangrekar@civil.iitkgp.ernet.in*
15. Mukesh Doble, IIT Bombay *mukeshd@iitm.ac.in*
16. P K Singh, IT BHU *dr_pksingh1@rediffmail.com*
17. Purnendu Bose, IIT Kanpur *pbose@iitk.ac.in*
18. R Ravi Krishna, IIT Madras *rrk@iitm.ac.in*
19. Rakesh Kumar, NEERI Nagpur *r_kumar@neeri.res.in*
20. S M Shivnagendra, IIT Madras *snagendra@iitm.ac.in*
21. Saumyen Guha, IIT Kanpur *sguha@iitk.ac.in*
22. Shyam R Asolekar, IIT Bombay *asolekar@iitb.ac.in*
23. Sudha Goel, IIT Kharagpur *sudhagoel@civil.iitkgp.ernet.in*
24. Suparna Mukherjee, IIT Bombay *mitras@iitb.ac.in*
25. T R Sreekrishanan, IIT Delhi *sree@dbeb.iitd.ac.in*
26. Vinod Tare, IIT Kanpur *vinod@iitk.ac.in*
27. Vivek Kumar, IIT Roorkee *vivekfpt@iitr.ernet.in*

Lead Authors

1. Vinod Tare, IIT Kanpur
2. Purnendu Bose, IIT Kanpur
3. Abhishek, IIT Kanpur
4. Vishal Kapoor, IIT Kanpur
5. Suresh Gurjar, IIT Kanpur

Contents

1. Introduction

Rajasthan, largest State in India by area constituting 10.4 percent of the total geographical area of India, is located in the northwestern part of Indian subcontinent. It accounts for 5.7 percent of population of India (Census 2011). The state administratively divided into 33 districts, 244 Tehsils and 249 Panchayat Samities. It is bounded to the north and northeast by the states of Punjab and Haryana, to the east and southeast by the states of Uttar Pradesh and Madhya Pradesh, to the southwest by the state of Gujarat, and to the west and northwest by Pakistan. The geographic features of Rajasthan are the Thar Desert and the Aravalli Range. The rivers flow through eastern part of Aravalli and take their water to Bay of Bengal are Chambal, Kali Sindh, Parvati, Banas and their tributaries. Mahi, Luni, Sabarmati, Paschim Banas and their tributaries drain their water to the Arabian sea. The rivers *i.e.,* Ghagghar, Ban Ganga, Kantli, Sabi, Ruparel and Mendha, are flowing through the North Rajasthan and forms inland drainage system.

The Ganga River Basin (GRB) has a total catchment area of 1,086,000 sq km across India, China, Nepal and Bangladesh. The river basin nearly covers 26% (861,404 sq km) of the total geographical area of the country. Rajasthan is one of the 11 states (Uttarakhand, Uttar Pradesh, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh, Jharkhand and West Bengal) of the entire GRB in India through which the river Ganga or her tributaries flows. The geographical area of the state contributing in GRB is depicted in Figures 1 and 2. A comparison of state wise distribution of GRB area with the geographical area of different states is presented in Table 1.

Table 1: State-wise Distribution of the Ganga River Basin Area

State/ Union Territory	Total Geographical Area (sq km)	Percentage of the Basin Area (%)
Uttarakhand	53,483	6.4
Uttar Pradesh	243,290	29.1
Bihar	94,163	11.2
Chhattisgarh	135,194.5	2.2
Delhi	1,484	0.2
Haryana	44,212	2.2
Himachal Pradesh	55,673	0.7
Rajasthan	**342,239**	**13.1**
Madhya Pradesh	308,245	21.7
Jharkhand	79,714	6.1
West Bengal	88,752	7.2

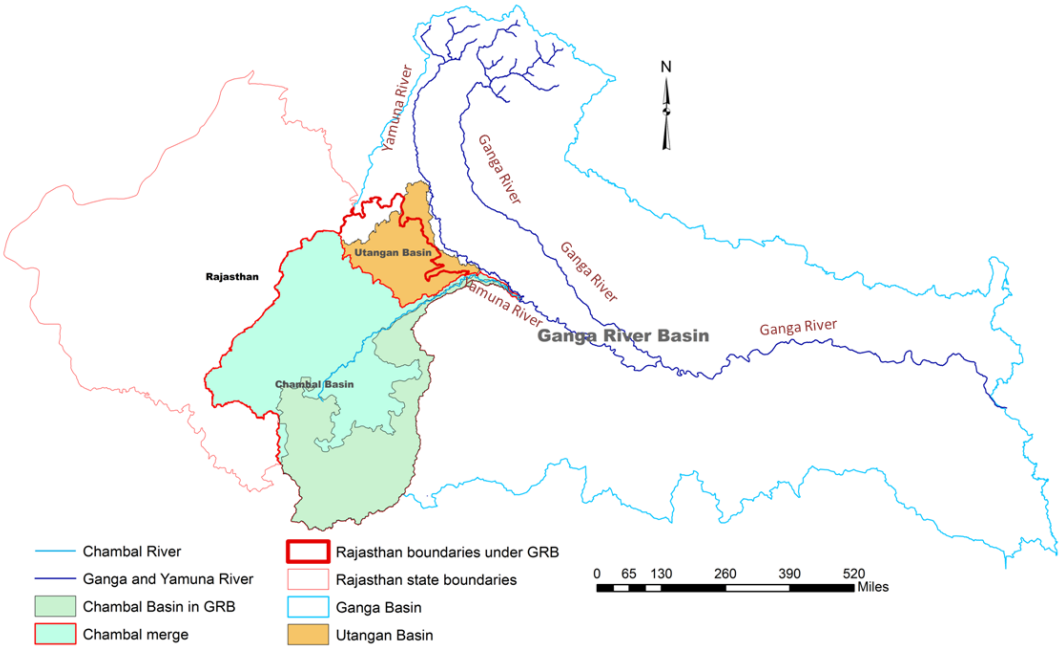


Figure 1: Basin area of Chambal and Utangan (in Rajasthan) rivers in Ganga River Basin

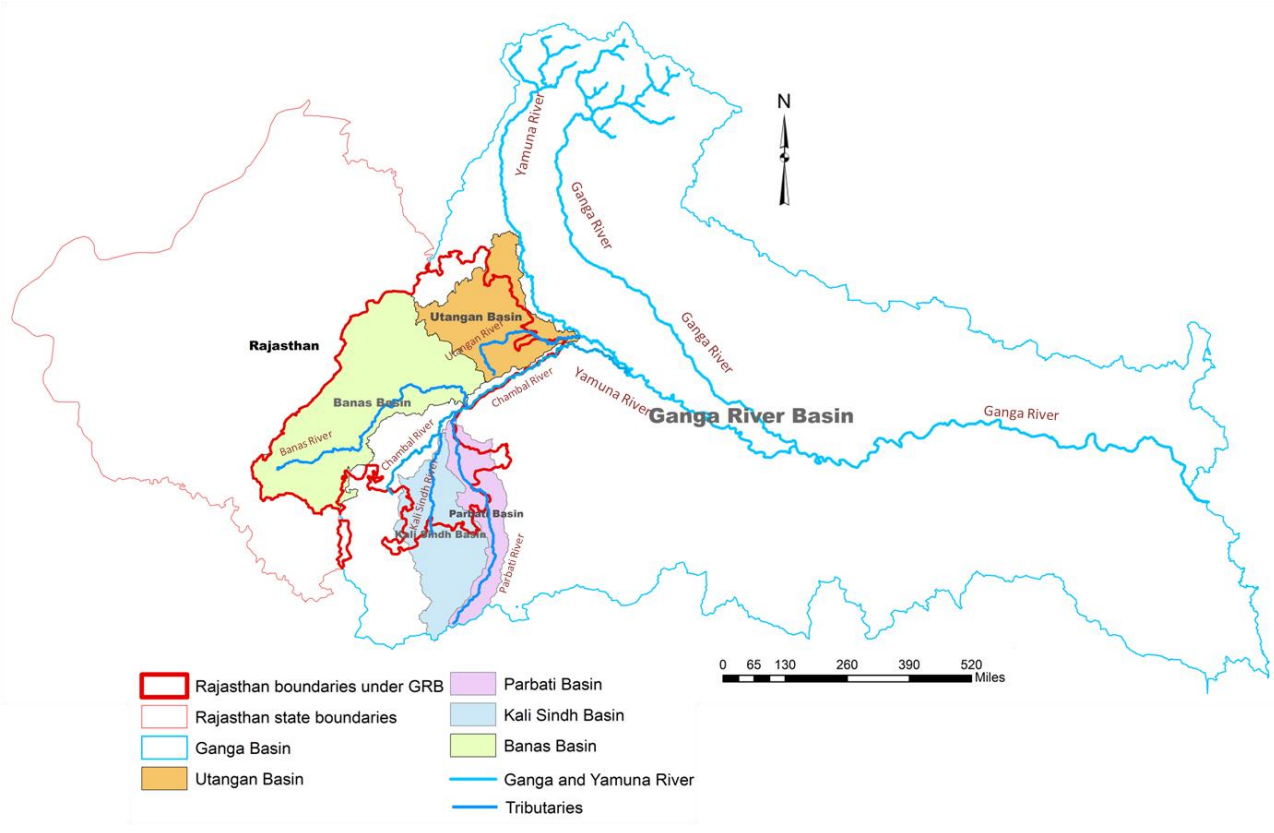


Figure 2: Major Sub-Basins of Ganga River Basin in Rajasthan

The rivers contributing in Ganga River Basin are Banas, Kali Sindh, Parbati, Utangan and Chambal. The first three rivers meet with River Chambal (major tributary of river Yamuna) while Utangan river merges in River Yamuna which directly meet into river Ganga. The rivers of Rajasthan, except the Chambal, are ephemeral and flow only during the rainy season. The salient features of the major tributaries of river Ganga flowing through the state are discussed in Table 2.

Table 2: The Salient Features of Tributaries of the Ganga River Basin Contributing to the River Ganga in the State of Rajasthan

	Major Tributaries/ Sub-tributaries of the state contributing to GRB				
Characteristics	**Kali Sindh**	**Chambal**	**Parbati**	**Banas**	**Utangan/ Gambhir**
Position	Right bank	Right bank	Right bank	Left bank	Right bank
Region of origin	Northern slopes of the Vindhyan mountains near Bagli village (District Dewas) in M.P.	North wards slope of the Vindhyan mountains in native state of Indore (M.P.)	North wards slope of the Vindhyan mountains	Khamnor hills of the Aravalli range near to Kumbhalgarh, Rajasthan	Hills near Hindaun Rural in Hindaun Subdivision in Karauli, Rajasthan
Mouth	Chambal	Yamuna	Chambal	Chambal	Yamuna
Total length (km)	278	960	436*	512	288*
Total catchment area (sq km)	7,944	143,219	15,861*	45,833	4,174
Percent catchment area in Rajasthan	-	40	-	-	-
River bed/ Soil texture	-	Stony rapid, sand banks and gravel bars	-	-	-

*Details of the river adopted from WRD, Rajasthan (2013); Gopal and Sah (1993); Dwivedi (2006)

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

The natural flow regime in the rivers and their tributaries in the state have been altered due to construction of a number of dams, barrages and reservoirs for water conservation and irrigation. The details of the major projects on the rivers in the state are depicted in Table 3. The two main rivers of Rajasthan are Chambal and Luni. Chambal enters in the state at Chaurasigarh and flows along the eastern border between Rajasthan and Madhya Pradesh. Luni is the only river that flows across the western part of Rajasthan. The river flows to Gujarat, where it drains at the Rann of Kutch. Apart of these two-river systems the state has numerous seasonal rivers which disappear in the inland drainage system. The state has a huge area of the Thar Desert and rivers play a major role in the irrigation system of the state. Most of the dams and barrages in the state suffice the need of irrigation and only few of them (Jawahar Sagar Dam and Ranapratap Sagar Dam) are used for Hydroelectric purposes. According to the report published by NRLD (2015), the state having 211 large dams (Dams with a maximum height of more than 15 meters from its deepest foundation to the crest) obstructed the flow of numerous rivers (Chambal, Unli, Tidi, Som, Wagon, Ara, Kali, Banas, Banganga, Parvati, Gambhiri, Mahi, Kakni, Jokham, Sabarmati, Katli, Sabi, Orai, Mantha and others) in the state. The list of the dams comes under GRB, its purpose for construction in the state and its current status are presented underneath (Table 3).

Table 3: Details of the Major Dams/ Barrages/ Weirs on the Tributaries of River Ganga in the State

Projects	Year	River	Purpose	Status
Abhaypura Dam	1976	Bhimlat	Irrigation	Completed
Aklera Sagar Dam	-	Chambal	Irrigation, Water Storage	Completed
Alnia Dam	1960	Alnia Hukud	Irrigation	Completed
Anwasa Dam	1981	Local Nallah	Irrigation	Completed
Arwar Dam	1957	Khari	Irrigation	Completed
Atawara Dam	1961	Banas	Irrigation	Completed
Badgaon Dam	1973	Berach	Irrigation	Completed
Bagolia Dam	1956	Berach	Irrigation	Completed
Bajrang Garh Dam	-	Sivani	Irrigation	Completed
Banakiya Dam	1962	Local Nallah	Irrigation	Completed
Baradpura/ Baradapura Dam	-	Banas	Irrigation	-
Baretha Bund Dam	-	Yamuna/ Gambhiri	Irrigation	Completed

Bari Mansarowar Dam	2000	Local Nallah	Irrigation	Completed
Barkheri Dam	1985	Local Nallah	Irrigation	Completed
Bassi Dam	1987	-	Irrigation	Completed
Basundni Dam	1981	Khari	Irrigation	Completed
Benthali/ Bethli/ Bethali Dam	1965	Bethali/ Benthali	Irrigation	Completed
Bhimlat Dam	1958	Bhimlat	Irrigation	Completed
Bhimsagar Dam	1997	-	Drinking / Water Supply, Irrigation	Completed
Bhopal Sagar Dam	1936	Berach	Irrigation	Completed
Bilas Dam	1996	Bilas	Irrigation	Completed
Bisalpur Dam	1999	Banas	Drinking / Water Supply, Irrigation	Completed
Borda Dam	1979	Local Nallah	Irrigation	Completed
Buchara Dam	1889	-	Irrigation	Completed
Bundika Gothra Dam	1957	Mej River	Irrigation	Completed
Burdha Dam	1904	Telera	Irrigation	Completed
Chacha Kheri Dam	2006	Sivani	Irrigation	Completed
Chandrabhaga Dam	1958	Chandrabhaga	Irrigation	Completed
Chandrana Dam	1871	Banganga	Irrigation	Completed
Chandsen/ Chandsen Bheru Dam	-	-	Irrigation	-
Chaparwara Dam	1894	Banas/ Local Nallah	Irrigation	Completed
Chauli Dam	2006	Chauli	Drinking / Water Supply, Irrigation	Completed
Chhapi Dam	2005	Chhapi	Drinking / Water Supply, Irrigation	Completed
Chikalwar Dam	-		Irrigation	-
Chittoli Dam	1950	Sabi/ Local Nala	Irrigation	Completed
Deopura Dam	1981	Nahari	Irrigation	Completed
Devliya/ Deolia/ Deoriya Dam	1982	Local Nallah	Irrigation	Completed
Dheel Dam	1911	Morel	Irrigation	Completed
Dindoli Dam		Banas	Irrigation	Completed
Domti Kokra Dam	1989	Moral/ Gandi/ Ganoli	Irrigation	-
Dorai Dam	1995	Brahmani	Irrigation	Completed

Dugari Dam	-	-	Irrigation	-
Fateh Sagar Dam	1889	Berach	Irrigation	Completed
Gadola Dam	1964	Local Nala	Irrigation	Completed
Gagrin Dam	-	Ahu	Irrigation	Under Construction
Galai Sagar Dam	-	-	Irrigation	-
Galwa Dam	1960	Galwa	Irrigation	Completed
Galwania Dam			Irrigation	
Gambhiri Dam	1958	Gambhiri	Irrigation	Completed
Gararda Dam	2010	Gararda	Irrigation	Completed
Gopalpura Dam	1980	Chambal/ Kul	Irrigation	Completed
Gosunda Dam	-	Banas	Irrigation	Completed
Govta Dam	1955	Manali	Irrigation	Completed
Gudha Dam	1958	-	Irrigation	Completed
Gulandi Dam	-	Gulandi	Irrigation	Under Construction
Hamja Kheri Dam	2002	Sivani	Irrigation	Completed
Harish Chandra Sagar Dam	-	-	Irrigation	-
Harsora/ Harsora Bund Dam	-	-	Irrigation	-
Hindlot Dam	-	Local Nallah	Irrigation	Completed
Hingonia Dam	1862	Banas/ Bandi	Irrigation	Completed
Jaisamand Dam	1910	Banganga/ Ruparail	Irrigation	Completed
Jawahar Sagar Dam	1973	Chambal	Hydroelectric, Irrigation	Completed
Jetpura Dam	1978	Unli	Irrigation	Completed
Jhadol Dam	1980	Local Nallah	Irrigation	Completed
Juggar Dam	1957	Juggar Banas	Irrigation	Completed
Kala Bhata Dam	1958	Khari	Irrigation	Completed
Kaladeh Dam	1964	Local Nallah	Irrigation	Completed
Kalakh Sagar Dam	1883	Local Nallah	Irrigation	Completed
Kalakho Dam	-		Irrigation	-
Kalisil Dam	1956	Kalisil Banas/ Kalisindh	Irrigation	Completed
Kalisindh Dam			Irrigation	
Kanota Dam	2001	Dhoond/ Dhundh	Irrigation	Completed
Kanyakheri Dam	1987	Local Nallah	Irrigation	Completed

Karoli Dam	1985	Local	Irrigation	Completed
Kharad Dam	1877	Banganga/ Local Nallah	Irrigation	Completed
Khari Dam	1957	Khari	Irrigation	Completed
Kothari Stage I Dam	1984	Kothari (Banas)	Irrigation	Completed
Ladki/ Larki Dam	1966	Kothari	Irrigation	Completed
Lassaria Dam	1982	Dai	Irrigation	Completed
Lhasi Dam	-	Lhasi	Irrigation	Under Construction
Luharia/ Loharia Dam	1984	Local Nallah	Irrigation	Completed
Madho Sagar Dam	1887	Banganga/ Local Nallah	Irrigation	Completed
Man Sarowar Dam	1957	Chambal/ Local Nallah	Irrigation	Completed
Mandal Dam	1973	Local Nallah	Irrigation	Completed
Mangalsar Dam	-	-	Irrigation	-
Manohar Thana Dam	-	-	Irrigation	-
Maoroli Bund Dam	-	-	Irrigation	-
Mashi Dam	1969	Bandi/ Mashi	Irrigation	Completed
Mata Ji Ka Kheda/ Khera Dam	-	-	Irrigation	-
Matrakundia/ Matrikundia/ Matrikundial Dam	1991	Banas	Irrigation	Completed
Meja Dam	1958	Kothari	Irrigation	Completed
Modia Mahadev Dam	1980	Local Nallah	Irrigation	Completed
Morasagar Dam	1978	Banas/ Local Nallah	Irrigation	Completed
Morel Dam	1959	Morel	Irrigation	Completed
Moti Sagar Dam	-	-	Irrigation	-
Motipura Dam	1999	Local Nallah	Irrigation	Completed
Mundliya Kheri Dam	1950	Local Nallah/ C. Bhaga	Irrigation	Completed
Murliya Dam	1968	Local Nallah	Irrigation	Completed
Nagdi Dam	1959	Nagdi	Irrigation	Completed
Nahar Sagar Dam	1909	Local Nallah	Irrigation	Completed
Nand Samand Dam	1958	Banas	Irrigation	Completed
Narayan Sagar Dam	-	-	Irrigation	-
Navratan Sagar Dam	2000	Local Nallah	Irrigation	Completed

Needar Dam	1990	Odher/ Local Nallah	Irrigation	Completed
Orai Dam	1973	Orai	Irrigation	Completed
Pachanpura Dam	1990	Erau	Irrigation	Completed
Pachki Baori Dam	1957	Began	Irrigation	Completed
Paibala Pura Dam	1957	Mej River	Irrigation	Completed
Panchana Dam	1977	Gambhiri/ Panchana	Irrigation	Completed
Parbati Dam	1963	Parbati	Irrigation	Completed
Patan (Deosagar) Dam	1956	Local Nallah	Irrigation	Completed
Patiyal Dam	1992	Banas	Irrigation	Completed
Piplad Dam	2011	Piplad	Drinking / Water Supply, Irrigation	Completed
Rajsamand Dam	1676	Gomti Banas	Irrigation, Water Storage	Completed
Ram Garh Dam	1903	Banqanga	Drinking / Water Supply, Irrigation	Completed
Ram Sagar Dam	1905	Parbati	Irrigation	Completed
Ranapratap Sagar Dam	1970	Chambal	Hydroelectric, Irrigation	Completed
Rondh Dam			Irrigation	
Ruparel Dam	2004	Ruparel	Irrigation	Completed
Sainthal Sagar/ Sainthal/ Sinthalsagar Dam	1898	Banganga/ Sawa	Irrigation	Completed
Sankal Khera Dam	-	Local Nallah	Irrigation	Completed
Sanwaria Sarover/ Sanwaryasrowar/ Sanwariya Dam	1997	Local Nallah / Erau	Irrigation	Completed
Saran Kheri Dam	1983	Local Nallah / Jahugiya	Irrigation	Completed
Sareri/ Sareru Dam	1957	Mansi	Irrigation	Completed
Sawan Bhado Dam	2001	-	Irrigation	Completed
Shakargarh Dam	2000	Local Nallah	Irrigation	Completed
Sheel Ki Dungri/ Dogri Dam	1990	Banas/ Dundh	Irrigation	Completed
Shiv-Sagar Dam	1993	Local Nallah	Irrigation	Completed
Silibari Dam	1956	Roop Rail/ Siliberi	Irrigation	Completed
Silised Dam		-	Irrigation	

Soniyana Dam		Local Nallah	Irrigation	Completed
Surwal Dam	1958	Gambhir/ Local Nala	Irrigation	Completed
Sushil Sagar/ Soshila Sagar Dam	1991	Local Nallah/ Tributaries of Mej	Irrigation	Completed
Swaroop Sagar Dam	1560	Sisarma	Water Storage	Completed
Takli Dam	-	Takli	Drinking / Water Supply, Irrigation	Under Construction
Tasai Dam		-		
Titora Dam	1982	Local Nallah	Irrigation	Completed
Tordi Sagar Dam	1887	Sohadra	Irrigation, Pisciculture	Completed
Udai Sagar Dam	1585	Berach	Irrigation	Completed
Ummed/ Umaid Sagar (Baran) Dam	-	Khari	Irrigation	Completed
Ummed/ Umed/ Umaid Sagar (Bhilwara) Dam	1917	Local Nallah	Irrigation	Completed
Uncha Dam	1984	Local Nallah	Irrigation	Completed
Urmila Sagar Dam	1905	Parbati	Irrigation	-
Utawali Dam	-		-	-
Wagon Dam	1984	Wagon	Irrigation	Completed

(Source: India-WRIS 2015)

3. Demographic Profile of Ganga Basin in the State

Rajasthan in total has 16 Class I cities, 9 Class II towns and 58 Class III towns in catchment of Ganga River as per estimate (based on Census-2011). The total population of the state according to Census 2011 is 68 million out of which 24.87% belong to the urban area. The population density in the state is about 200 people per square kilometer. Some of the Class I cities of Rajasthan in GRB are Alwar, Baran, Bharatpur, Bhilwara, Bhiwadi, Bundi, Chittaurgarh, Dhaulpur, Gangapur, Hindaun, Jaipur, Kota, Kishangarh, Sawai Madhopur, Tonk and Udaipur. Among all the cities Jaipur and Kota are the most populated cities having more than 1 million resident people according to the Population Census 2011.

The population resident under major sub-basins (Banas, Chambal, Kali Sindh, Parbati and Utangan basin) lying in the state has also been estimated for both Class I cities and Class II towns. The river Chambal during its course in the state merges with number of tributaries and sub-tributaries and its basin covers three major sub-basins (river Banas, Kali Sindh and Parbati). The largest population resides in Banas Basin (Class I: 50.43%), and least (Class I: 1.31%) in Parbati Basin in the state which comes under GRB. Kali Sindh basin is the only sub-basin

completely lacking with Class I cities while Chambal and Parbati sub-basins are devoid of Class II towns. The least population of Class II town also belongs to Kali Sindh basin (0.74%) while maximum to Banas basin (4.11%). The total population resident outside the selected basins for Class I cities in the state is 1.17%. The overall share of Class III population in the state is 18.99%. Figure 3 shows the population distribution of Class I cities, Class II and III towns in the major sub-basins of GRB in the state.

The details of the area, population and the major river systems of all the Class I, II and III cities/towns are presented in Tables 4-6, respectively. The average population of class I cities in the state is 0.4 million, which is approximately 6 times and 14 times higher than the population of class II and class III towns, respectively. Jaipur is the most populated class I city having the population of the order of 3.0 million while Bundi is the least populated (0.1 million) class I city. Dausa and Nasirabad are the towns having maximum and minimum population under class II towns of 0.08 and 0.05 million, respectively. In class III towns where the population is less than 0.05 million, the maximum population reside in the Kotputli town (0.049 million) while minimum is in Manoharpur (0.02 million).

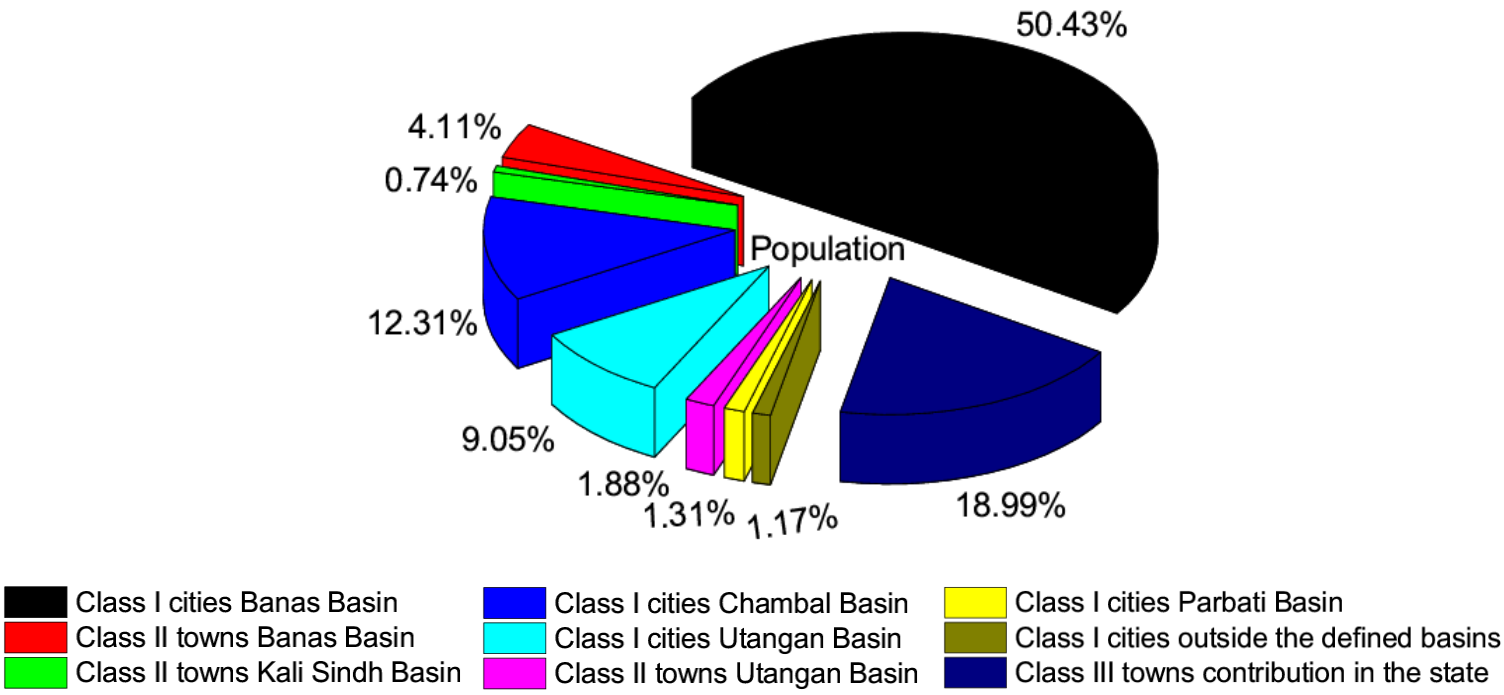


Figure 3: Population Distribution of Class I Cities and Class II, Class III Towns in the Major Basins in the State

Table 4: Demography of Major Class I Cities in the state of Rajasthan under GRB

S. No.	Place Name	River System	Area (Sq. Km.)	Population (Census 2011)
1	Alwar	Yamuna River	48.40	322,568
2	Baran	Parbati, Kali Sindh, Parvan River	72.36	117,992
3	Bharatpur	Yamuna River	57.77	252,838
4	Bhiwadi	Sahibi River	44.06	104,921
5	Bhilwara	Kothari, Banas River	118.49	359,483
6	Bundi	Mez, Chambal River	27.79	104,919
7	Chittaurgarh	Banas, Gambhiri River	41.76	116,406
8	Dhaulpur	Chambal, Utangan River	32.03	133,075
9	Gangapur	Kothari, Banas River	52.31	119,090
10	Hindaun	Utangan River	48.00	105,452
11	Jaipur	Banas River	484.64	3,046,163
12	Kishangarh	Luni River	45.49	154,886
13	Kota	Chambal, Kali Sindh, Parvan, Mez River	527.03	1,001,694
14	Sawai Madhopur	Parbati, Banas River	59.00	121,106
15	Tonk	Banas River	60.50	165,294
16	Udaipur	Sabarmati, Ayad River	56.92	451,100

Table 5: Demography of Major Class II Cities in the state of Rajasthan under GRB

S. No.	Place Name	River System	Area (Sq. Km.)	Population (Census 2011)
1	Bari	Sabarmati, Ayad River	22.27	62,721
2	Chomun	-	22.53	64,417
3	Dausa	Utanganga, Banganga River	16.00	85,960
4	Jhalawar	Kali Sindh, Ahu River	12.95	66,919
5	Karauli	Chambal, Utanganga River	35.00	82,960
6	Kuchaman	Luni River	12.50	61,969
7	Nasirabad	Luni, Khari River	22.93	50,804
8	Nimbahera	Banas River	12.74	61,949
9	Rajsamand	Banas, Gomati, Rajpura River	55.00	67,798

Table 6: Demography of Major Class III Cities in the state of Rajasthan under GRB

S. No.	Place Name	River System	Area (Sq. Km.)	Population (Census 2011)
1	Aklera	Choti Nadi,Chapi River	5.00	26,240
2	Antah	Parvan, Kali Sindh, Parbati River	23.48	32,377
3	Bagru	-	10.00	26,091
4	Bandikui	Banganga River	5.00	44,664
5	Bassi	Banganga River	20.40	26,029
6	Bayana	Utangan River	5.68	38,502
7	Begun	Brahmini River	6.62	20,705
8	Behror	-	15.12	29,531
9	Bhawani Mandi	Piplaad, Ahu River	40.00	42,283
10	Borawar	Khari RIver	24.00	24,975
11	Chaksu	Banas River	13.25	33,432
12	Chhabra	Parbati River	9.00	32,285
13	Deeg	Yamuna River	3.29	44,999
14	Deoli	Banas, Khari River	3.75	22,065
15	Fatehnagar	Banas River	15.00	22,812
16	Gulabpura	Khari River	12.00	27,215
17	Jahazpur	Banas, Khari River	5.00	20,586
18	Jhalrapatan	Kali Sindh, Ahu River	20.17	37,506
19	Kaithoon	Chandrelohi, Chambal, KaliSindh, Parvan River	17.23	24,260
20	Kaman	Yamuna River	6.00	38,040
21	Kapasan	Banas, Berach River	26.75	20,869
22	Kaprain	Chambal, Mez, Kali Sindh River	64.00	20,748
23	Karanpur	Banas River	4.85	21,297
24	Kekri	Banas, Khari River	7.00	41,890
25	Keshoraipatan	Chambal, Mez River	25.90	24,627
26	Khairthal	-	21.09	38,298
27	Kishangarh Renwal	-	25.94	29,201
28	Kotputli	-	36.00	49,202
29	Kumher	Yamuna River	19.62	23,540
30	Lakheri	Mez, Parbati, Chambal River	25.00	29,572

31	Lalsot	Banas River	9.42	34,363
32	Mahwa	Banganga, Utangan River	3.06	24,846
33	Malpura	Banas River	45.35	36,028
34	Mangrol	Parbati, KaliSindh River	27.45	25,073
35	Manoharpur	-	12.11	20,287
36	Nadbai	Utangan River	14.91	26,411
37	Nagar	Banganga River	3.61	25,572
38	Nandri	Banganga, Utangan River	6.90	20,827
39	Nathdwara	Banas River	24.00	42,016
40	Nawa	-	24.00	22,088
41	Niwai	Banas River	48.00	37,765
42	Phulera	-	10.00	26,091
43	Rajakhera	Utangan, Chambal River	10.00	33,666
44	Rajgarh	Banganga Rivver	25.00	26,631
45	Ramganj Mandi	Ahu, Kali Sindh RIver	10.82	41,328
46	Ramgarh	-	2.57	33,024
47	Rawatbhata	Chambal River	21.53	37,699
48	Reengus	-	30.00	26,139
49	Sambhar	-	12.50	22,327
50	Sangod	Sangod, Kali Sindh, Parvan River	14.89	21,846
51	Sarwar	Khari River	5.00	20,372
52	Shahpura (Bhilwara)	Banas, Khari, Maansi, Kothari River	56.52	30,320
53	Shahpura (Jaipur)	-	64.00	33,895
54	Shri Madhopur	-	16.00	31,366
55	Suket	Ahu, Kali Sindh River	9.52	22,319
56	Tijara	-	21.00	24,747
57	Todabhim	Banganga, Utangan River	5.00	22,977
58	Todaraisingh	Banas, Khari River	54.14	23,559

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 centres, discharge from open drain carrying sewage, discharges from the tributaries and discharge of untreated/partially treated wastewater from industrial units are the major point sources that contribute to the pollution load in the state. Chambal, Utangan, Banas, Kali Sindh and Parbati are the major river basins under GRB in the state.

The total sewage generation of Class I cities & Class II towns in the state is 1382.37 and 147.79 MLD, respectively while the treatment capacity of the respective cities/towns is 3.9% of the total sewage generated for Class I cities and no sewage treatment units are available for Class II towns (CPCB, 2009) (Figure 4). According to the same report, the total sewage generation of the Class I cities under GRB (Tonk, Kota, Udaipur, Bhilwara and Alwar) in the state is 313.3 MLD while the treatment capacity of the cities in the state under GRB is negligible. The complete discharge of sewage generated through Class I cities is in the tributaries and sub-tributaries of river Ganga *i.e.,* Banas, Chambal, Arvari, Kothari and Yamuna, as no cities/towns comes in direct contact with the river Ganga. Jaipur is the only Class I city where the disposal is on land (367.2 MLD) with 14.7% of the sewage treatment capacity. The sewage generated by Class II towns (Chittaurgarh, Baran, Gangapur city, Bundi, Dhaulpur and Sawai Madhopur) in the state under GRB is 37.5 MLD, discharge directly into the tributaries/ subtributaries (Berach and Chambal). Other Class II towns (Jhunjhunun, Kishangarh, Bharatpur, Makrana, Nawalgarh, Hindaun and Nimbahera) under GRB disposed their generated sewage (85.0 MLD) on the land. According to the other report published by CPCB (2009), the total waste water, 460.3 MLD is generated in the state which either disposes directly into the tributaries or sub-tributaries (210.7 MLD) of the Yamuna or in the land/low lying areas (249.6 MLD).

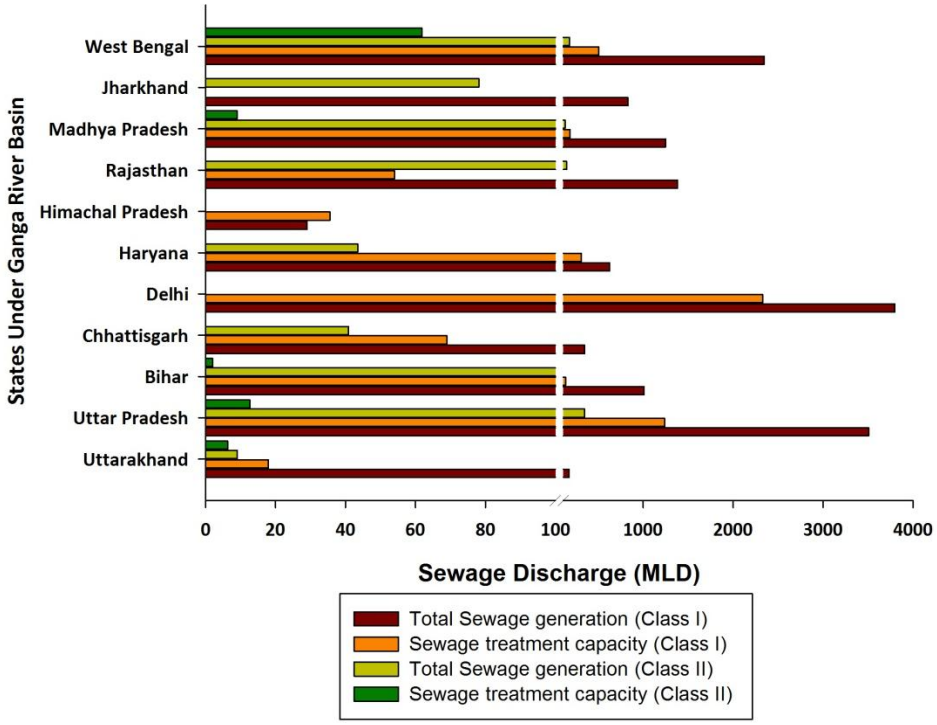


Figure 4: Assessment of Total Sewage Generation (MLD) and Sewage Treatment Capacity of Class I and II Cities/Towns in the States under Ganga River Basin

The pollution load for Class I cities, Class II and III towns have been estimated by the data received through rigorous field survey of almost all the major cities and towns in the state (Figure 5). The maximum sewage generation is in the Class I cities (75.32%) followed by Class III (17.81%) and Class II towns (6.87%). The BOD and COD load for Class I cities, Class II and Class III towns are in the range of 74%, 7% and 19%, respectively. The TKN load almost showing the same trend as BOD and COD load. The BOD, COD and TKN load of all the Class I cities, Class II and Class III towns are estimated on per capita basis by using standard values.

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 Jaipur 321.6 MLD, approximately 80% of the water supply. In case of the class II towns the sewage generation in Dausa is maximum 11.6 MLD, approx 80% of its total water supply. The total BOD and COD load in tons/day has been estimated for Class I cities and its average are approximately 11.3 and 19.2 tons/day, respectively. The average BOD and COD load from the Class II towns is 1.82 and 3.10 tons/day, respectively whereas Class III towns contribute approximately 0.8 tons/day and 1.4 tons/day of BOD and COD, respectively. The maximum and minimum BOD, COD and TKN contributing cities in Class I towns are Jaipur and Bundi, respectively. In Class II towns, maximum BOD, COD and TKN load is from Dausa, whereas minimum is from Nasirabad. In class III towns, maximum and minimum BOD, COD and TKN load is from Kotputli and Manoharpur, respectively. The estimates of total water supply, total sewage generated, BOD, COD and TKN loads are summarized and illustrated in Figures (6-11) 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 12.

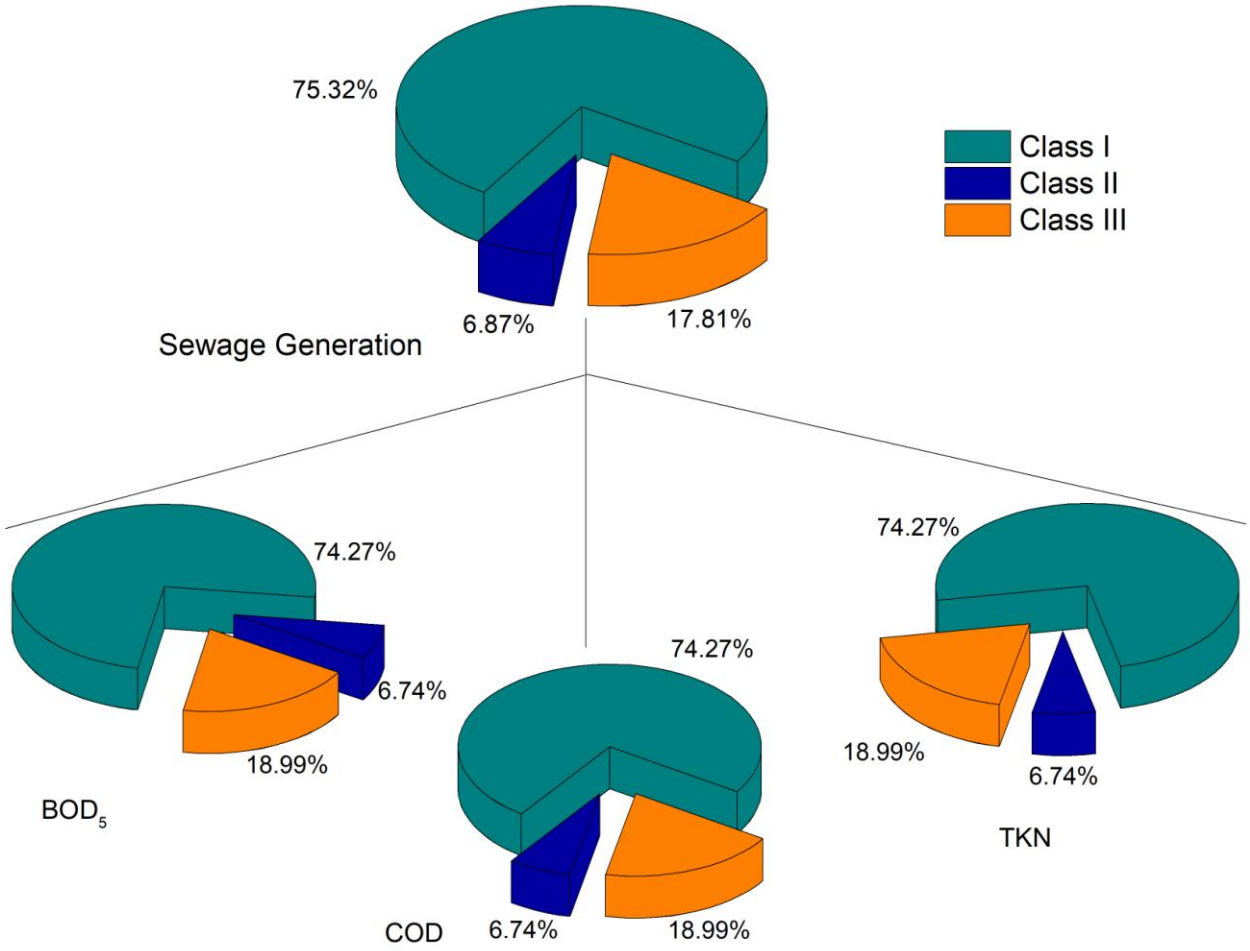


Figure 5: Distribution of Pollution Load of Class I Cities, Class II, and Class III Towns in the State of Rajasthan

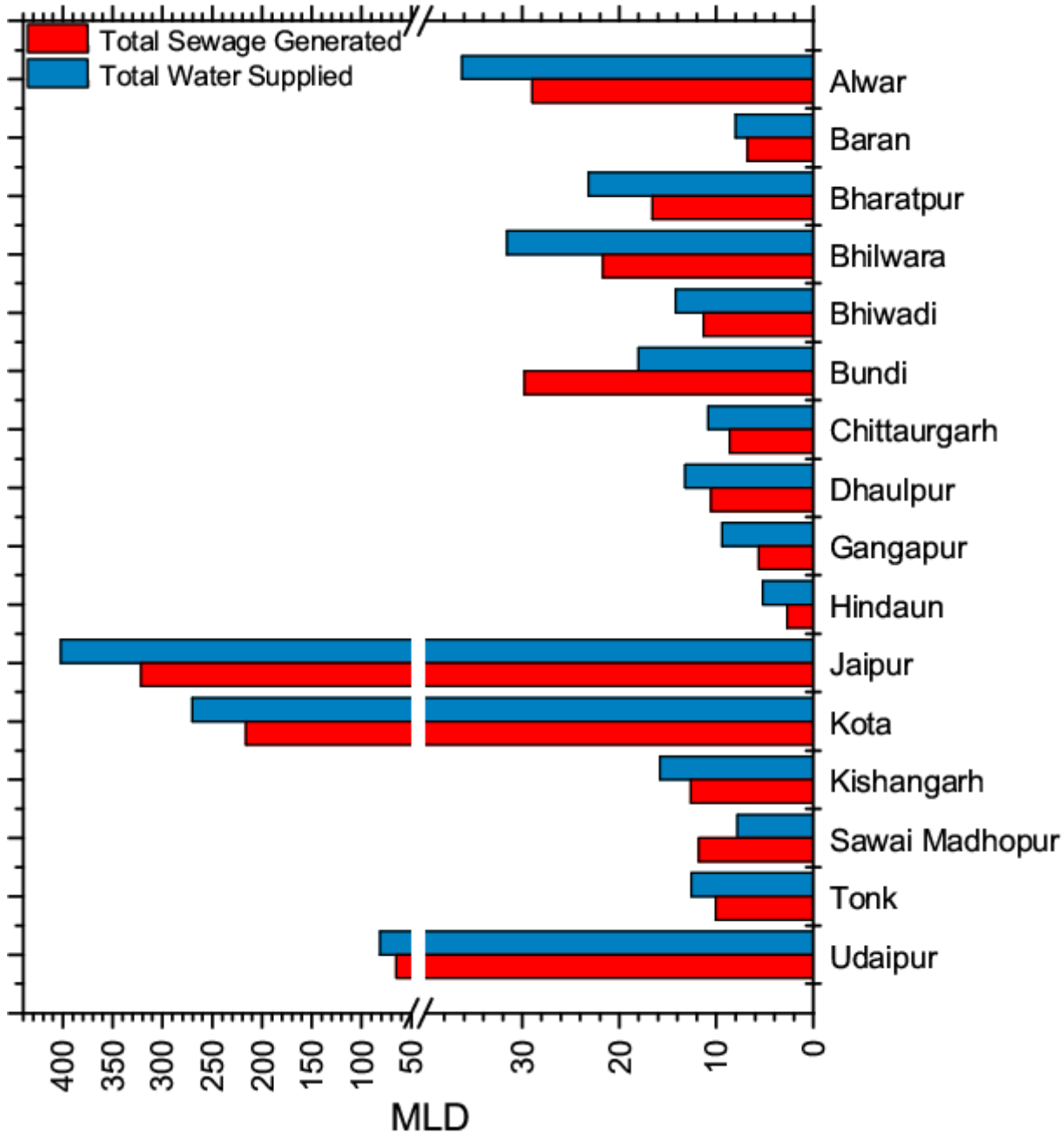


Figure 6: **Assessment of Water Supply and Sewage Generation (MLD) in Class I Cities in the State of Rajasthan**

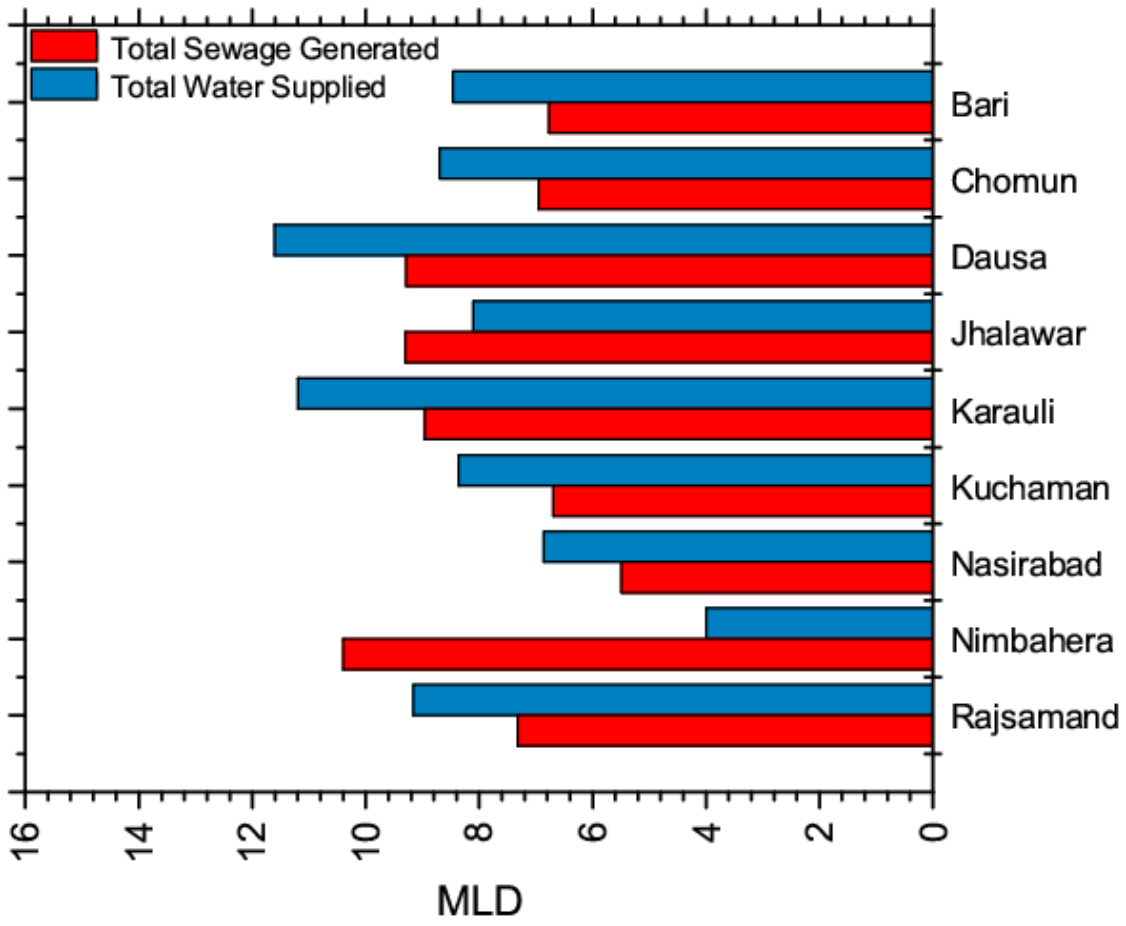


Figure 7: **Assessment of Water Supply and Sewage Generation (MLD) in Class II Towns in the State of Rajasthan**

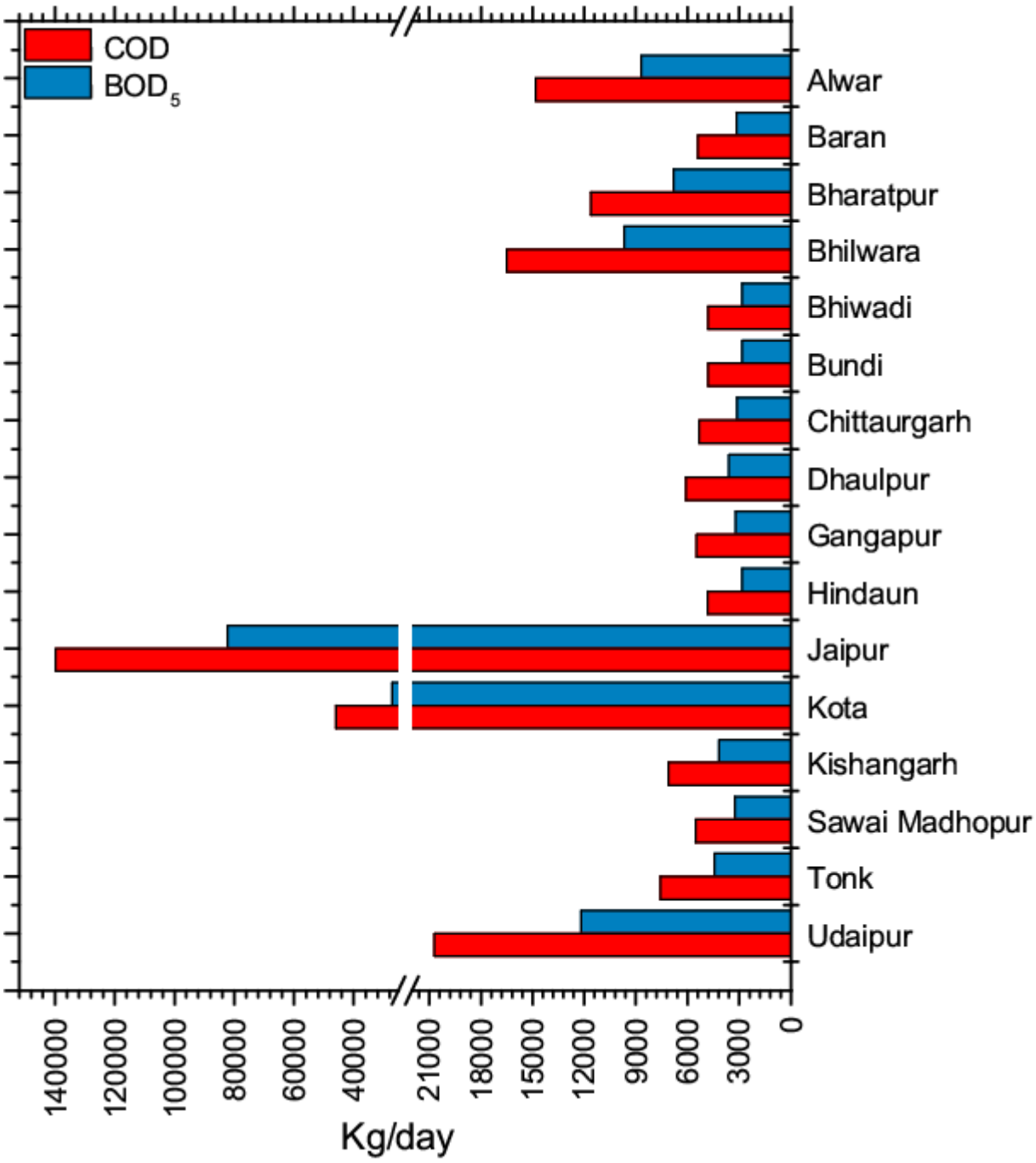


Figure 8: **Assessment of Organic Pollution Load (kg/day) from Class I Cities in the State of Rajasthan**

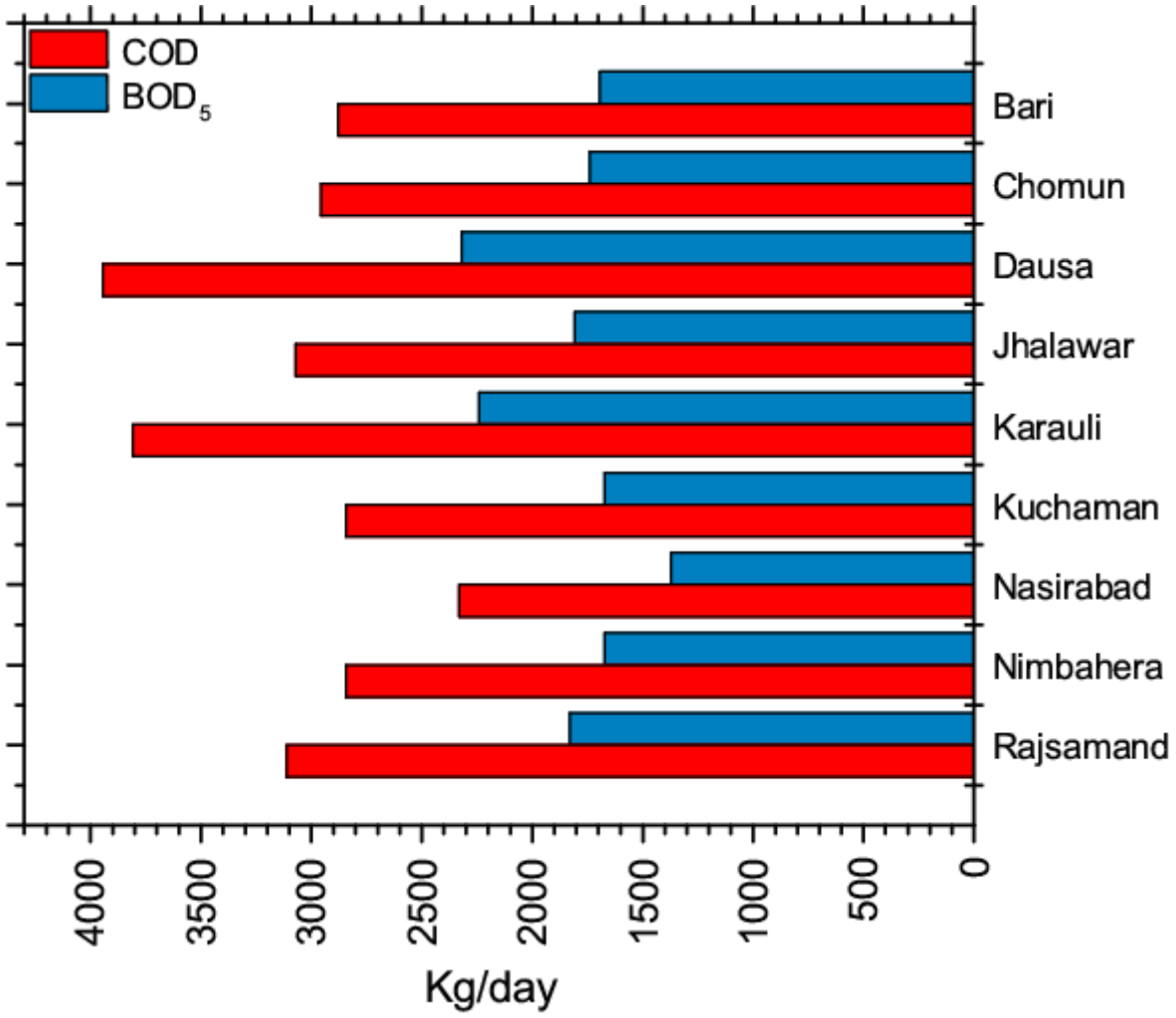


Figure 9: Assessment of Organic Pollution Load (kg/day) from Class II Towns in the State of Rajasthan

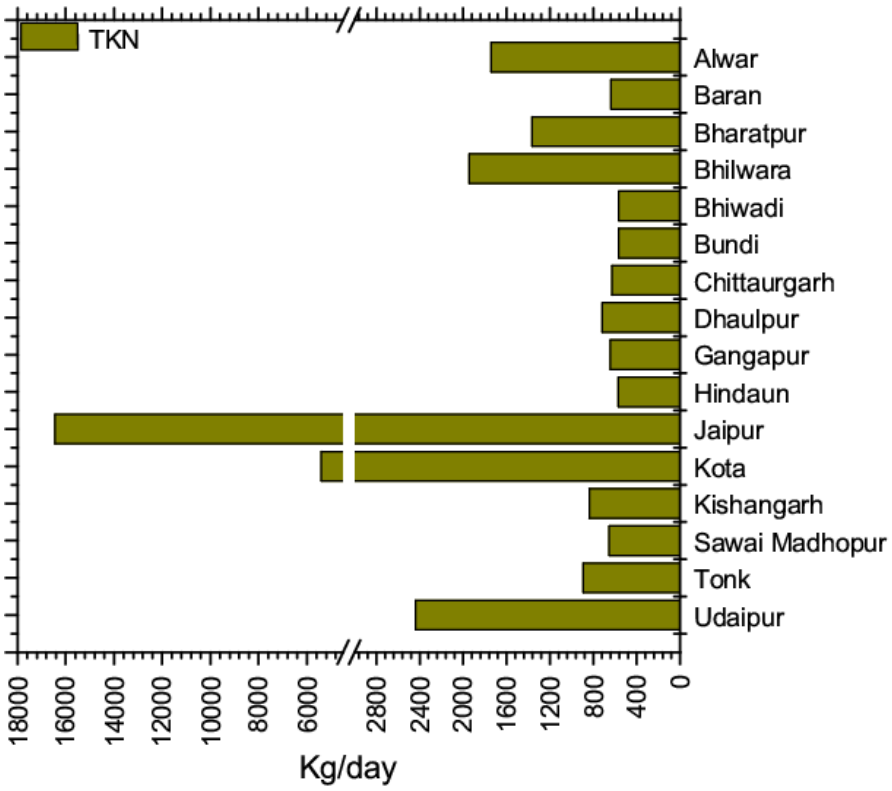


Figure 10: Assessment of TKN Load (kg/day) from Class I Cities in the State of Rajasthan

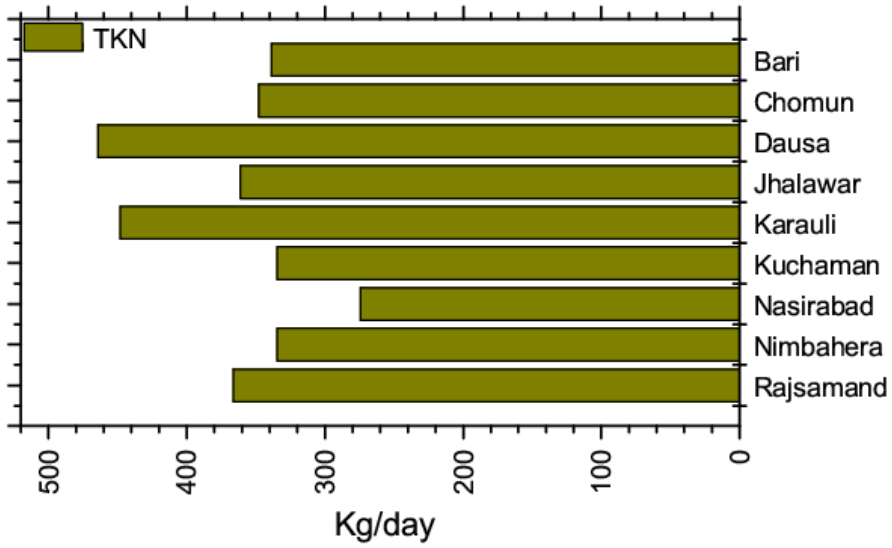


Figure 11: Assessment of TKN Load (kg/day) from Class II Towns in the State of Rajasthan

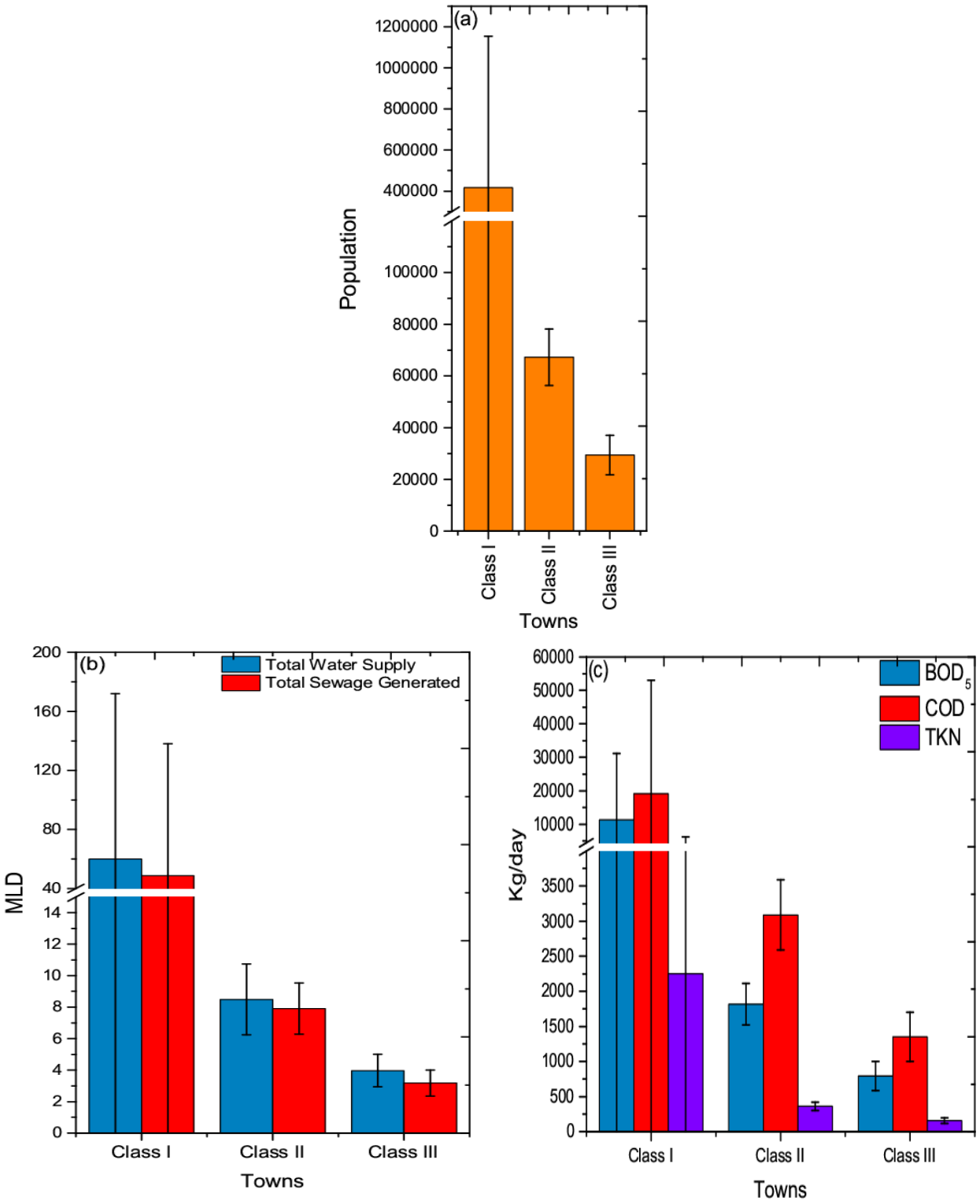


Figure 12: Comparative Analysis of Class I, Class II and Class III Cities/Towns Lying Under the State: (a) Population (b) Total Water Supply and Sewage Generation (c) Pollution Load

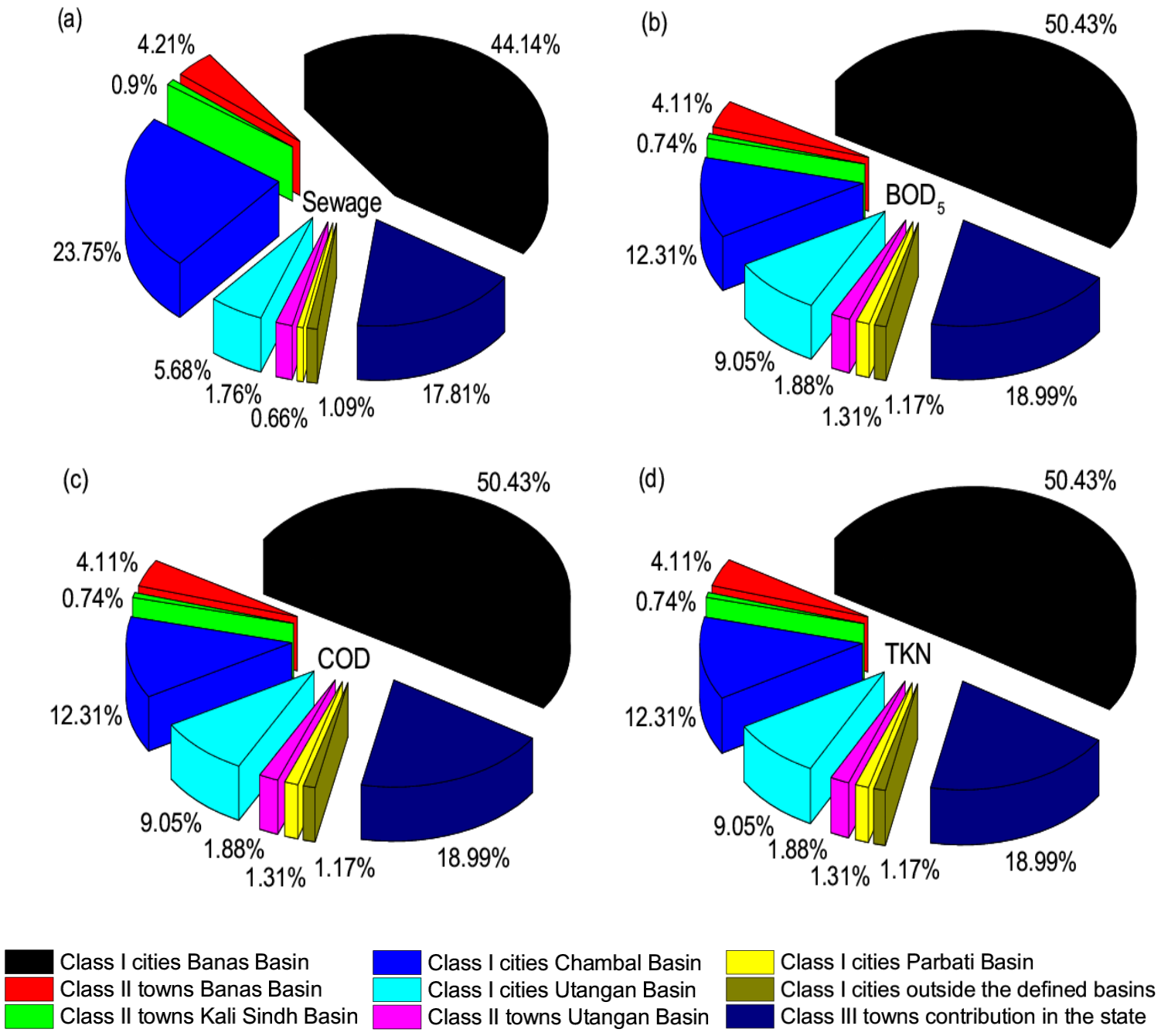


Figure 13 (a-d): Pollution load of Class I Cities and Class II, Class III Towns in the Major Basins in the State: (a) Sewage Generation; (b) $BOD_{5;}$ (c) COD; (d) TKN

The results of the pollution load of Class I cities, Class II and Class III towns under the major basins of river Yamuna in the state has been evaluated (Figure 13a) and the results revealed that the percentage of the total sewage generation is maximum in Class I cities situated in the Banas basin (44.14%) which is approx two times higher than the total percent contribution of Class I cities placed in the Chambal basin (23.75%). The percent sewage generation in Class I cities of the other major basins in the state *i.e.,* Utangan and Parbati are 5.68, and 0.66%,

respectively. Kali Sindh basin is devoid of any Class I cities in its territory in the state. The Class I cities outside the major defined basins combinedly contributed 1.09% of wastewater. The percentage sewage generation by Class III towns of the entire state is 17.81% of the total sewage generated by the state. The Class II towns of each basin separately contributing less than 7.0% of the total sewage generation with the maximum contribution by Banas (4.21%) and the minimum by towns under Kali Sindh basin (0.90%).

The Class III towns of the state impart around 19.0% of the total BOD, COD and TKN load. The basin wise major contributors of Class I cities for BOD, COD and TKN load are Banas (50.43%), Chambal (12.31%), Utangan (9.05%) and Parbati (1.31%). The organic load of Class II towns in the basins is not more than 4.11% (Banas basin) while is least (0.74%) in Kali Sindh basin. BOD, COD and TKN loads are not very significant for the Class I cities lying outside the selected basins (1.17%). The details of the BOD and COD load in the state are presented in Figure 13b and c while the TKN load is presented in Figure 13d.

5. Conclusions

Rajasthan is having nearly 10.4% area of India which supports 5.7% population (Census 2011) with only 1% water quantity of India (RSPCB, 2010). The major portion of the Banas, Kali Sindh and Parbati sub-basin as a part of Chambal basin are lie in the state. Another important sub-basin in the state is Utangan sub-basin which merges directly into the river Yamuna. The catchments of these sub-basins bear the load of 16 Class I cities, 9 Class II and 58 Class III towns which indirectly play a role in increasing pollution load on the main stem of river Ganga. The scenario of water quality in the system fluctuates from bad to worse based on the spatial and temporal alterations. Multitudinous problems also arise 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 (75.32%) followed by Class III (17.81%) and Class II towns (6.87%). The BOD and COD load for Class I cities, Class II and Class III towns are in the range of 74%, 7% and 19%, respectively. Jaipur and Dausa 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 in the state are Jaipur, Dausa and Kotputli while the minimum load is from Bundi (Class I), Nasirabad (Class II) and Manoharpur (Class III).

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Appendix-1

Compilation of Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class I Cities in State Rajasthan

Water Balance & Pollution Load (Domestic) Data Sheet

City: Alwar		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	48.40
2	Population as in 2011		:	322568
3	Population Growth Rate as in 2011 (%)		:	21.17
4	Total Number of Wards		:	52
5	Population per Ward (Thousands)		:	6203
6	Total Number of Household as in 2011		:	62776
7	Number of Household per Ward		:	1207
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		:	350
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	36.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	112.20
19	Total Sewage Generation (MLD)*		:	29.00
20	Per Capita Sewage Generation (lpcd)		:	89.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	8709.30
		COD	:	14805.90
		TKN	:	1741.90
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	0
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Baran		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	72.36
2	Population as in 2011		:	117992
3	Population Growth Rate as in 2011 (%)		:	49.99
4	Total Number of Wards		:	35
5	Population per Ward (Thousands)		:	3371
6	Total Number of Household as in 2011		:	23277
7	Number of Household per Ward		:	665
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		:	950
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	8.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	71.80
19	Total Sewage Generation (MLD)*		:	6.80
20	Per Capita Sewage Generation (lpcd)		:	57.60
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3185.80
		COD	:	5415.80
		TKN	:	637.20
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Parbati, Parvan, Kali Sindh River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	3
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bharatpur		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	57.77
2	Population as in 2011		:	252838
3	Population Growth Rate as in 2011 (%)		:	23.19
4	Total Number of Wards		:	53
5	Population per Ward (Thousands)		:	4771
6	Total Number of Household as in 2011		:	45914
7	Number of Household per Ward		:	9866
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		:	131
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	23.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	92.00
19	Total Sewage Generation (MLD)*		:	16.60
20	Per Capita Sewage Generation (lpcd)		:	65.70
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	6826.60
		COD	:	11605.30
		TKN	:	1365.30
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	8
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bhilwara		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	118.49
2	Population as in 2011		:	359483
3	Population Growth Rate as in 2011 (%)		:	28.33
4	Total Number of Wards		:	50
5	Population per Ward (Thousands)		:	7,190
6	Total Number of Household as in 2011		:	74184
7	Number of Household per Ward		:	1484
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		:	1600
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	32.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	90.10
19	Total Sewage Generation (MLD)*		:	21.70
20	Per Capita Sewage Generation (lpcd)		:	60.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	9706.00
		COD	:	16500.30
		TKN	:	1941.20
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kothari, Banas River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	9
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bhiwadi		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	44.06
2	Population as in 2011		:	104921
3	Population Growth Rate as in 2011 (%)		:	209.71
4	Total Number of Wards		:	35
5	Population per Ward (Thousands)		:	2998
6	Total Number of Household as in 2011		:	24449
7	Number of Household per Ward		:	699
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)		:	14.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	NA
19	Total Sewage Generation (MLD)*		:	11.30
20	Per Capita Sewage Generation (lpcd)		:	107.70
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2832.90
		COD	:	4815.90
		TKN	:	566.60
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bundi		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	27.79
2	Population as in 2011		:	104919
3	Population Growth Rate as in 2011 (%)		:	18.06
4	Total Number of Wards		:	41
5	Population per Ward (Thousands)		:	2559
6	Total Number of Household as in 2011		:	20555
7	Number of Household per Ward		:	501
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		:	372
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	1
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)		:	18.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	171.60
19	Total Sewage Generation (MLD)*		:	29.80
20	Per Capita Sewage Generation (lpcd)		:	284
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2832.80
		COD	:	4815.80
		TKN	:	566.60
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Mez River
32	Number of Drains/Nallah for Wastewater Disposal		:	4
33	Number of Water Bodies		:	7
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Chittaurgarh		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	41.76
2	Population as in 2011/2001		:	116406
3	Population Growth Rate as in 2011 (%)		:	20.98
4	Total Number of Wards		:	40
5	Population per Ward (Thousands)		:	2,910
6	Total Number of Household as in 2011		:	24739
7	Number of Household per Ward		:	618
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		:	513
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	11.10
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	95.00
19	Total Sewage Generation (MLD)*		:	8.60
20	Per Capita Sewage Generation (lpcd)		:	74.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3143.00
		COD	:	5343.00
		TKN	:	628.60
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gambhiri River
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	18
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Dhaulpur		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	32.03
2	Population as in 2011		:	133075
3	Population Growth Rate as in 2011 (%)		:	36.08
4	Total Number of Wards		:	42
5	Population per Ward (Thousands)		:	3168
6	Total Number of Household as in 2011		:	22563
7	Number of Household per Ward		:	537
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		:	320
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	13.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	100.40
19	Total Sewage Generation (MLD)*		:	10.60
20	Per Capita Sewage Generation (lpcd)		:	79.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3593.00
		COD	:	6108.10
		TKN	:	718.60
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Chambal, Utangan River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	5
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Gangapur		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	52.31
2	Population as in 2011		:	119090
3	Population Growth Rate as in 2011 (%)		:	22.97
4	Total Number of Wards		:	20
5	Population per Ward (Thousands)		:	5955
6	Total Number of Household as in 2011		:	21068
7	Number of Household per Ward		:	1053
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		:	5242
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	12.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	100.90
19	Total Sewage Generation (MLD)*		:	5.60
20	Per Capita Sewage Generation (lpcd)		:	47.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3215.40
		COD	:	5466.20
		TKN	:	643.10
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kothari, Banas River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	0
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Hindaun		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	48.00
2	Population as in 2011		:	105452
3	Population Growth Rate as in 2011 (%)		:	24.26
4	Total Number of Wards		:	40
5	Population per Ward (Thousands)		:	2,636
6	Total Number of Household as in 2011		:	18299
7	Number of Household per Ward		:	457
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		:	150
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	5.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	50.00
19	Total Sewage Generation (MLD)*		:	2.70
20	Per Capita Sewage Generation (lpcd)		:	25.60
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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)	BOD5	:	NA
		COD	:	NA
		TKN	:	NA
29	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD5	:	2847.20
		COD	:	4840.20
		TKN	:	569.40
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Utangan River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
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) Data Sheet

City: Jaipur		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	484.64
2	Population as in 2011		:	3046163
3	Population Growth Rate as in 2011 (%)		:	31.15
4	Total Number of Wards		:	77
5	Population per Ward (Thousands)		:	39,561
6	Total Number of Household as in 2011		:	599507
7	Number of Household per Ward		:	7786
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		:	1983
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	403.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	132.30
19	Total Sewage Generation (MLD)*		:	321.60
20	Per Capita Sewage Generation (lpcd)		:	105.60
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	82246.40
		COD	:	139818.90
		TKN	:	16449.30
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	14
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Kishangarh		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	45.49
2	Population as in 2011		:	154886
3	Population Growth Rate as in 2011 (%)		:	33.27
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	3,442
6	Total Number of Household as in 2011		:	28353
7	Number of Household per Ward		:	630
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		:	720
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	16.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	104.30
19	Total Sewage Generation (MLD)*		:	12.60
20	Per Capita Sewage Generation (lpcd)		:	81.60
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	4181.90
		COD	:	7109.30
		TKN	:	836.40
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Kota		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	527.03
2	Population as in 2011		:	1001694
3	Population Growth Rate as in 2011 (%)		:	44.27
4	Total Number of Wards		:	60
5	Population per Ward (Thousands)		:	16,695
6	Total Number of Household as in 2011		:	210135
7	Number of Household per Ward		:	3502
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		:	3115
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	271.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	271.30
19	Total Sewage Generation (MLD)*		:	216.20
20	Per Capita Sewage Generation (lpcd)		:	215.80
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	27045.70
		COD	:	45977.80
		TKN	:	5409.10
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Chambal, Kali Sindh River
32	Number of Drains/Nallah for Wastewater Disposal		:	5
33	Number of Water Bodies		:	9
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Tonk				State: Rajasthan
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	60.50
2	Population as in 2011		:	165294
3	Population Growth Rate as in 2011 (%)		:	21.82
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	3,673
6	Total Number of Household as in 2011		:	29098
7	Number of Household per Ward		:	647
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		:	546
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	12.90
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	77.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	10.10
19	Total Sewage Generation (MLD)*		:	61.00
20	Per Capita Sewage Generation (lpcd)		:	NA
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	:	4462.90
		COD	:	7587.00
		TKN	:	892.60
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Banas River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	14
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Udaipur		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	56.92
2	Population as in 2011		:	451100
3	Population Growth Rate as in 2011 (%)		:	15.83
4	Total Number of Wards		:	55
5	Population per Ward (Thousands)		:	8,202
6	Total Number of Household as in 2011		:	94704
7	Number of Household per Ward		:	1722
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		:	2380
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	82.60
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	183.10
19	Total Sewage Generation (MLD)*		:	65.10
20	Per Capita Sewage Generation (lpcd)		:	144.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	12179.70
		COD	:	20705.50
		TKN	:	2435.90
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ayad River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	3
34	Gross Area of Water Bodies (Hectare)		:	17254.00
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Sawai Madhopur		State: Rajasthan		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	59.00
2	Population as in 2011		:	121106
3	Population Growth Rate as in 2011 (%)		:	18.73
4	Total Number of Wards		:	40
5	Population per Ward (Thousands)		:	3,028
6	Total Number of Household as in 2011		:	22841
7	Number of Household per Ward		:	571
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		:	469
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	8.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	66.30
19	Total Sewage Generation (MLD)*		:	11.80
20	Per Capita Sewage Generation (lpcd)		:	97.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3269.90
		COD	:	5558.80
		TKN	:	654.00
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Banas River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	15
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Appendix-2

Compilation of Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class II Towns in State Rajasthan

Water Balance & Pollution Load (Domestic) Data Sheet

City:Bari				State: Rajasthan
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	22.27
2	Population as in 2011		:	62721
3	Population Growth Rate as in 2011 (%)		:	24.26
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	2091
6	Total Number of Household as in 2011		:	10456
7	Number of Household per Ward		:	349
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		:	950
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	9.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	143.10
19	Total Sewage Generation (MLD)*		:	6.80
20	Per Capita Sewage Generation (lpcd)		:	108.40
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1693.50
		COD	:	2878.90
		TKN	:	338.70
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ayad River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	0
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Chomu			State: Rajasthan	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	22.53
2	Population as in 2011		:	64417
3	Population Growth Rate as in 2011 (%)		:	27.04
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	2147
6	Total Number of Household as in 2011		:	9921
7	Number of Household per Ward		:	331
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		:	950
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	9.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	142.40
19	Total Sewage Generation (MLD)*		:	7.00
20	Per Capita Sewage Generation (lpcd)		:	108.70
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1739.30
		COD	:	2956.70
		TKN	:	347.90
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
32	Number of Drains/Nallah for Wastewater Disposal		:	3
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) Data Sheet

City: Dausa			State: Rajasthan	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.00
2	Population as in 2011		:	85960
3	Population Growth Rate as in 2011 (%)		:	39.54
4	Total Number of Wards		:	35
5	Population per Ward (Thousands)		:	2456
6	Total Number of Household as in 2011		:	15465
7	Number of Household per Ward		:	442
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		:	950
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	12.10
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	140.50
19	Total Sewage Generation (MLD)*		:	9.30
20	Per Capita Sewage Generation (lpcd)		:	108.20
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2320.90
		COD	:	3945.60
		TKN	:	464.20
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Banganga RIver
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	2
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Jhalawar			State: Rajasthan	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.95
2	Population as in 2011		:	66919
3	Population Growth Rate as in 2011 (%)		:	39.26
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	2231
6	Total Number of Household as in 2011		:	13595
7	Number of Household per Ward		:	453
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		:	950
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	8.60
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	128.10
19	Total Sewage Generation (MLD)*		:	9.30
20	Per Capita Sewage Generation (lpcd)		:	139.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1806.80
		COD	:	3071.60
		TKN	:	361.40
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kali Sindh, Ahu River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	10
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Karauli			State: Rajasthan	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	35.00
2	Population as in 2011		:	82960
3	Population Growth Rate as in 2011 (%)		:	25.24
4	Total Number of Wards		:	35
5	Population per Ward (Thousands)		:	2370
6	Total Number of Household as in 2011		:	14578
7	Number of Household per Ward		:	417
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		:	950
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	11.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	140.70
19	Total Sewage Generation (MLD)*		:	9.00
20	Per Capita Sewage Generation (lpcd)		:	108.50
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2239.90
		COD	:	3807.90
		TKN	:	448.00
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Utangan River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	0
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Kuchaman			State: Rajasthan	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.50
2	Population as in 2011		:	61969
3	Population Growth Rate as in 2011 (%)		:	22.50
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	2066
6	Total Number of Household as in 2011		:	9643
7	Number of Household per Ward		:	321
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		:	950
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	8.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	143.20
19	Total Sewage Generation (MLD)*		:	6.70
20	Per Capita Sewage Generation (lpcd)		:	108.10
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1673.20
		COD	:	2844.40
		TKN	:	334.60
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
32	Number of Drains/Nallah for Wastewater Disposal		:	3
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) Data Sheet

City: Nasirabad			State: Rajasthan	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	22.93
2	Population as in 2011		:	50804
3	Population Growth Rate as in 2011 (%)		:	3.41
4	Total Number of Wards		:	7
5	Population per Ward (Thousands)		:	7258
6	Total Number of Household as in 2011		:	9078
7	Number of Household per Ward		:	1297
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		:	950
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	7.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	145.20
19	Total Sewage Generation (MLD)*		:	5.50
20	Per Capita Sewage Generation (lpcd)		:	108.30
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1371.70
		COD	:	2331.90
		TKN	:	274.30
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	2
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Nimbahera			State: Rajasthan	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.74
2	Population as in 2011		:	61949
3	Population Growth Rate as in 2011 (%)		:	16.17
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	2065
6	Total Number of Household as in 2011		:	12776
7	Number of Household per Ward		:	426
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		:	950
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	4.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	72.20
19	Total Sewage Generation (MLD)*		:	10.40
20	Per Capita Sewage Generation (lpcd)		:	167.90
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1672.60
		COD	:	2843.50
		TKN	:	334.50
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
32	Number of Drains/Nallah for Wastewater Disposal		:	3
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) Data Sheet

City: Rajsamand			State: Rajasthan	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	55.00
2	Population as in 2011		:	67798
3	Population Growth Rate as in 2011 (%)		:	21.75
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	2260
6	Total Number of Household as in 2011		:	13765
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		:	950
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	9.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	142.70
19	Total Sewage Generation (MLD)*		:	7.30
20	Per Capita Sewage Generation (lpcd)		:	107.70
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1830.50
		COD	:	3111.90
		TKN	:	366.10
30	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Banas,Gomati River
32	Number of Drains/Nallah for Wastewater Disposal		:	3
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Assessment of Domestic Pollution Load from Urban Agglomeration in Ganga Basin: Bihar

GRBMP: Ganga River Basin Management Plan

by

Consortium of 7 "Indian Institute of Technology"s (IITs)

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.

Dr. Vinod Tare
Professor and Coordinator
Development of GRBMP
IIT Kanpur

The Team

1. AAKazmi, IIT Roorkee *kazmifce@iitr.ernet.in*
2. A K Gupta, IIT Kharagpur *akgupta18@rediffmail.com,akgupta@iitkgp.ac.in*
3. A K Mittal, IIT Delhi *akmittal@civil.iitd.ernet.in*
4. A K Nema, IIT Delhi *aknema@gmail.com*
5. Ajay Kalmhad, IIT Guwahati *kajay@iitg.ernet.in*
6. Anirban Gupta, BESU Shibpur *guptaanirban@hotmail.com*
7. Arun Kumar, IIT Delhi *arunku@civil.iitd.ac.in*
8. G J Chakrapani, IIT Roorkkee *gjcurfes@iitr.ernet.in*
9. GazalaHabib, IIT Delhi *gazalahabib@gmail.com*
10. Himanshu Joshi, IIT Roorkee *himanshujoshi58@gmail.com*
11. InduMehrotra, IIT Roorkee *indumfce@iitr.ernet.in*
12. I M Mishra, IIT Roorkee *imishfch@iitr.ernet.in*
13. Ligy Philip, IIT Madras *ligy@iitm.ac.in*
14. M MGhangrekar, IIT Kharagpur *ghangrekar@civil.iitkgp.ernet.in*
15. MukeshDoble, IIT Bombay *mukeshd@iitm.ac.in*
16. P K Singh, IT BHU *dr_pksingh1@rediffmail.com*
17. Purnendu Bose, IIT Kanpur *pbose@iitk.ac.in*
18. R Ravi Krishna, IIT Madras *rrk@iitm.ac.in*
19. Rakesh Kumar, NEERI Nagpur *r_kumar@neeri.res.in*
20. S M Shivnagendra, IIT Madras *snagendra@iitm.ac.in*
21. SaumyenGuha, IIT Kanpur *sguha@iitk.ac.in*
22. Shyam RAsolekar, IIT Bombay *asolekar@iitb.ac.in*
23. SudhaGoel, IIT Kharagpur *sudhagoel@civil.iitkgp.ernet.in*
24. Suparna Mukherjee, IIT Bombay *mitras@iitb.ac.in*
25. T R Sreekrishanan, IIT Delhi *sree@dbeb.iitd.ac.in*
26. Vinod Tare, IIT Kanpur *vinod@iitk.ac.in*
27. Vivek Kumar, IIT Roorkee *vivekfpt@iitr.ernet.in*

Lead Persons

1. Vinod Tare, IIT Kanpur
2. Purnendu Bose, IIT Kanpur
3. Suresh Kr Gurjar
4. Shashikant Patel, IIT Kanpur
5. Swatantra Pratap Singh, IIT Kanpur
6. Abhishek Gaur, IIT Kanpur
7. Vishal Kapoor, IIT Kanpur

Contents

1. Introduction

Bihar has the total area of 94,163 sq km, which is about 2.86 % of the total area of the country. Bihar has total 38 districts and the third largest populated state with ~8.6% of the total population in India. Bihar shares its boundaries with Uttar Pradesh to west, Nepal to the North, West Bengal to the east and by Jharkhand to the south. Bihar is divided by the river Ganges into two parts and flows from west to east. It is also known for its historically rich heritage and culture and religious tourism. Patna is the capital as well as the most populated city of Bihar.

The Ganga River Basin (GRB) has a total catchment area of 1,086,000 sq kmacross India, Tibet (China), Nepal and Bangladesh. The river basin in India, nearly covers 26% (861,404 sq km; about 80% of total catchment area of Ganga river basin) of the total geographical area. The sprawling Ganga basin, spread across 11 states, is the world's most populous river basin and home to more than 492 million Indians. Bihar is one of the 11 states (Uttarakhand, Uttar Pradesh, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh, Jharkhand and West Bengal) of the GRB in India through which the Ganga River and her tributaries flowapproximately in the direction of North West to South East. The entire geographical area of the state Bihar lies in GRB where many small and large tributaries join Ganga while traversing through the state (Figures 1 and 2). A comparison of state-wise distribution of GRB area within the geographical areas of different states is presented in Table 1.

Table 1: State-wise Distribution of the Ganga River Basin Area

State/ Union Territory	*Total Geographical Area (sqkm)	#Area contributing to Ganga Basin (sqkm)	Percentage of the Basin Area (%)
Uttarakhand	53,483	53,436	6.2
Uttar Pradesh	240,928	240,928	28
Bihar	**94,163**	**94,163**	**10.93**
Jharkhand	79,716	49,798	5.78
Madhya Pradesh	308,252	198,962	23.1
Chhattisgarh	135,192		
Delhi	1,484	1,484	0.17
Haryana	44,212	34,341	4.0
Himachal Pradesh	55,673	4,317	0.5
Rajasthan	342,239	112,490	13.1
West Bengal	88,752	71,485	8.3

Source: *Census 2011

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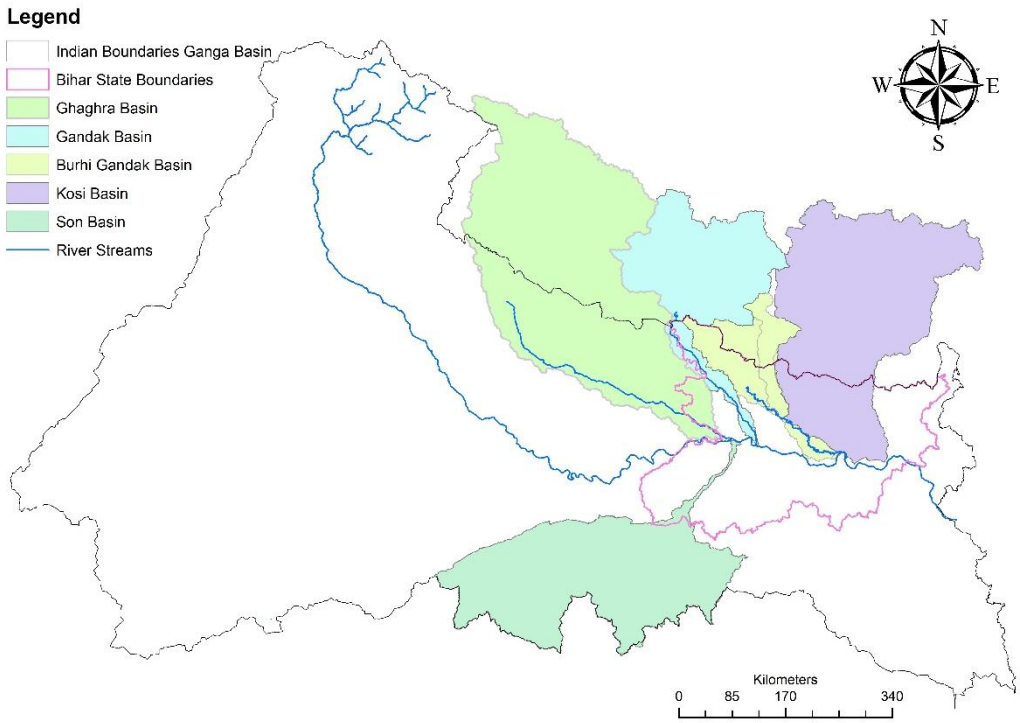


Figure 1: Ganga River Basin with its Major Sub-Basins of Bihar within the Indian Territory

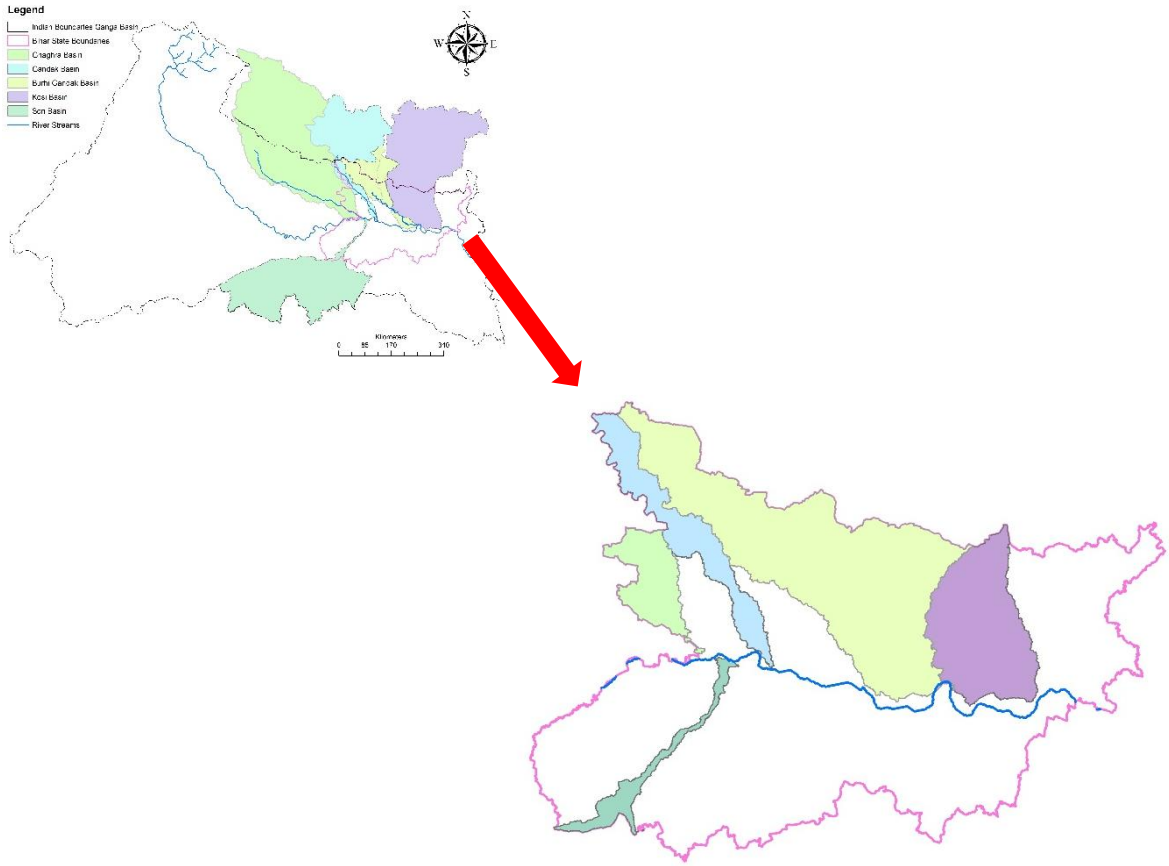


Figure 2: Portionsof Major Sub-Basins of Ganga River Basin in the State of Bihar

River Ganga touches the Bihar near Chausa (Buxar) and share around 110 km boundary with Uttar Pradesh and then finally enters to Bihar near Chhapra and exits near Manihari (Katihar). During her course in Bihar tributaries such as Ghaghara,Gandak, BurhiGandak, Kosi joins on her left bank while Son and kuil joins on right bank. The entire state of Bihar is in Ganga River Basin (GRB), and in terms of catchment area it comes in the list of top four contributors. The salient features of some major tributaries and sub-tributaries contributing directly or indirectly to the river Ganga in the state of Bihar are presented in Table 2.

Table 2: The Salient Features of Tributaries of the Ganga River Basin Contributing to the River Ganga in the State of Bihar.

Characteristics	Ghaghara	Gandak	Kosi	BurhiGandak	Son
Position	Left bank	Left bank	Left bank	Left bank	Right bank
Region of origin	Tibetan Plateau near Lake Mansarovar	Tibetan Plateau near NhubineHimal Glacier	Tibetan Plateau near Tribenighat, Nepal	near Bisambharpur, West Champaran district Bihar	Amarkantak
Mouth	Ganga	Ganga	Ganga	Ganga	Ganga
Total length (km)	1,080	630	720	320	784
Total catchment area (sq km)	127,950	46,300	61,788	10,150	11,100
Catchment area in Bihar (sq km)	43,488	7288	30,437	-	6,184
River bed/ Soil texture	Clay, sand, loam and deep black soil	Clay, sand,	Sand, silt, clay and	Clay, silt, and sand	Red soil,

The major tributaries (Ghaghara, Gandak, Kosi, BurhiGandak and Son) of the river Ganga cover the catchment area of nearly 67% of the total area of the state of Bihar. The total annual average rainfall in the state of Bihar is in the order of 1,196 mm.

2. Major Obstruction and Abstraction Projectson the Tributaries of the River GangaExecutedin the State

Bihar has 21 Dams, 35 Barrage /Weir/Annicuts under Ganga river basin. These Dams and barrages are essentially for irrigationand domestic water supplies. The list of the major dams on Ganga River and its tributaries in Bihar are mentioned underneath in Table 3.

Table 3: Details of the Major Dams on the River Ganga and HerTributaries in the State of Bihar (WRIS-wiki)

Projects	River	Year of Completion	Remark
Ajan Dam	Ajan	1989	Major Irrigation Project
Badua Dam	Badua	1965	Major Irrigation Project
Baskund Dam	Baskund	1984	Major Irrigation Project
Belharna Dam	Belharna	1987	Major Irrigation Project
Bilasi Dam	Bilasi	2001	Major Irrigation Project
Chandan Dam	Chandan	1968	Major Irrigation Project
Jalkund Dam	Jalkund	1968	Major Irrigation Project
Job Dam	JOB	1977	Major Irrigation Project
Kailash Ghati Dam	Kailash Ghati	1980	Major Irrigation Project
Khargpur Lake Dam	Man	1876	Major Irrigation Project
Kohira Dam	Kohira	1962	Major Irrigation Project
Kolmahadeo Dam	Kolmahadev(bhusari)	1966	Major Irrigation Project
Morwy Dam	Morwe	1960	Major Irrigation Project
Nagi Dam	Nagi	1958	Major Irrigation Project
Nakti (Bihar) Dam	Nakti	1980	Major Irrigation Project
Orhni Dam	Orni	2000	Major Irrigation Project
Phulwaria Dam	Tilaiya	1988	Major Irrigation Project
Srikhandi Dam	Srikhandi	1965	Major Irrigation Project
Upper Kiul Dam	Kiul	2004	Major Irrigation Project

3. Demographic Profile of Ganga Basin in the State

Bihar has 26 Class I cities, 28 Class II cities and 75 Class III cities (Figure 4-6). The total population of the state according to the Census 2011 is 102 million out of which 11.3% belong to the urban area. The density in the state is about 881 people per square kilometre. According to the Population Census 2011, some of the Class I cities are Arrah, Aurangabad, Bagaha, Bhagalpur, Buxar, Darbhanga, Gaya, Hajipur, Katihar, Muzaffarpur, Patna, Saharsa, and Siwan. The details of the area, population and the major river systems of all the Class I, II and III cities are presented in Table 4-6, respectively.

Figure 3 shows the population distribution of Class I cities, Class II and III towns in the major basins of river Ganga in the state and along the main stem of the river Ganga, Kosi, Bodhi Gandak and Gandak. 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 state is 0.26 million, approximately four times and eight times higher than the population of class II and class III towns, respectively. Patna is the highly populated class I city having the population of 1.7 million while Aurangabad is the least populated (0.1 million) class I city. Lakhisarai andBhabua are the cities having maximum and minimum population under class II towns, contains 0.09 and 0.05 million, respectively. In class III towns where the population is less than 0.05 million, the maximum population is in the Narkatiaganj town (0.049 million) while minimum is in the Nirmali(0.02 million).

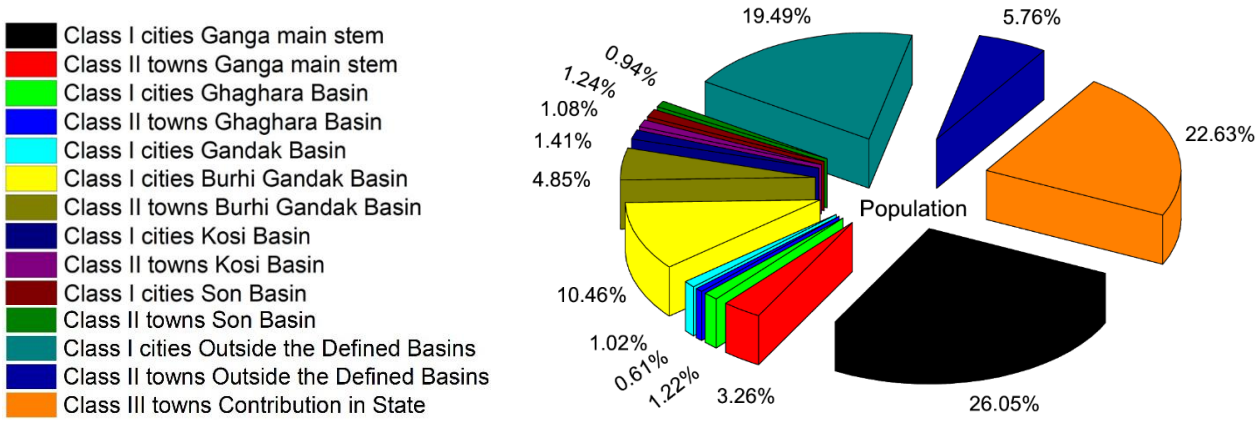


Figure 3: Population Distribution of Class I Cities and Class II, Class III Towns in the Major Basins of River Ganga in the Bihar State and Along the Main Stem of the River Ganga

Table 4: Demography of Class I Cities in Portion of the Ganga Basin Lying in the State of Bihar

S No.	Details	River System	Total Area (sq km)	Population (Census 2011)
1	Arrah (M Corp.)	Ganga River	30.97	261430
2	Aurangabad (NPP)	Adari River	21.33	102244
3	Bagaha (NPP)	Gandak River	46.83	112634
4	Begusarai (M Corp.)	Ganga River	47.51	252008
5	Bettiah (NPP)	Gandak River	8.01	132209
6	Bhagalpur (M Corp.)	Ganga River	30.17	400146
7	Biharsharif (M Corp.)	Panchane River	23.50	297268
8	Buxar (NPP)	Ganga River	5.16	102861
9	Chapra (NPP)	Ganga River	16.96	202352
10	Darbhanga (M Corp.)	Baghmati River	19.18	296,039
11	Dehri (NPP)	Sone	21.32	137231
12	DanapurNizamat (NPP)	Panchane River	16.41	182429
13	Gaya (M Corp. + OG)	Falgu River	50.17	474093
14	Hajipur (NPP)	Gandak& Ganga River	19.64	147688
15	Jamalpur (NPP)	Ganga River	10.65	105434
16	Jehanabad (NPP)	Dardha River	20.23	103202
17	Katihar (M Corp. + OG)	Ganga River	51.70	240838
18	Kishanganj (NPP)	Mahananda River	30.12	105782
19	Motihari (NPP)	BahuriGandak	16.38	126158
20	Munger (M Corp.)	Ganga River	17.50	213303
21	Muzaffarpur (M Corp.)	BahuriGandak River	26.43	354462
22	Patna (M Corp. + OG)	Ganga River	107.69	1684297
23	Purnia (M Corp.)	Kosi& Ganga River	92.29	282248
24	Saharsa (NPP)	Koshi River	21.13	156540
25	Sasaram (NPP)	Kadir & Sone River	10.90	147408
26	Siwan (NPP)	River Daha	13.05	135066

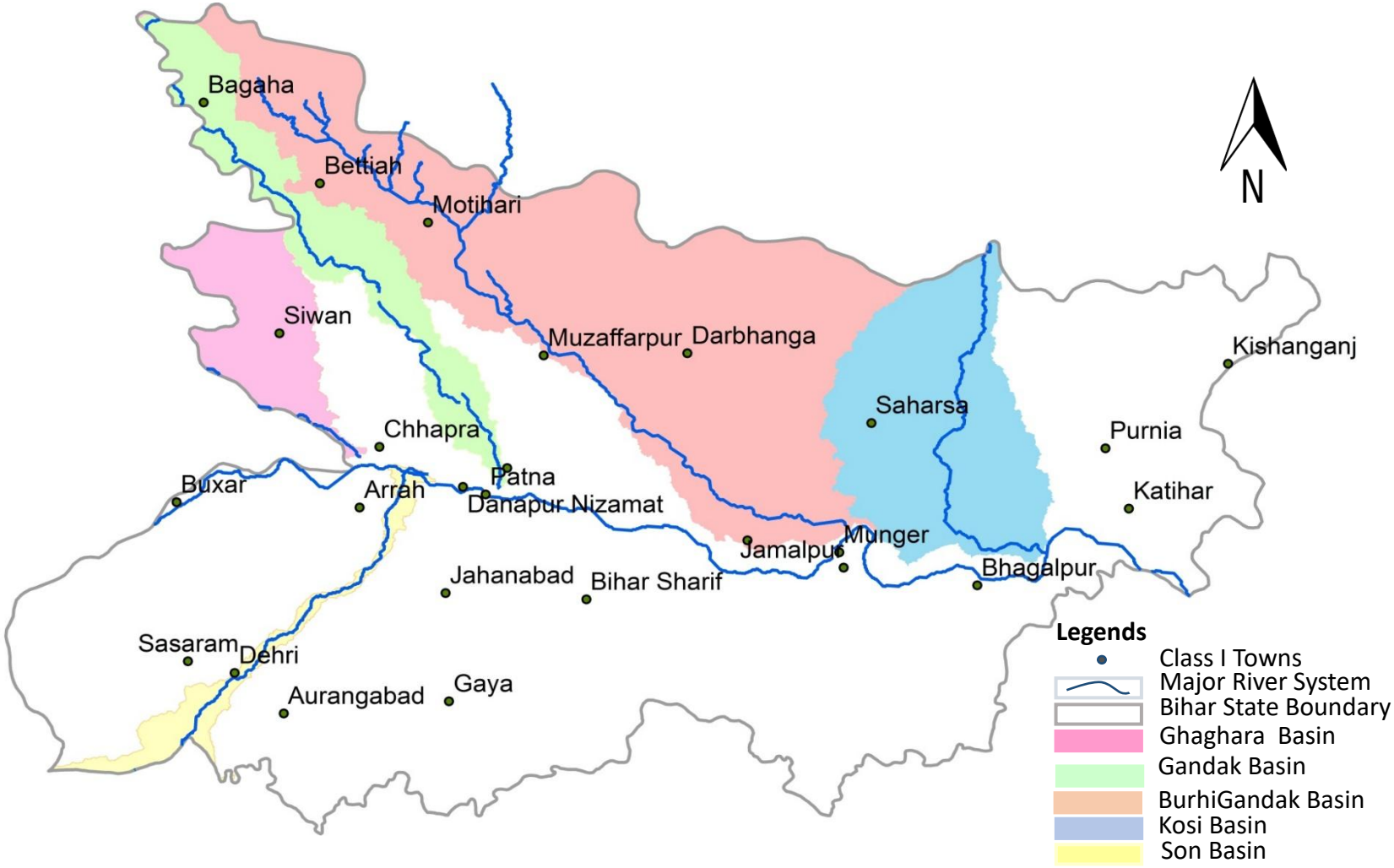


Figure 4: Class I Cities in the state of Bihar under Ganga River Basin

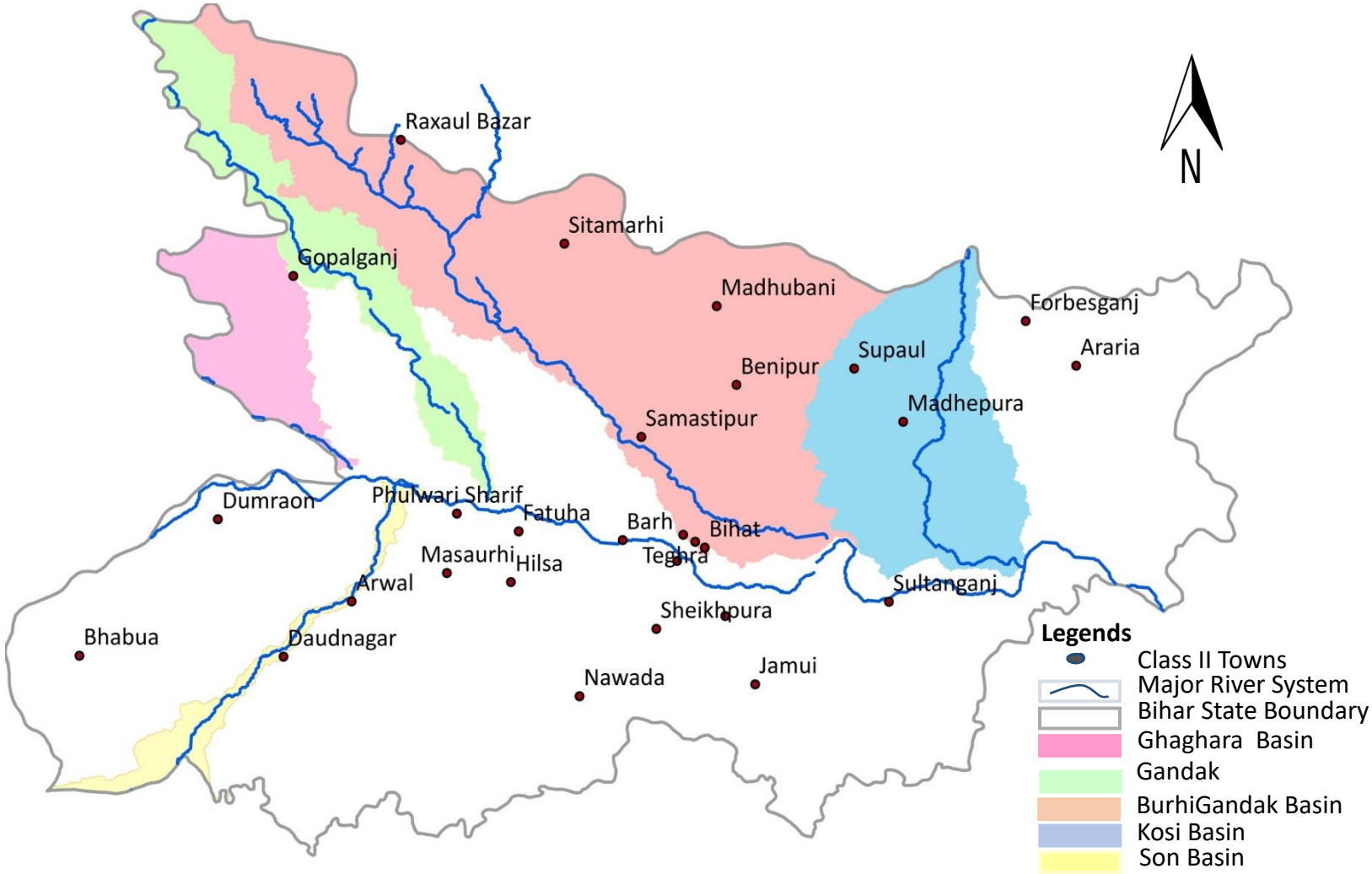


Figure 5: Class II Cities in the state of Biharunder Ganga River Basin

Figure 6: Class III Cities in the state of Bihar under Ganga River Basin

Table 5: Demography of Class II Cities in Portion of the Ganga Basin Lying in the State of Bihar

S No.	Details	River System	Total Area (sq km)	Population (Census 2011)
1	Araria (NPP)	Panar River	30.97	79021
2	Arwal (NPP)	Sone River	24.43	51849
3	Barauni (NPP)	Ganga River	17.55	71660
4	Barh (NPP)	Ganga River	4.50	61470
5	Benipur (NPP)	Kamla River	46.02	75317
6	Bhabua (NPP)	Suwara River	7.12	50179
7	Bihat (NPP)	Ganga River	23.45	67952
8	Daudnagar (NP)	Sone River	13.96	52364
9	Dumraon (NPP)	Ganga River	15.33	53618
10	Fatwah (NP)	Ganga River	4.90	50961
11	Forbesganj (NPP)	Koshi River	4.98	50475
12	Gopalganj (NPP)	Gandak River	11.11	67339
13	Hilsa (NPP)	Falgu River	22.96	51052
14	Jamui (NPP)	Kiul River	26.45	87357
15	Lakhisarai (NPP)	Kiul River	24.79	99979
16	Madhepura (NPP)	Koshi River	25.84	54472
17	Madhubani (NPP)	Kamla River	2.52	75736
18	Masaurhi (NPP)	Sone and Ganga River	9.43	59803
19	Mokameh (NPP)	Ganga River	14.18	60678
20	Nawada (NPP)	Panchane River	5.68	98029
21	Phulwari Sharif (NPP)	Ganga River	6.48	81740
22	RaxaulBazar (NPP)	Sirsiya River	5.82	55536
23	Samastipur (NPP + OG)	BurhiGandak River	3.45	67925
24	Sheikhpura (NPP)	Tati River	27.90	62927
25	Sitamarhi (NPP)	Gandak River	4.35	67818
26	Sultanganj (NPP)	Ganga River	12.29	52892
27	Supaul (NPP)	Koshi River	22.37	65437
28	Teghra (NP)	Ganga River	15.80	56234

Table 6: Demography of Class III Cities in Portion of the Ganga Basin Lying in the State of Bihar

S No.	Details	River System	Total Area (sq km)	Population (2011)
1	Amarpur (NP)	Chandan River	11.18	25336
2	Areraj (NP)	Gandak River	13.70	26014
3	Bahadurganj (NP)	Kankai River	29.17	36993
4	Bairgania (NP)	Bagmati River	14.32	42895
5	Bakhri (NP)	BurhiGandak River	10.65	40043
6	Bakhtiarpur (NP)	Ganga River	13.18	47897
7	Balia (NP)	Ganga River	14.74	47550
8	Banka (NP)	Chandan River	18.87	45977
9	Banmankhi Bazar (NP)	Koshi River	20.15	30336
10	Barahiya (NP)	Ganga River	26.54	43032
11	Barauli (NP)	Gandak River	22.21	41877
12	Barbigha (NP)	Falgu River	15.60	46075
13	Behea (NP)	Ganga River	4.06	26707
14	Belsand (NP)	Bagmati River	10.09	20566
15	Bhadauni (CT)	Panchane River	3.14	20739
16	Bihta (NP)	Sone River	25.91	47549
17	Bikram (NP)	Sone River	13.99	22486
18	Bikramganj (NP)	Sone River	15.64	48465
19	Bodh Gaya (NP)	Falgu River	19.58	38439
20	Chakia (NP)	BurhiGandak River	6.23	20686
21	Chanpatia (NP)	BurhiGandak River	7.57	27095
22	Colgong (NP)	Ganga River	0.63	33700
23	Dalsinghsarai (NP)	Balaan River	2.94	23862
24	Dhaka (NP)	Bagmati River	12.93	42063
25	Dighwara (NP)	Ganga River	13.27	32741
26	Gogri Jamalpur (NP)	Ganga River	9.49	37753
27	Hisua (NP)	Tilaiya River	6.33	32585
28	Islampur (NP)	Falgu River	6.00	35641
29	Jagdishpur (NP)	Ganga River	25.63	32447
30	Jainagar (NP)	Kamla River	1.61	21782
31	Jhajha (NP)	Ulai River	9.87	40646
32	Jhanjharpur (NP)	Kamla River	12.44	30590
33	Jogabani (NP)	Koshi River	15.12	39281
34	Kanti (NP)	BurhiGandak River	16.16	25051
35	Kasba (NP)	Koshi River	15.74	30421
36	Kataiya (NP)	Koshi River	12.06	20193

S No.	Details	River System	Total Area (sq km)	Population (2011)
37	Khagaria (NPP)	BurhiGandak River	2.97	49406
38	Khagaul (NPP)	Ganga River	3.66	44364
39	Kharagpur (NP)	Mani Nadi	9.74	31385
40	Lalganj (NP)	Gandak River	7.86	37098
41	Maharajganj (NP)	Daha River	7.60	24282
42	Mahnar Bazar (NP)	Ganga River	10.02	48293
43	Mairwa (NP)	Siahi River	6.23	23565
44	Makhdumpur (NP)	Dardha River	20.39	31994
45	Maner (NP)	Sone & Ganga River	12.00	40068
46	Manihari (NP)	Ganga River	11.31	26629
47	Marhaura (NP)	Ganga River	12.62	29932
48	Mehsi (NP)	BurhiGandak River	7.16	25995
49	Mirganj (NP)	Daha River	5.48	26240
50	Motipur (NP)	BurhiGandak River	12.77	28572
51	Murliganj (NP)	Koshi River	14.07	28691
52	Nabinagar (NP)	Sone River	17.42	23984
53	Narkatiaganj (NPP)	BurhiGandak River	10.96	49507
54	Nasriganj (NP)	Sone River	8.69	23819
55	Naubatpur (NP)	Ganga River	14.39	25011
56	Naugachhia (NP)	Koshi River	11.24	49069
57	Nirmali (NP)	Koshi River	5.30	20189
58	Nokha (NP)	Sone River	13.45	27302
59	PakriDayal (NP)	BurhiGandak River	19.13	29582
60	Piro (NP)	Sone River	6.47	33785
61	Puraini (CT)	Koshi River	9.33	30829
62	Rafiganj (NP)	DhavaNadi	4.56	35536
63	Rajauli (NP)	Dhanarjay River	18.08	30170
64	Rajgir (NP)	Panchane River	50.18	41587
65	Ramnagar (NP)	RamrekhaNadi	16.20	48411
66	Revelganj (NP)	Ganga River	12.48	39039
67	Rosera (NP)	BurhiGandak River	1.03	31155
68	Sahebganj (NP)	Gandak River	9.81	23224
69	Sheohar (NP)	Bagmati River	9.33	28116
70	Sherghati (NP)	Morhor	10.79	40666
71	Silao (NP)	Panchane River	9.00	25674
72	Sonepur (NP)	Gandak River	8.27	37776
73	Sugauli (NP)	BurhiGandak River	19.25	38815
74	Tikari (NP)	Falgu River	2.66	21324
75	Warisaliganj (NP)	Sakri River	13.11	34056

4. Religious Places and Their Importance

Bihar, a state in the Indo-Gangetic basin is home to many holy places, marked with the presence of sages, seers, devotees and mystics. Gaya,Patna, Bodhgaya, Sitamadhi, Bhagalpur, Vikramshila and Rajgirare major holy cities for Hindu, Buddhist and Jain communities.The hordes of pilgrims and devotees visit these places of pilgrimage every year and participate in festivals.

Gaya is the second largest city in Bihar having population of 0.47 million. The city has ancient historical significance and one of the major tourist attractions of Bihar. This place has great importance for the Hindu, Buddhist, and Jain followers. Gaya is situated on the bank of Phalgu River and other three sidesby small rocky hills. Bodhgaya is approximately 15 km form Gaya and one of the most important sitesfor Buddhists.UNESCO world heritage site Mahaboditemple is situated here.

Patna city is the capital of Bihar state and largest city with 1.7 million population, situated on the bank of Ganga. The city was founded in 490 BCE by the king Magadha with the name Pataliputra.Patan Devi temple, which is known as the oldest and one of the most revered places of worship for Hindus situated in Patna. This city is also important for the Sikhcommunity as the birth place of tenth guru, Guru Gobind Singh. Similarly, Vaishali, Sitamadi, Nalanda, Rajgir, Vikamshila and Bhagalpur have the importance for Hindu, Buddhist, and Jain religions. Some major religious events and their featuresin Bihar statehave been illustrated in Table 7.

Table 7: Major Religious Events on River Banks in Bihar

S No	Religious Events	Place	River Bank	Duration	Period
1	Chatth Puja	All river banks	Ganga and **Tributaries**	October-November	Annual
2	Kartik Poornima	All river banks	Ganga and **Tributaries**	November	Annual
3	Krishna Leela	All river banks	Ganga	October–November	Annual
4	Ganga Dusshera	All river banks	Ganga	June	Annual

5. 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 centres, discharge from open drain carrying sewage, discharges from the tributaries and discharge of untreated/partially treated wastewater from industrial units are the major point sources that contributeto the pollution load in the state. The major cities contributing the wastewater discharge of approximately 579 MLD through 25 numbers of drains in river Ganga are in Buxer, Patana, Munger, Bhagalpur, and kahalgaon(CPCB, 2013). The discharge of wastewater through the state of Bihar is 9.5 % of the total discharge through 4 major states (Uttarakhand, Uttar Pradesh, Bihar, West Bengal) covered under the GRB. The Central Pollution Control Board (CPCB) and Central Water Commission (CWC) have planned to install 13 Real Time Water Quality Monitoring Station for monitoring in-situ river water quality parameters of the river Ganga and her tributaries including one in Patna. The report published by CPCB in 2009 revealed that the total sewage generation of class I cities in 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. The sewage treatment capacity is only 8% of the total sewage generation in class II town in the states under Ganga river basin.

The maximum sewage generated by class I cities and class II towns of Bihar are1003.5 and 174.2 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 7. The assessment shows that there is also a massive gap between the generation and treatment capacity in the main stretch of the Ganga. The trends of the data in Bihar depicted that the maximum share of sewage generation (58.53%) is from class I cities followed by class II and III towns, 17.48 and 23.99%, respectively (Figure 8). The BOD and COD load for Class I cities, Class II and Class III towns are in the range of 68.78, 16.53 and 22.69%, respectively. The TKN load almost showing the same trend as BOD and COD load. CPCB in 2013 has been identified 64 STPs (Sewage Treatment Plants) under Ganga river Catchment, out of which 5 STPs in Bihar having the total installed capacity is 140 MLD utilized the waste water of 100 MLD. A single STP was found to be nonoperational.

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 Patna 182 MLD, approximately 79.9% of the water supply. In case of the class II towns the sewage generation in Lakhisari is maximum 10.8 MLD, ~80% of its total water supply. The total BOD and COD load in Kg/day has been estimated on the per capita basis in Class I towns and its average are approximately 6.98 and 11.87 tons/day, respectively. The average BOD and COD load from the Class II towns is 1.75 and 2.99 tons/day, respectively whereas Class III towns contribute approximately 0.9 tons/day and 1.55 tons/day of BOD and COD, respectively. The maximum and minimum BOD and COD contributing cities in Class I towns are Patna and Aurangabad, respectively. In Class II towns maximum BOD and COD is from Lakhisarai, whereas minimum BOD and COD are from Bhahua. In class III towns maximum and minimum BOD and COD is from NarkatiaganjandNirmali respectively.

The total TKN in metric tons/day contributed by Class I, Class II and Class III towns are approximately 1.39, 0.38 and 0.18 tons/day, respectively. The maximum and minimum contribution of TKN from class I towns are from Patna and Aurangabad respectively. The maximum and minimum contribution of TKN from class II towns is from Lakhisarai and Bhahua, respectively while the maximum and minimum contribution of TKN from class III towns is from Narkatiaganj and Nirmali, respectively. The estimates of total water supplied, total sewage generated, BOD, COD and TKN loads are summarized and illustrated in Figures (9a-11b) 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 12.

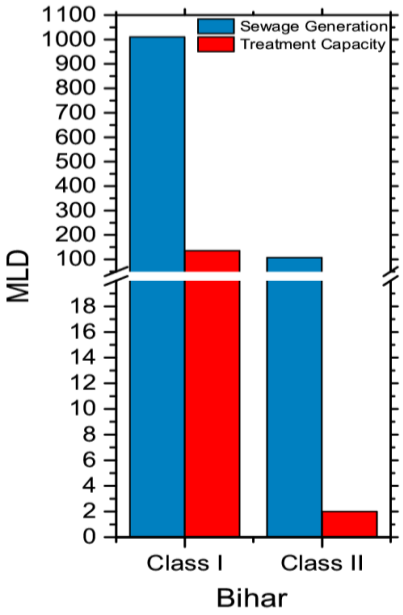


Figure 7: Assessment of Total Sewage Generation (MLD) and Sewage Treatment Capacity of Class I and II Cities in the State of Bihar

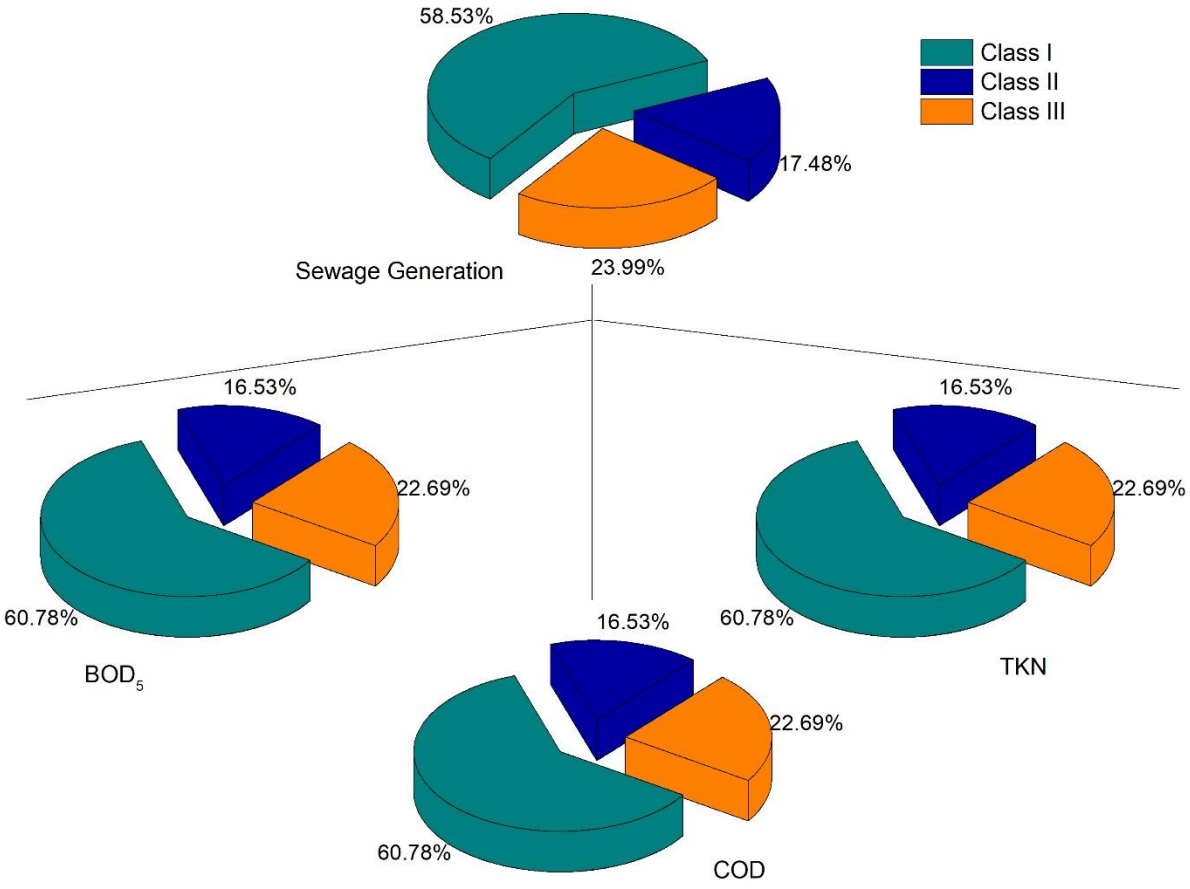


Figure 8: Distribution of Pollution Load of Class I Cities and Class II, Class III Towns in Bihar

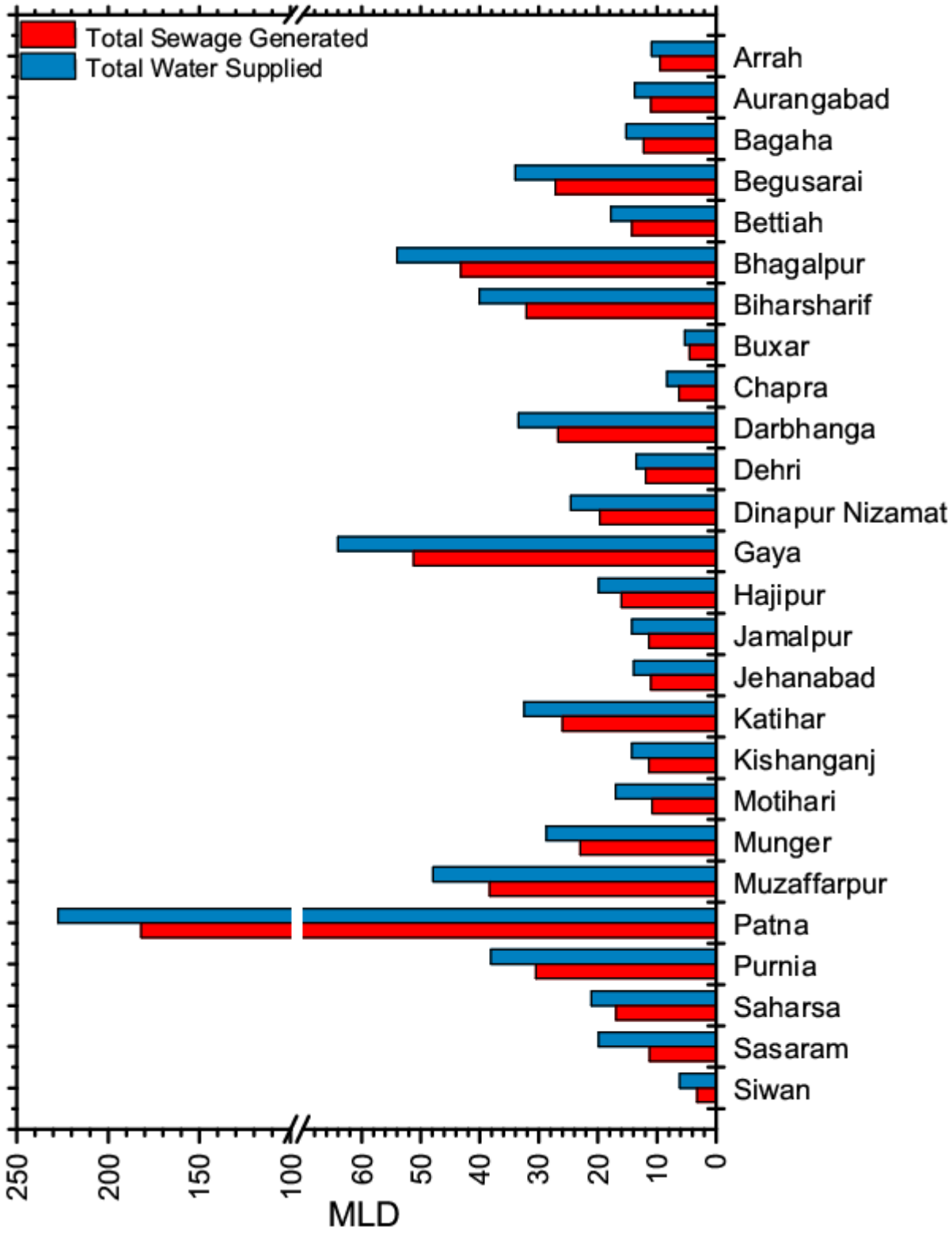


Figure 9a: **Assessment of water supply and sewage generation (MLD) in Class I towns in the Ganga river Basin lying in the State of Bihar**

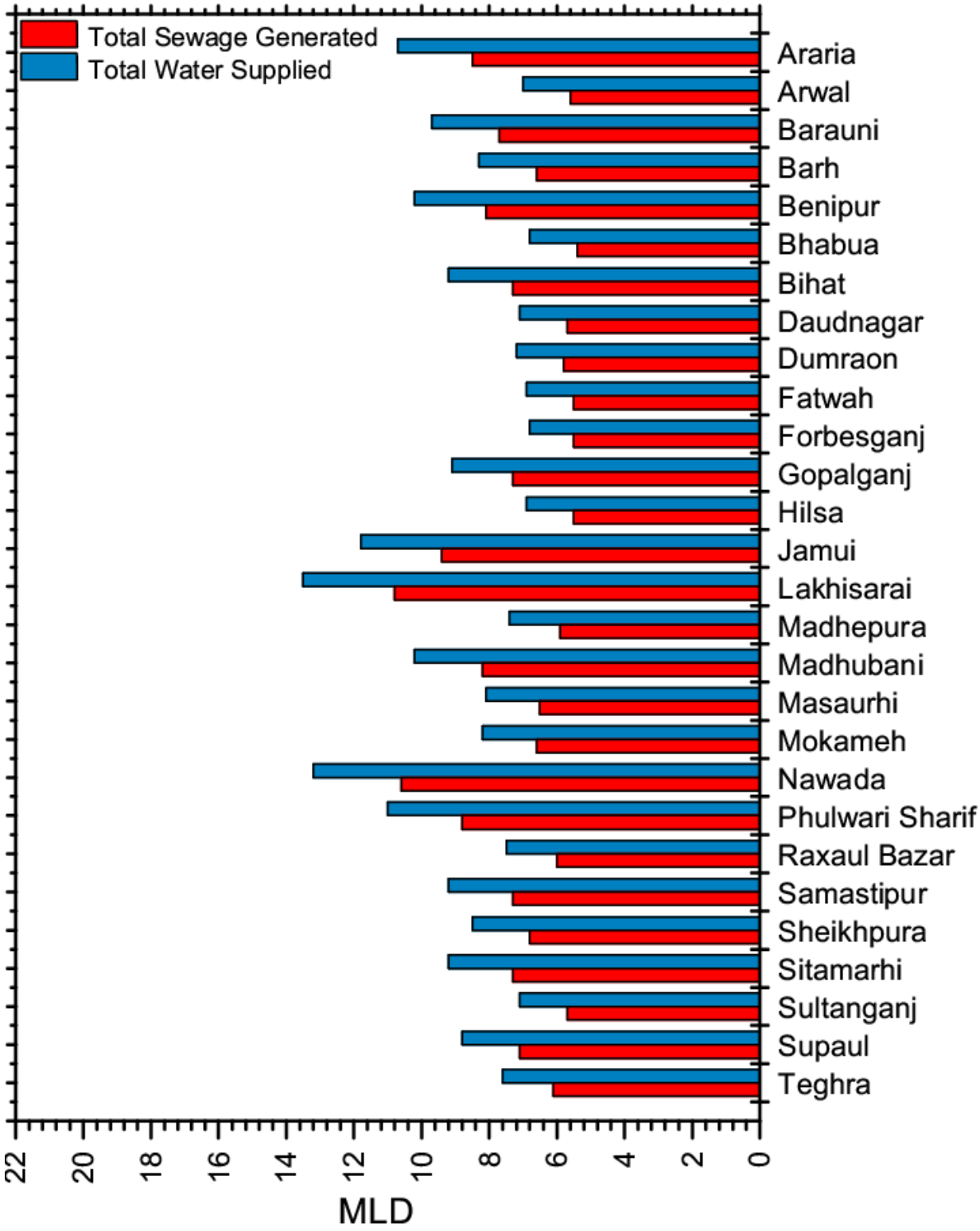


Figure 9b: **Assessment of water supply and sewage generation (MLD) in Class II towns in the Ganga river Basin lying in the State of Bihar**

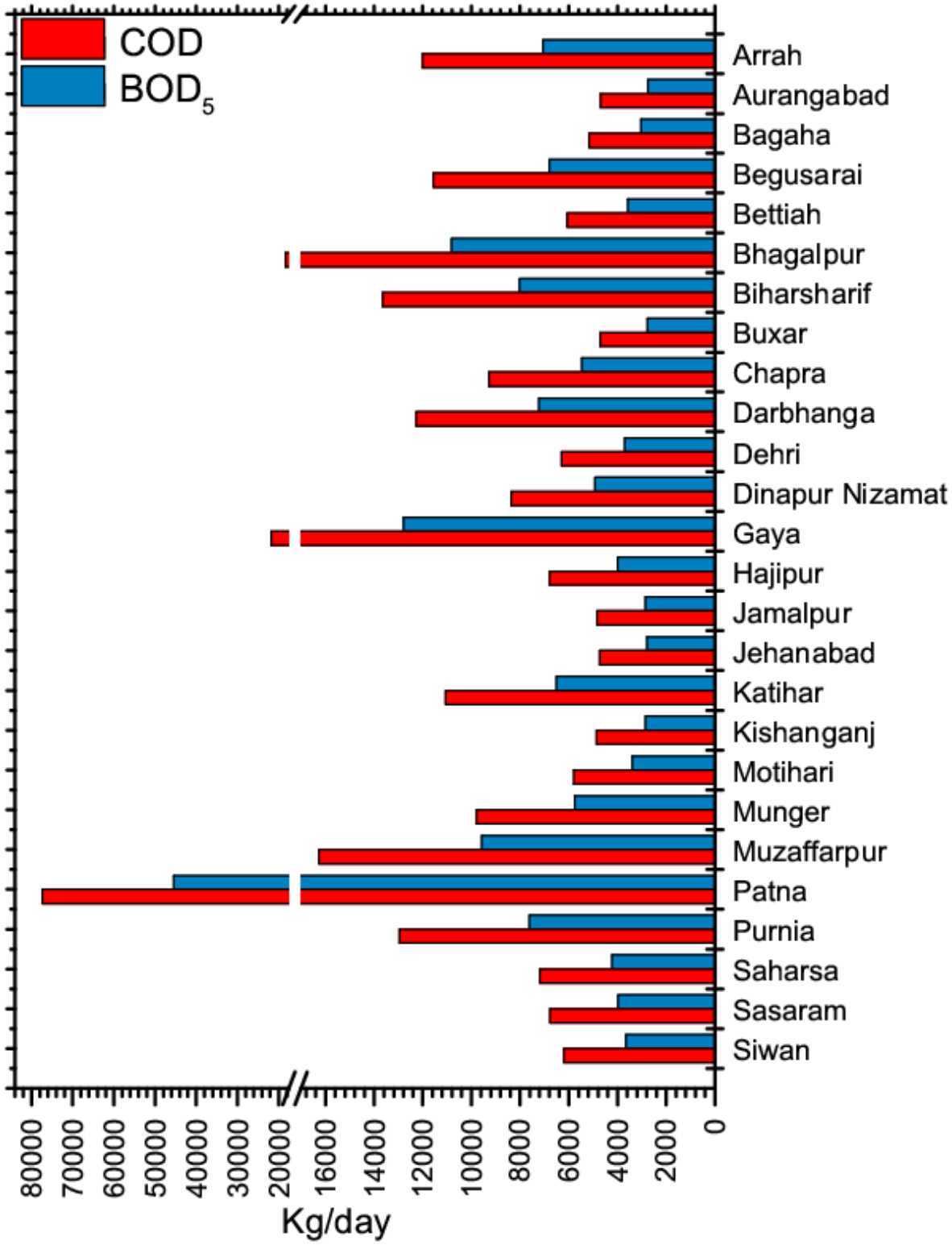


Figure 10a: Assessment of Organic Pollution Load (kg/day) from Class I Towns in the Ganga River Basin lying in the State of Bihar

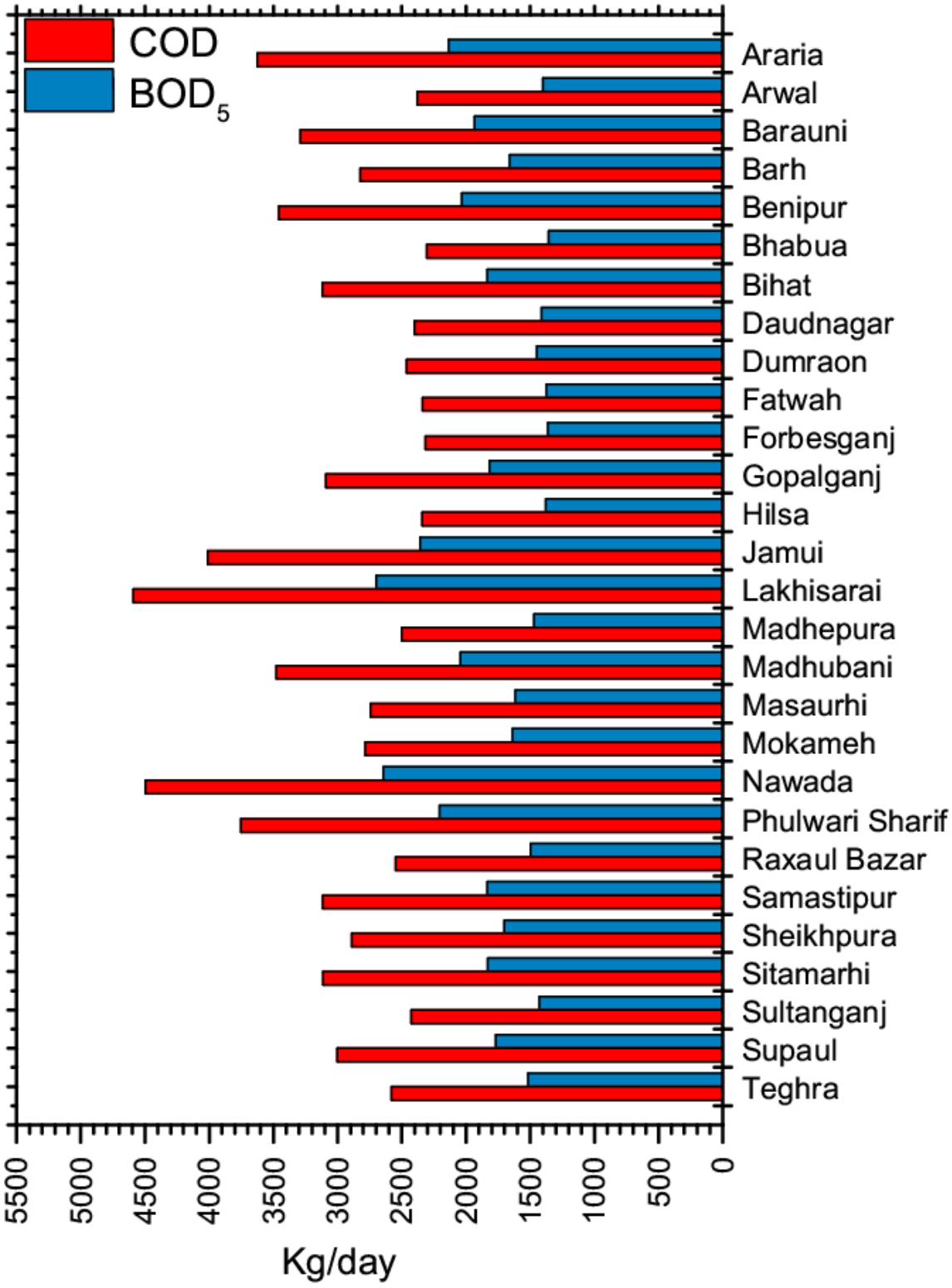


Figure 10b: Assessment of Organic Pollution Load (kg/day) from Class II Towns in the Ganga River Basin lying in the State of Bihar

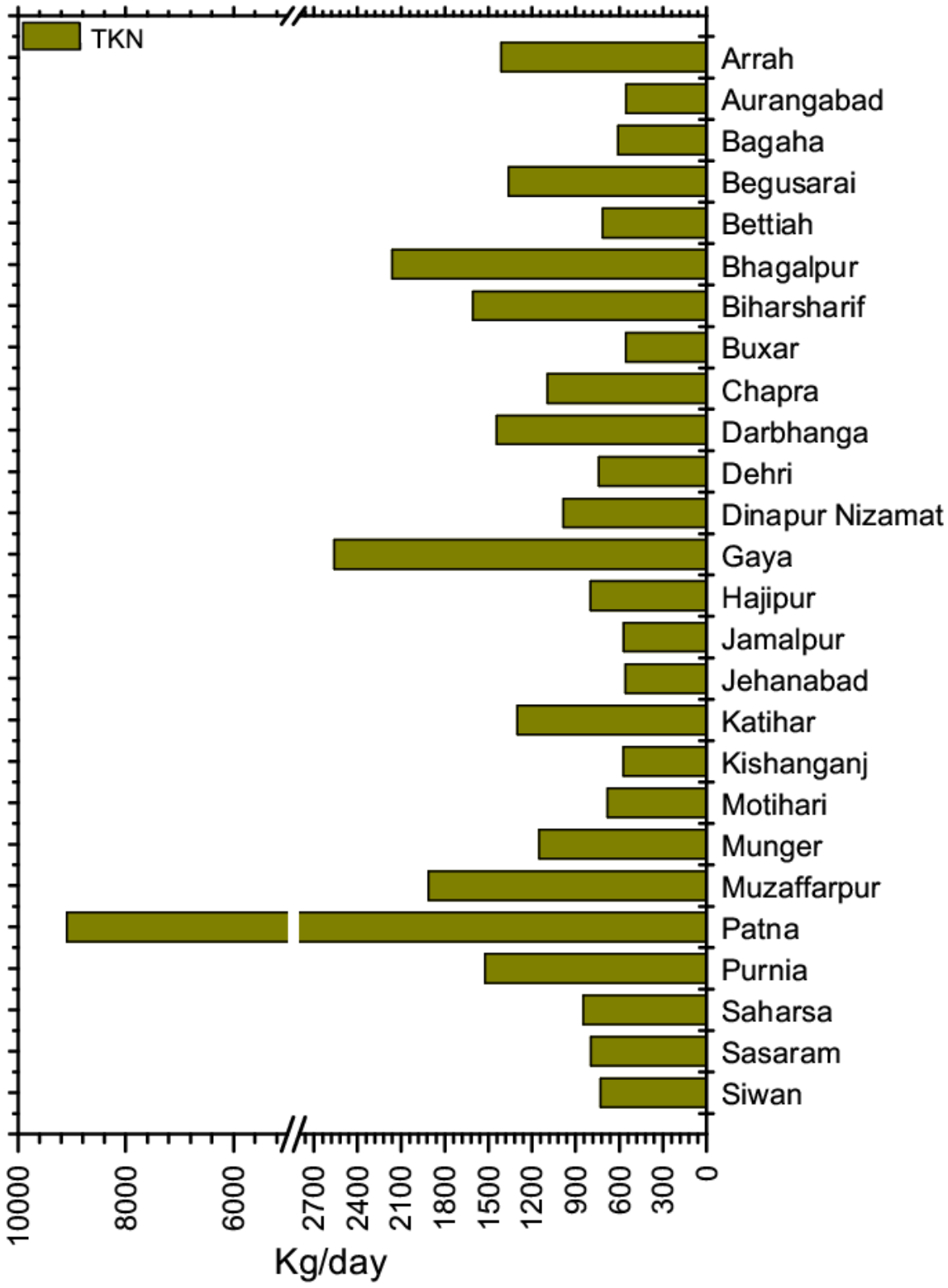


Figure 11a: Assessment of TKN Load (kg/day) from Class I Towns in the Ganga River Basin Lying in the State of Bihar

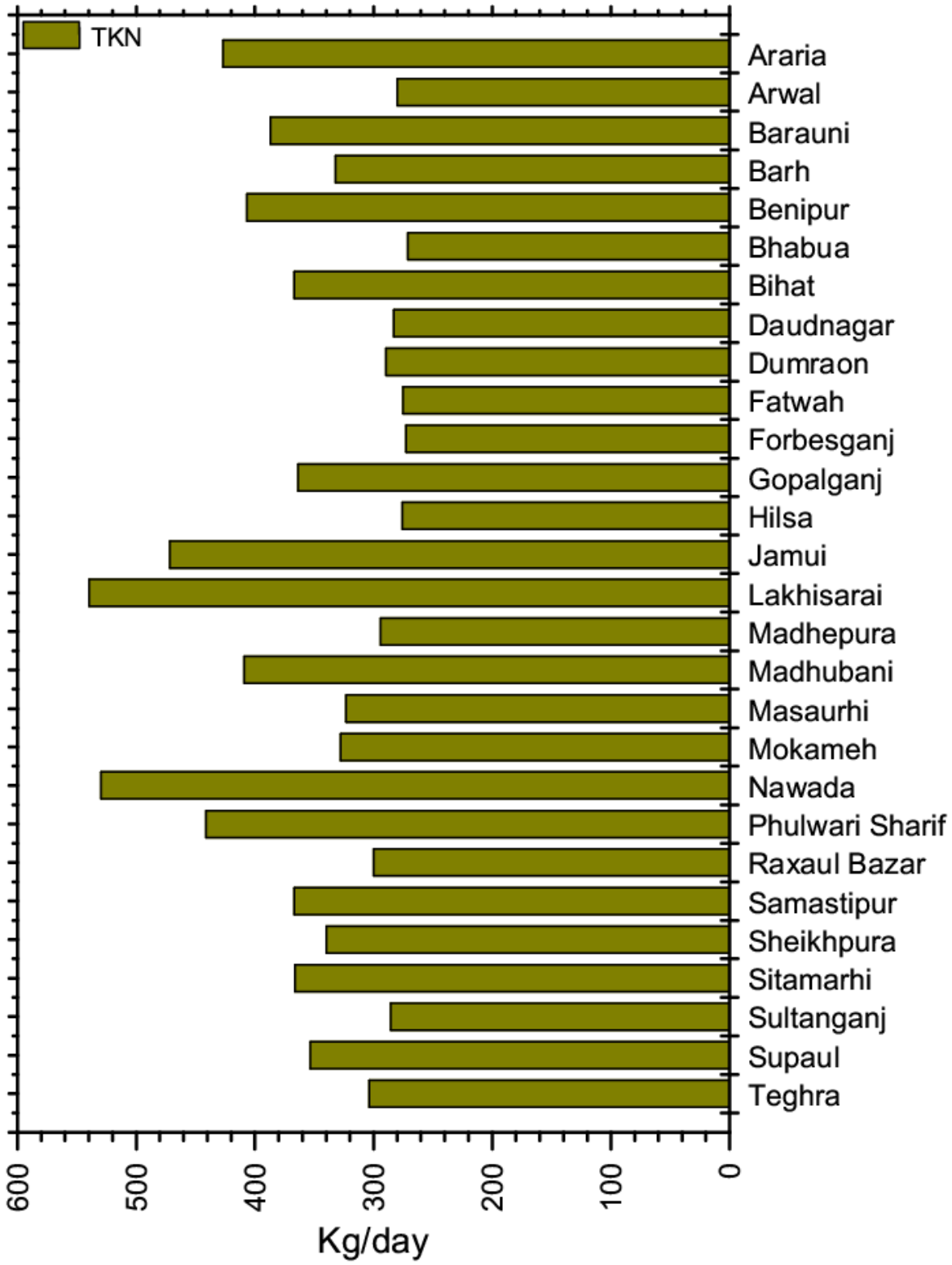


Figure 11b: Assessment of TKN Load (kg/day) from Class II Towns in the Ganga River Basin Lying in the State of Bihar

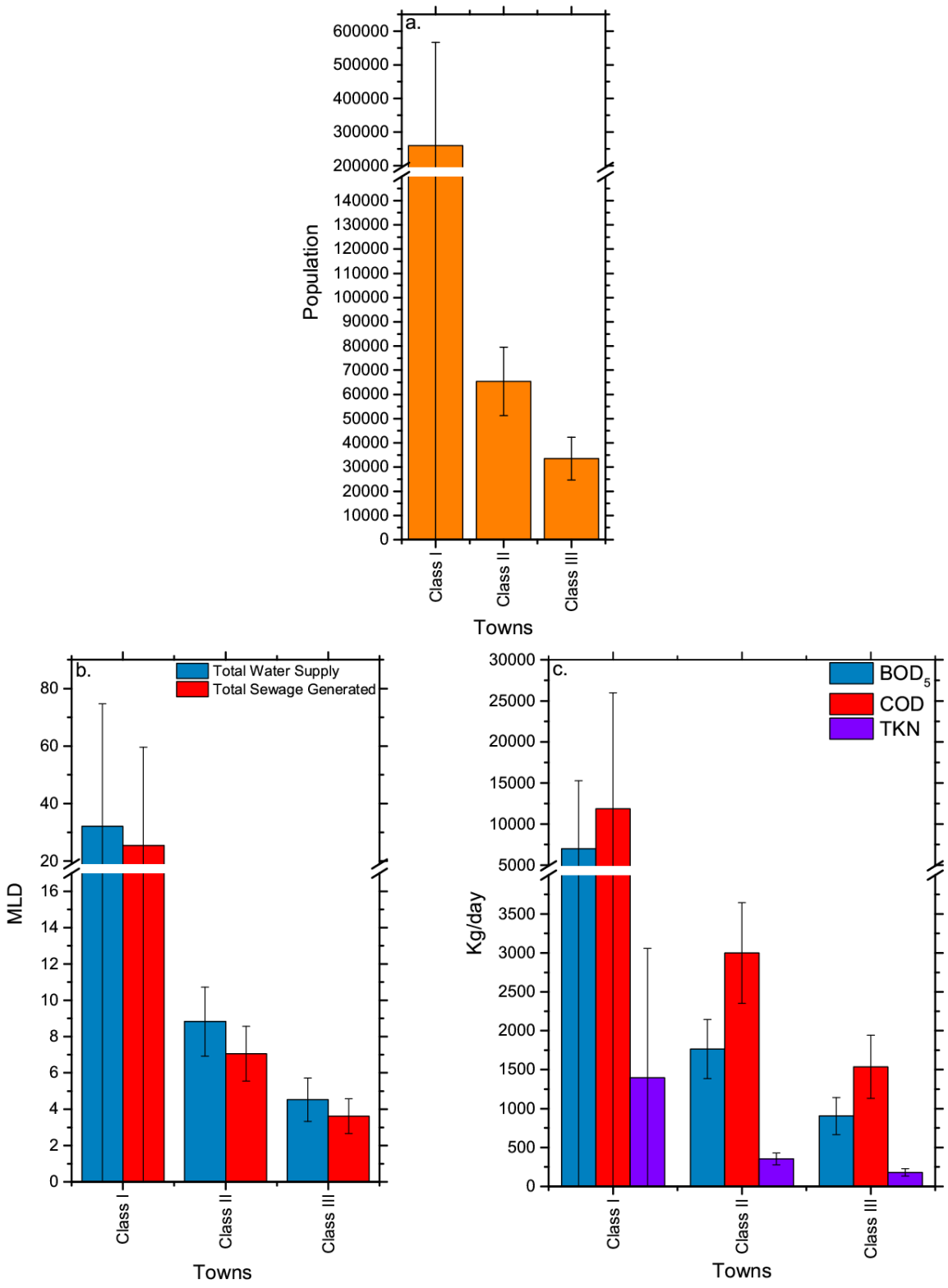


Figure 12: Comparative Analysis of Class I, Class II and Class III Cities/Towns Lying Under theBihar State: (a) Population (b) Total Water Supply and Sewage Generation (c) Pollution Load

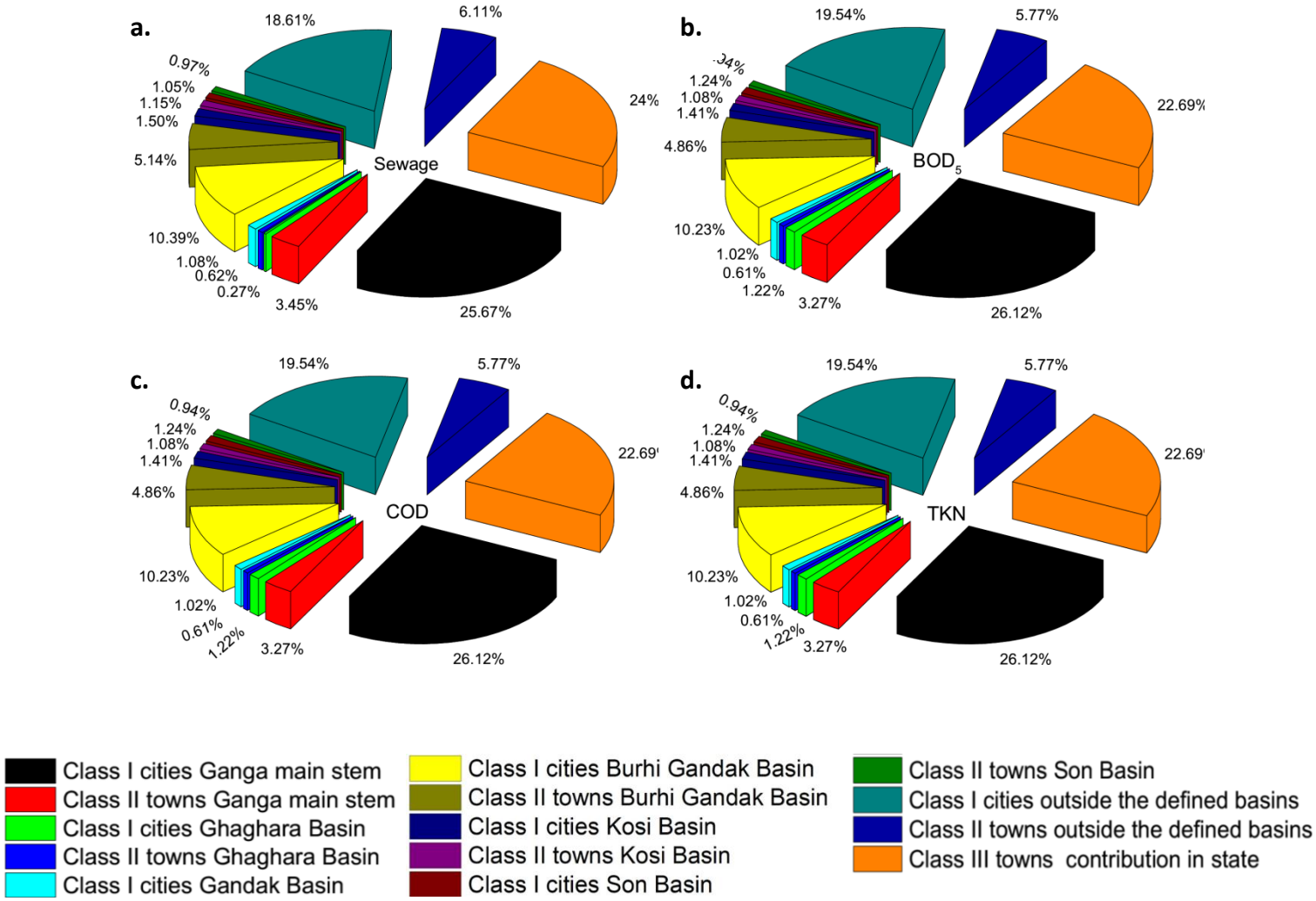


Figure 13 (a-d): Pollution load of Class I Cities and Class II, Class III Towns in the Major Basins of River Ganga in the State and Along the Main Stem of the River Ganga: (a) Sewage Generation; (b) BOD_5; (c) COD; (d) TKN

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 13a-d) and the results revealed that the percentage of the total sewage generation is maximum in the Class I cities situated along the main stem of Ganga (25.67%). The sewage generation in the BuhriGandak basin is highest for Class I cities (10.39%) and is higher than the Kosi (6.11%), Son basin (1.05%) and Ghaghara (0.27) compared with the total sewage generation. The sewage generation in all Class II towns in all the basins in the state is contributed ~9% of the total sewage generation. The Class I cities and Class II towns outside the major defined basins combinedly release 24.71% of waste water. The percentage sewage generation by Class III towns of the entire state is 24% of the total sewage generated by the state.

The BOD, COD and TKN load contributed by Class I cities of the main stem of Ganga and BurhiGandakare 26.12 and 10.23%, respectively. The Class II and Class III towns of the state imparted around 9% and 22.69% respectively of the total BOD, COD, and TKN load. The basin wise major contributors of Class I cities for BOD, COD, and TKN load are Kosi(1.41%), Son(1.24%) and Ghaghara (0.61%). The significant BOD,COD, and TKN load contributed by

the Class I cities and Class II towns lying outside the selected basins (BOD: 19.54%; COD: 19.54%). The details of the BOD and COD load in the state are presented in Figure 12b and c.

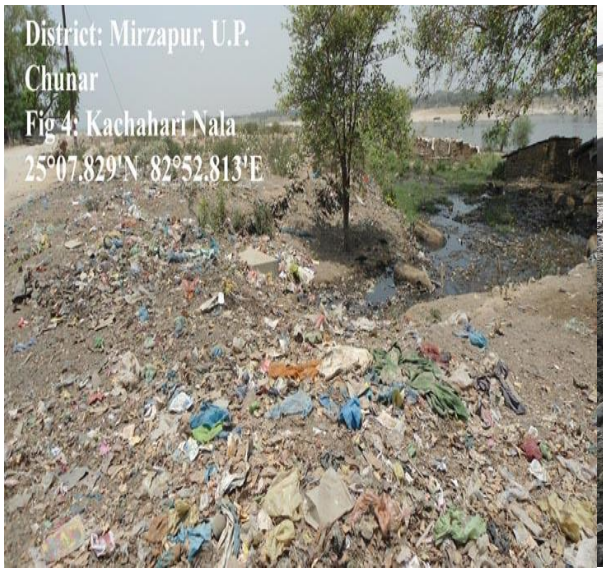
6. Conclusions:

River Ganga flows in the Indo-Gangetic plains of the state is one of the most sacred rivers in India, yet it is being polluted by many sources. Pollution levels in the river contributed 9-12% of the total burden of diseases in the state (Mallikarjun, 2003). The catchment of the river addressed the load of 63 Class I cities, 59 Class II townsand 232 Class III towns, directly or indirectly. The scenario of water quality in the system is Datauating 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 Ghaghara, Gandak, Kosi, BurhiGandak and Sontributaries discharges their partially treated and untreated effluent into river Ganga.

The maximum sewage generation is in the Class I cities (58.53%) followed by Class III (23.99%) and Class II towns (17.48%). Pollution load (BOD, COD and TKN load) also follows the same trend with maximum values for Class I cities. Patna and Lakhisaraiare the Class I and Class II towns showing maximum amount ofsewage generation in comparison to their water supply. The maximum BOD, COD and TKN contributing Class I cities, Class II and III towns are Patna, LakhisaraiandNarkatiaganj respectably.All calculations related to pollution load were done on per capita basis. There is lack of real data (Drains, water supply, etc.) for the Bihar state and suggested to be done for more accurate pollution situation.


District: Siwan, Bihar
Fig 4: Nala behind DM residence (View 2)
26°13.753'N 84°21.438'E


District: Motihari, Bihar
Fig 11: Chhatauni Chowk Nala (View 2)
26°38.832'N 84°55.967'E


District: Mirzapur, U.P.
Chunar
Fig 4: Kachahari Nala
25°07.829'N 82°52.813'E


District: Buxar
Fig 4: Outfall of Satighat Nala in River Ganga (View 2)
(25°34.738'N 83°58.562'E)

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Appendix-1

Compilation of Data-Sheets of Water Balance & Pollution Load (Domestic) of Major Class I Cities/Towns in Bihar

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Arrah			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	30.97
2	Population as in 2011		:	261430
3	Population Growth Rate as in 2011 (%)		:	28.5
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	5810
6	Total Number of Household as in 2011		:	39,274
7	Number of Household per Ward		:	873
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	10.62
10	Number of Bore Wells		:	16
11	Ground Water Extraction per Bore Well (MLD)		:	0.66
12	Number of Hand Pumps/ Tubewells		:	510
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	40.67
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	10.88
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	41.70
19	Total Sewage Generation (MLD)*		:	9.55
20	Per Capita Sewage Generation (lpcd)		:	36.52
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	7058.61
		COD	:	11999.64
		TKN	:	1411.72
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	11
33	Number of Water Bodies		:	4
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	NA

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Aurangabad			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	21.33
2	Population as in 2011		:	102244
3	Population Growth Rate as in 2011 (%)		:	28.78
4	Total Number of Wards		:	33
5	Population per Ward (Thousands)		:	3,098
6	Total Number of Household as in 2011		:	15782
7	Number of Household per Ward		:	478
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)		:	13.8
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	11.0
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	:	2760.6
		COD	:	4693.0
		TKN	:	552.1
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Adari 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) Data Sheet				
City: Bagah River			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	46.83
2	Population as in 2011		:	112634
3	Population Growth Rate as in 2011 (%)		:	23.14
4	Total Number of Wards		:	35
5	Population per Ward (Thousands)		:	3,218
6	Total Number of Household as in 2011		:	20980
7	Number of Household per Ward		:	599
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)		:	15.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	12.2
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	:	3041.1
		COD	:	5169.9
		TKN	:	608.2
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gandak 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) Data Sheet				
City: Begusarai			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	47.51
2	Population as in 2011		:	252008
3	Population Growth Rate as in 2011 (%)		:	168.83
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	5,600
6	Total Number of Household as in 2011		:	47030
7	Number of Household per Ward		:	1045
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)		:	34.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	27.2
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	:	6804.2
		COD	:	11567.2
		TKN	:	1360.8
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) Data Sheet				
City: Bettiah			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	8.01
2	Population as in 2011		:	132209
3	Population Growth Rate as in 2011 (%)		:	13.32
4	Total Number of Wards		:	39
5	Population per Ward (Thousands)		:	3,390
6	Total Number of Household as in 2011		:	24463
7	Number of Household per Ward		:	627
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)		:	17.8
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	14.3
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	:	3569.6
		COD	:	6068.4
		TKN	:	713.9
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gandak River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	9
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Bhagalpur			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	30.17
2	Population as in 2011		:	400146
3	Population Growth Rate as in 2011 (%)		:	17.43
4	Total Number of Wards		:	51
5	Population per Ward (Thousands)		:	7,846
6	Total Number of Household as in 2011		:	69984
7	Number of Household per Ward		:	1372
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)		:	54.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	43.2
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	:	10803.9
		COD	:	18366.7
		TKN	:	2160.8
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) Data Sheet				
City: Biharsharif			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	23.50
2	Population as in 2011		:	297268
3	Population Growth Rate as in 2011 (%)		:	28.09
4	Total Number of Wards		:	46
5	Population per Ward (Thousands)		:	6,462
6	Total Number of Household as in 2011		:	48641
7	Number of Household per Ward		:	1057
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)		:	40.1
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	32.1
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	:	8026.2
		COD	:	13644.6
		TKN	:	1605.2
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Panchane 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) Data Sheet				
City:Buxar			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.16
2	Population as in 2011		:	102861
3	Population Growth Rate as in 2011 (%)		:	23.68
4	Total Number of Wards		:	34
5	Population per Ward (Thousands)		:	3025
6	Total Number of Household as in 2011		:	16,710
7	Number of Household per Ward		:	491
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	5.18
10	Number of Bore Wells		:	6
11	Ground Water Extraction per Bore Well (MLD)		:	0.86
12	Number of Hand Pumps/ Tubewells		:	240
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	50.54
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	5.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	51.70
19	Total Sewage Generation (MLD)*		:	4.46
20	Per Capita Sewage Generation (lpcd)		:	43.34
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2777.25
		COD	:	4721.32
		TKN	:	555.45
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		:	5
33	Number of Water Bodies		:	5
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<<1%

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Chhapra			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.96
2	Population as in 2011		:	202352
3	Population Growth Rate as in 2011 (%)		:	12.93
4	Total Number of Wards		:	44
5	Population per Ward (Thousands)		:	4,599
6	Total Number of Household as in 2011		:	31501
7	Number of Household per Ward		:	716
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	4.35
10	Number of Bore Wells		:	13
11	Ground Water Extraction per Bore Well (MLD)		:	0.33
12	Number of Hand Pumps/ Tubewells		:	515
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	21.58
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.3
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	109.6
19	Total Sewage Generation (MLD)**		:	6.3
20	Per Capita Sewage Generation (lpcd)		:	31.2
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	5463.5
		COD	:	9288.0
		TKN	:	1092.7
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	1
33	Number of Water Bodies		:	7
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	NA

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Darbanga			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	**19.18**
2	Population as in 2011		:	2,96,039
3	Population Growth Rate as in 2011 (%)		:	10.73
4	Total Number of Wards		:	48
5	Population per Ward (Thousands)		:	6,167
6	Total Number of Household as in 2011		:	56,492
7	Number of Household per Ward		:	1177
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	13.37
10	Number of Tube Wells		:	8
11	Ground Water Extraction per Tube Well (MLD)		:	4.5
12	Number of Hand Pumps		:	3000
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	4
15	Total Pumping Capacity (MLD)		:	1.7
16	Average Water Supply Rate from ULB Sources (lpcd)		:	135
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	33.4
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	124.8
19	Total Sewage Generation (MLD)		:	26.7
20	Per Capita Sewage Generation (lpcd)		:	99.9
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	7218.4
		COD	:	12271.3
		TKN	:	1443.7
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Baghmati River
32	Number of Drains/Nallah for Wastewater Disposal		:	19
33	Number of Water Bodies		:	206
34	Gross Area of Water Bodies (sq km)		:	4.16
35	Area of Water Bodies as % of Total Area		:	21.69

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Dehri			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	21.32
2	Population as in 2011		:	137231
3	Population Growth Rate as in 2011 (%)		:	15.26
4	Total Number of Wards		:	39
5	Population per Ward (Thousands)		:	3519
6	Total Number of Household as in 2011		:	23,234
7	Number of Household per Ward		:	596
8	Surface Water Supply (MLD)		:	8
9	Ground Water (GW) Supply (MLD)		:	5.47
10	Number of Bore Wells		:	6
11	Ground Water Extraction per Bore Well (MLD)		:	0.91
12	Number of Hand Pumps/ Tubewells		:	30
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Average Water Supply Rate from ULB Sources (lpcd)		:	135
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	13.49
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	11.89
20	Per Capita Sewage Generation (lpcd)		:	86.63
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3705.24
		COD	:	6298.90
		TKN	:	741.05
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sone
32	Number of Drains/Nallah for Wastewater Disposal		:	5
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	NA

Water Balance & Pollution Load (Domestic) Data Sheet				
City: DinapurNizamat			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.41
2	Population as in 2011		:	182429
3	Population Growth Rate as in 2011 (%)		:	39.07
4	Total Number of Wards		:	40
5	Population per Ward (Thousands)		:	4,561
6	Total Number of Household as in 2011		:	28932
7	Number of Household per Ward		:	723
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)		:	24.6
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	19.7
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	:	4925.6
		COD	:	8373.5
		TKN	:	985.1
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Panchane 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) Data Sheet				
City: Gaya			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	50.17
2	Population as in 2011		:	474093
3	Population Growth Rate as in 2011 (%)		:	21.81
4	Total Number of Wards		:	53
5	Population per Ward (Thousands)		:	8,945
6	Total Number of Household as in 2011		:	72978
7	Number of Household per Ward		:	1377
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)		:	64.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	51.2
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	:	12800.5
		COD	:	21760.9
		TKN	:	2560.1
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Falgu 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) Data Sheet				
City: Hajipur			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	19.64
2	Population as in 2011		:	147688
3	Population Growth Rate as in 2011 (%)		:	23.68
4	Total Number of Wards		:	39
5	Population per Ward (Thousands)		:	3,787
6	Total Number of Household as in 2011		:	24033
7	Number of Household per Ward		:	616
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)		:	19.9
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	16.0
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	:	3987.6
		COD	:	6778.9
		TKN	:	797.5
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Gandak& 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) Data Sheet				
City: Jamalpur			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.65
2	Population as in 2011		:	105434
3	Population Growth Rate as in 2011 (%)		:	8.71
4	Total Number of Wards		:	36
5	Population per Ward (Thousands)		:	2,929
6	Total Number of Household as in 2011		:	20372
7	Number of Household per Ward		:	566
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)		:	14.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	11.4
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	:	2846.7
		COD	:	4839.4
		TKN	:	569.3
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) Data Sheet				
City: Jehanabad			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	20.23
2	Population as in 2011		:	103202
3	Population Growth Rate as in 2011 (%)		:	26.62
4	Total Number of Wards		:	33
5	Population per Ward (Thousands)		:	3,127
6	Total Number of Household as in 2011		:	16802
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)		:	13.9
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	11.1
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	:	2786.5
		COD	:	4737.0
		TKN	:	557.3
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Dardha 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) Data Sheet				
City: Katihar			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	51.70
2	Population as in 2011		:	240838
3	Population Growth Rate as in 2011 (%)		:	26.18
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	5,352
6	Total Number of Household as in 2011		:	47059
7	Number of Household per Ward		:	1046
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)		:	32.5
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	26.0
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	:	6502.6
		COD	:	11054.5
		TKN	:	1300.5
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) Data Sheet				
City: Kishanganj			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	30.12
2	Population as in 2011		:	105782
3	Population Growth Rate as in 2011 (%)		:	23.59
4	Total Number of Wards		:	33
5	Population per Ward (Thousands)		:	3,206
6	Total Number of Household as in 2011		:	20698
7	Number of Household per Ward		:	627
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)		:	14.3
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	11.4
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	:	2856.1
		COD	:	4855.4
		TKN	:	571.2
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Mahananda 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) Data Sheet				
City: Motihari			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.38
2	Population as in 2011		:	126158
3	Population Growth Rate as in 2011 (%)		:	25.30
4	Total Number of Wards		:	38
5	Population per Ward (Thousands)		:	3,320
6	Total Number of Household as in 2011		:	22224
7	Number of Household per Ward		:	585
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)		:	500
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)		:	17.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)!		:	NA
19	Total Sewage Generation (MLD)***		:	10.8
20	Per Capita Sewage Generation (lpcd)!		:	NA
21	Sewage Collection (MLD)		:	3.7
22	Percentage of Sewage Collection (%)		:	100
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3406.3
		COD	:	5790.7
		TKN	:	681.3
30	Wastewater Disposal Means		:	River &Lake
31	Name of River/Streams for Wastewater Disposal		:	BahuriGandak
32	Number of Drains/Nallah for Wastewater Disposal		:	17
33	Number of Water Bodies		:	3
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	NA

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Munger				**State: Bihar**
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	17.50
2	Population as in 2011		:	213303
3	Population Growth Rate as in 2011 (%)		:	13.43
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	4,740
6	Total Number of Household as in 2011		:	38921
7	Number of Household per Ward		:	865
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)		:	28.8
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	23.0
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	:	5759.2
		COD	:	9790.6
		TKN	:	1151.8
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) Data Sheet				
City: Muzaffarpur			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	26.43
2	Population as in 2011		:	354462
3	Population Growth Rate as in 2011 (%)		:	16.02
4	Total Number of Wards		:	49
5	Population per Ward (Thousands)		:	7,234
6	Total Number of Household as in 2011		:	65870
7	Number of Household per Ward		:	1344
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		:	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)		:	47.9
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)		:	38.3
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 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	:	9570.5
		COD	:	16269.8
		TKN	:	1914.1
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	BahuriGandak River
32	Number of Drains/Nallah for Wastewater Disposal		:	20
33	Number of Water Bodies		:	14
34	Gross Area of Water Bodies (sq km)		:	3.02
35	Area of Water Bodies as % of Total Area		:	<<1.0

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Patna			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	107.69
2	Population as in 2011		:	1684297
3	Population Growth Rate as in 2011 (%)		:	17.60
4	Total Number of Wards		:	72
5	Population per Ward (Thousands)		:	23,393
6	Total Number of Household as in 2011		:	294631
7	Number of Household per Ward		:	4092
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		:	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)		:	227.4
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)		:	181.9
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 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	:	45476.0
		COD	:	77309.2
		TKN	:	9095.2
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 (sq km)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<1.0

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Purnia			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	92.29
2	Population as in 2011		:	282248
3	Population Growth Rate as in 2011 (%)		:	64.40
4	Total Number of Wards		:	46
5	Population per Ward (Thousands)		:	6,136
6	Total Number of Household as in 2011		:	54058
7	Number of Household per Ward		:	1175
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		:	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)		:	38.1
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)		:	30.5
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 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	:	7620.7
		COD	:	12955.2
		TKN	:	1524.1
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Kosi& Ganga River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (sq km)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<1.0

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Saharsa			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	21.13
2	Population as in 2011		:	156540
3	Population Growth Rate as in 2011 (%)		:	25.06
4	Total Number of Wards		:	41
5	Population per Ward (Thousands)		:	3,818
6	Total Number of Household as in 2011		:	28862
7	Number of Household per Ward		:	704
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		:	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)		:	21.1
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)		:	16.9
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 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	:	4226.6
		COD	:	7185.2
		TKN	:	845.3
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Koshi River
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (sq km)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<1.0

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Sasaram			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.9
2	Population as in 2011		:	147408
3	Population Growth Rate as in 2011 (%)		:	12.38
4	Total Number of Wards		:	40
5	Population per Ward (Thousands)		:	3685
6	Total Number of Household as in 2011		:	23,866
7	Number of Household per Ward		:	597
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)		:	500
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)		:	19.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	11.29
20	Per Capita Sewage Generation (lpcd)		:	76.62
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3980.02
		COD	:	6766.03
		TKN	:	796.00
30	Wastewater Disposal Means		:	River and Land
31	Name of River/Streams for Wastewater Disposal		:	Kadir & Sone
32	Number of Drains/Nallah for Wastewater Disposal		:	9
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) Data Sheet				
City: Siwan		**State: Bihar**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	13.05
2	Population as in 2011		:	135066
3	Population Growth Rate as in 2011 (%)		:	22.88
4	Total Number of Wards		:	38
5	Population per Ward (Thousands)		:	3,554
6	Total Number of Household as in 2011		:	21223
7	Number of Household per Ward		:	559
8	Surface Water Supply (MLD)		:	3
9	Ground Water (GW) Supply (MLD)		:	2.84
10	Number of Bore Wells		:	8
11	Ground Water Extraction per Bore Well (MLD)		:	0.38
12	Number of Hand Pumps/ Tubewells		:	550
13	Ground Water Extraction per Hand Pump (lpd)		:	500
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)		:	6.1
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	45.3
19	Total Sewage Generation (MLD)		:	3.2
20	Per Capita Sewage Generation (lpcd)		:	24.0
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3646.8
		COD	:	6199.5
		TKN	:	729.4
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	River Daha
32	Number of Drains/Nallah for Wastewater Disposal		:	2
33	Number of Water Bodies		:	2
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	NA

Appendix-2

Compilation of Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class II Cities/Towns in Bihar

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Araria			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	30.97
2	Population as in 2011		:	79021
3	Population Growth Rate as in 2011 (%)		:	29.84
4	Total Number of Wards		:	32
5	Population per Ward (Thousands)		:	2,469
6	Total Number of Household as in 2011		:	15248
7	Number of Household per Ward		:	477
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		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	4
15	Total Pumping Capacity (MLD)		:	4
16	Average Water Supply Rate from ULB Sources (lpcd)		:	NA
17	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	10.7
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)		:	8.5
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 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	:	2133.6
		COD	:	3627.1
		TKN	:	426.7
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Panar River
32	Number of Drains/Nallah for Wastewater Disposal		:	13
33	Number of Water Bodies		:	NA
34	Gross Area of Water Bodies (sq km)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<1.0

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Arwal			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	24.43
2	Population as in 2011		:	51849
3	Population Growth Rate as in 2011 (%)		:	NA
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,074
6	Total Number of Household as in 2011		:	8453
7	Number of Household per Ward		:	338
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)		:	7.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	5.6
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	:	1399.9
		COD	:	2379.9
		TKN	:	280.0
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sone 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) Data Sheet				
City: Barauni			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	17.55
2	Population as in 2011		:	71660
3	Population Growth Rate as in 2011 (%)		:	416.21
4	Total Number of Wards		:	4
5	Population per Ward (Thousands)		:	17,915
6	Total Number of Household as in 2011		:	12964
7	Number of Household per Ward		:	3241
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)		:	9.7
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	7.7
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	:	1934.8
		COD	:	3289.2
		TKN	:	387.0
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) Data Sheet				
City: Barh			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.50
2	Population as in 2011		:	61470
3	Population Growth Rate as in 2011 (%)		:	26.89
4	Total Number of Wards		:	27
5	Population per Ward (Thousands)		:	2,277
6	Total Number of Household as in 2011		:	9310
7	Number of Household per Ward		:	345
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)		:	8.3
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	6.6
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	:	1659.7
		COD	:	2821.5
		TKN	:	331.9
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) Data Sheet				
City: Banipur			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	46.02
2	Population as in 2011		:	75317
3	Population Growth Rate as in 2011 (%)		:	NA
4	Total Number of Wards		:	29
5	Population per Ward (Thousands)		:	2,597
6	Total Number of Household as in 2011		:	15078
7	Number of Household per Ward		:	520
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)		:	10.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	8.1
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	:	2033.6
		COD	:	3457.1
		TKN	:	406.7
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Kamla 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) Data Sheet				
City: Bhabua			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.12
2	Population as in 2011		:	50179
3	Population Growth Rate as in 2011 (%)		:	20.12
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,007
6	Total Number of Household as in 2011		:	7855
7	Number of Household per Ward		:	314
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)*		:	5.4
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	:	1354.8
		COD	:	2303.2
		TKN	:	271.0
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Suwara 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) Data Sheet				
City: Bihat			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	23.45
2	Population as in 2011		:	67952
3	Population Growth Rate as in 2011 (%)		:	NA
4	Total Number of Wards		:	7
5	Population per Ward (Thousands)		:	9,707
6	Total Number of Household as in 2011		:	12958
7	Number of Household per Ward		:	1851
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)		:	9.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	7.3
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	:	1834.7
		COD	:	3119.0
		TKN	:	366.9
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) Data Sheet				
City: Daudnagar			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	13.96
2	Population as in 2011		:	52364
3	Population Growth Rate as in 2011 (%)		:	37.75
4	Total Number of Wards		:	23
5	Population per Ward (Thousands)		:	2,277
6	Total Number of Household as in 2011		:	8111
7	Number of Household per Ward		:	353
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)		:	7.1
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	:	1413.8
		COD	:	2403.5
		TKN	:	282.8
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sone 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) Data Sheet				
City: Dumaraon			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	15.33
2	Population as in 2011		:	53618
3	Population Growth Rate as in 2011 (%)		:	17.05
4	Total Number of Wards		:	26
5	Population per Ward (Thousands)		:	2,062
6	Total Number of Household as in 2011		:	8621
7	Number of Household per Ward		:	332
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)*		:	5.8
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	:	1447.7
		COD	:	2461.1
		TKN	:	289.5
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) Data Sheet				
City: Fatwah		**State: Bihar**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.90
2	Population as in 2011		:	50961
3	Population Growth Rate as in 2011 (%)		:	31.78
4	Total Number of Wards		:	23
5	Population per Ward (Thousands)		:	2,216
6	Total Number of Household as in 2011		:	8225
7	Number of Household per Ward		:	358
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)		:	6.9
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	:	1375.9
		COD	:	2339.1
		TKN	:	275.2
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) Data Sheet				
City:Forbesganj			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.98
2	Population as in 2011		:	50475
3	Population Growth Rate as in 2011 (%)		:	21.63
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,019
6	Total Number of Household as in 2011		:	9632
7	Number of Household per Ward		:	385
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	:	1362.8
		COD	:	2316.8
		TKN	:	272.6
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Koshi 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) Data Sheet				
City: Gopalganj			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	11.11
2	Population as in 2011		:	67339
3	Population Growth Rate as in 2011 (%)		:	23.67
4	Total Number of Wards		:	28
5	Population per Ward (Thousands)		:	2,405
6	Total Number of Household as in 2011		:	10796
7	Number of Household per Ward		:	386
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)		:	9.1
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	7.3
20	Per Capita Sewage Generation (lpcd)		:	110.5
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	:	1818.2
		COD	:	3090.9
		TKN	:	363.6306
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Gandak 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) Data Sheet				
City:Hilsa			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	22.96
2	Population as in 2011		:	51052
3	Population Growth Rate as in 2011 (%)		:	35.15
4	Total Number of Wards		:	26
5	Population per Ward (Thousands)		:	1,964
6	Total Number of Household as in 2011		:	8681
7	Number of Household per Ward		:	334
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)		:	6.9
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	:	1378.4
		COD	:	2343.3
		TKN	:	275.7
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Falgu 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) Data Sheet				
City:Jamui			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	26.45
2	Population as in 2011		:	87357
3	Population Growth Rate as in 2011 (%)		:	30.78
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	2,912
6	Total Number of Household as in 2011		:	14509
7	Number of Household per Ward		:	484
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)		:	11.8
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	9.4
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	:	2358.6
		COD	:	4009.7
		TKN	:	471.7
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Kiul 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) Data Sheet				
City: Lakhisarai			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	24.79
2	Population as in 2011		:	99979
3	Population Growth Rate as in 2011 (%)		:	28.38
4	Total Number of Wards		:	33
5	Population per Ward (Thousands)		:	3,030
6	Total Number of Household as in 2011		:	17214
7	Number of Household per Ward		:	522
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)		:	13.5
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	10.8
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	:	2699.4
		COD	:	4589.0
		TKN	:	539.9
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Kiul 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) Data Sheet				
City: Madhepura			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	25.84
2	Population as in 2011		:	54472
3	Population Growth Rate as in 2011 (%)		:	20.97
4	Total Number of Wards		:	26
5	Population per Ward (Thousands)		:	2,095
6	Total Number of Household as in 2011		:	10577
7	Number of Household per Ward		:	407
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	:	1470.7
		COD	:	2500.3
		TKN	:	294.1
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Koshi 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) Data Sheet				
City: Madhubani			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.52
2	Population as in 2011		:	75736
3	Population Growth Rate as in 2011 (%)		:	14.16
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	2,525
6	Total Number of Household as in 2011		:	13583
7	Number of Household per Ward		:	453
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)		:	10.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	8.2
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	:	2044.9
		COD	:	3476.3
		TKN	:	409.0
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Kamla 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) Data Sheet				
City: Masaurhi			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	9.43
2	Population as in 2011		:	59803
3	Population Growth Rate as in 2011 (%)		:	32.17
4	Total Number of Wards		:	26
5	Population per Ward (Thousands)		:	2,300
6	Total Number of Household as in 2011		:	10210
7	Number of Household per Ward		:	393
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)		:	8.1
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	6.5
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	:	1614.7
		COD	:	2745.0
		TKN	:	322.9
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Sone and 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) Data Sheet				
City: Mokameh			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	14.18
2	Population as in 2011		:	60678
3	Population Growth Rate as in 2011 (%)		:	7.18
4	Total Number of Wards		:	28
5	Population per Ward (Thousands)		:	2,167
6	Total Number of Household as in 2011		:	9742
7	Number of Household per Ward		:	348
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)		:	8.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	6.6
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	:	1638.3
		COD	:	2785.1
		TKN	:	327.7
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

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Nawada		**State: Bihar**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.68
2	Population as in 2011		:	98029
3	Population Growth Rate as in 2011 (%)		:	19.71
4	Total Number of Wards		:	33
5	Population per Ward (Thousands)		:	2,971
6	Total Number of Household as in 2011		:	15399
7	Number of Household per Ward		:	467
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)		:	13.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	10.6
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	:	2646.8
		COD	:	4499.5
		TKN	:	529.4
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Panchane 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) Data Sheet				
City: Phulwari Sharif			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.48
2	Population as in 2011		:	81740
3	Population Growth Rate as in 2011 (%)		:	52.93
4	Total Number of Wards		:	28
5	Population per Ward (Thousands)		:	2,919
6	Total Number of Household as in 2011		:	13404
7	Number of Household per Ward		:	479
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)		:	11.0
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	8.8
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	:	2207.0
		COD	:	3751.9
		TKN	:	441.4
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) Data Sheet				
City: Raxaul Bazar			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.82
2	Population as in 2011		:	55536
3	Population Growth Rate as in 2011 (%)		:	33.47
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,221
6	Total Number of Household as in 2011		:	9513
7	Number of Household per Ward		:	381
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)		:	7.5
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	6.0
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	:	1499.5
		COD	:	2549.1
		TKN	:	299.9
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Sirsiya 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) Data Sheet				
City: Samastipur			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.45
2	Population as in 2011		:	67925
3	Population Growth Rate as in 2011 (%)		:	9.56
4	Total Number of Wards		:	28
5	Population per Ward (Thousands)		:	2,426
6	Total Number of Household as in 2011		:	13135
7	Number of Household per Ward		:	469
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)		:	9.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	7.3
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	:	1834.0
		COD	:	3117.8
		TKN	:	366.8
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	BurhiGandak 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) Data Sheet				
City: Sheikhpura			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	27.90
2	Population as in 2011		:	62927
3	Population Growth Rate as in 2011 (%)		:	45.96
4	Total Number of Wards		:	27
5	Population per Ward (Thousands)		:	2,331
6	Total Number of Household as in 2011		:	10181
7	Number of Household per Ward		:	377
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)		:	8.5
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	6.8
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	:	1699.0
		COD	:	2888.3
		TKN	:	339.8
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Tati 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) Data Sheet				
City: Sitamarhi			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.35
2	Population as in 2011		:	67818
3	Population Growth Rate as in 2011 (%)		:	-6.77
4	Total Number of Wards		:	28
5	Population per Ward (Thousands)		:	2,422
6	Total Number of Household as in 2011		:	12718
7	Number of Household per Ward		:	454
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)		:	9.2
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	7.3
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	:	1831.1
		COD	:	3112.8
		TKN	:	366.2
30	Wastewater Disposal Means		:	River & Land
31	Name of River/Streams for Wastewater Disposal		:	Gandak 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) Data Sheet				
City: Sultanganj			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.29
2	Population as in 2011		:	52892
3	Population Growth Rate as in 2011 (%)		:	26.06
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,116
6	Total Number of Household as in 2011		:	9410
7	Number of Household per Ward		:	376
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)		:	7.1
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	:	1428.1
		COD	:	2427.7
		TKN	:	285.6
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) Data Sheet				
City: Supaul			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	22.37
2	Population as in 2011		:	65437
3	Population Growth Rate as in 2011 (%)		:	20.99
4	Total Number of Wards		:	28
5	Population per Ward (Thousands)		:	2,337
6	Total Number of Household as in 2011		:	12495
7	Number of Household per Ward		:	446
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)		:	8.8
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	7.1
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	:	1766.8
		COD	:	3003.6
		TKN	:	353.4
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Koshi 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) Data Sheet				
City:Teghra			**State: Bihar**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	15.80
2	Population as in 2011		:	56234
3	Population Growth Rate as in 2011 (%)		:	NA
4	Total Number of Wards		:	5
5	Population per Ward (Thousands)		:	11,247
6	Total Number of Household as in 2011		:	10772
7	Number of Household per Ward		:	2154
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	:	1518.3
		COD	:	2581.1
		TKN	:	303.7
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 the total sewage discharge through point sources in river Ganga basin (Adopted from CPCB, 2013)

State	Region		Name of the Drains	Discharge	Remark
Uttarakhand	Uttarkashi &Devprayag	1	Storm Water Drain Uttarkashi	1.73	Domestic, industrial wastewater
		2	Kodianala, Devprayag	1.73	
	Rishikesh	1	Triveni Drain/ SaraswatiNala	11.5	
		2	Rambha nadi/drain	152	
		3	LakkarGhat STP Drain	12	
		4	IDPL- STP Drain	3	
		5	Swarg Ashram STP Drain	2.5	
		6	GadhiShyampur Drain	0	
	Haridwar	1	Jagjeetpur STP Drain	42	
		2	Kassavan Drain	11	
		3	Pandey wala Drain	0	
		4	MatraSadan Drain	3.8	
		5	Rawlirao Drain	2.8	
	Laksar	1	Laksar drain	196	
Uttar Pradesh	Sukratal	1	Banganga River (at confluence with river Ganga)	0	Domestic, industrial wastewater
	Bijnor	1	Hemraj Drain	0	
		2	Bijnor Sewage Drian	7.6	
		3	Malan River (at confluence with river Ganga)	16.5	
		4	Chhoiya Drain (at conf. with river Ganga)	124	
	Gajrola and Babrala	1	Bagad River	1.8	
	Garh	1	Garh Drain	14	
		2	Fuldehra Drain (at confluence with river Ganga)	32	
	Badaun	1	Badaun Sewage Drain	29.9	
		2	Sot River	42	
	Anupshar	1	Anupsahar STP Drain-1	0.85	
		2	Anupsahar STP Drain-2	1.75	
	Kanpur	1	Dabka Nalla-1 (Kachhanala)	94	
		2	Dabka Nalla-2 (Pakkanala)	25	

		3	Dabka Nalla-3 (Pakkanala)	0.26	
		4	Shetla Bazar (Kachhanala)	29	
		5	WazidpurNalla	54	
		6	SattiChaura	1.1	
		7	GolaghatNala	0.83	
		8	BhagwatdasNala	11	
		9	Sisamau Nala	197	
		10	PermiyaNala	186	
	Unnao	1	Loni Drain	41.9	
		2	City Jail Drain	35.86	
	Fatehpur to Raibareilly	1	Pandu River	1396	
		2	Seepage	0	
		3	Arihari Drain	34.25	
		4	NTPC drain	60.29	
	Allahabad	1	Rasulabad-1 (Pakkanala)	29.8	
		2	Rasulabad-2 (Pakkanala)	20.2	
		3	Rasulabad-3 (kachhanala)	14.2	
		4	Rasulabad-4 (Kachhanala)	48.5	
		5	Nehru Drain	7	
		6	Kodar Drain	20	
		7	Pongaghat Drain	8	
		8	Solari Drain	34.8	
		9	Maviya Drain	65	
		10	Mugalaha Drain	46	
	Mirzapur	1	GhoreSaheed drain	86.4	
		2	Khandwa drain	62.21	
	Varanasi	1	Rajghat drain	16.19	
		2	Nagwa drain	66.45	
		3	Ramnagar drain	23.65	

		4	Varuna drain	304.5	
		5	Shivala Drain	0	
Bihar	Buxer	1	Sidhharth Drain	7.5	Domestic ,industrial wastewater
		2	Sati Ghat Drain	7.7	
		3	Nath Baba Drain	5.2	
		4	Tadka Drain	6.8	
		5	Sariupur Drain	6.7	
	Patna	1	Danapur Cantt Drain	10.1	
		2	DighaGhat Drain	9.6	
		3	Kurzi Drain	120.4	
		4	Rajapur Drain	40.7	
		5	BanshGhat Drain	6.6	
		6	CollectriateGhat Drain	14.3	
		7	MittanGhat Drain	5.4	
		8	Mahavir Drain	5.4	
		9	Badshahi Drain	21.4	
	Munger	1	ITC Drain	10.13	
		2	Lal Darwala Drain	8.5	
	Bhagalpur	1	Jamunia Drain	82.61	
		2	Adampur Drain	11.75	
		3	Sarkikal Drain	6.62	
		4	Saklichand Drain	7.7	
		5	Hathiya Drain	11.8	
		6	Chama Drain	10.6	
		7	BarariGhat Drain	9.7	
	Kahalgaon	1	Kowa Drain	147.28	
		2	Kagzi Drain	5.2	
West Bengal	Left bank	1	Circular Canal adjacent to River Hooghly	320.3	Domestic, industrial wastewater
		2	TollyNala adjacent to Dahighata	380.2	
		3	Dhankheti Khal Near CESE Intake Point	65.2	

		4	Akhra Food Ghar Adjacent to Hooghly River	83.4	
		5	Khardah Municipal Drain Connected to Hooghly River	63	
		6	DebitalaPancha Khal, Ichapore (Adjacent to R.N.S Brick Field)	46	
		7	Khal Near Nimtala Burning Ghat	20.7	
		8	MuniKhali Khal Adjacent to Arun MistriGhat	19.4	
		9	Kashipur Khal Adjacent to Khamarhati Jute Mill	16.1	
		10	In front of S.P Bunglow, S.N Banerjee Road, Mistry Ghat, Barrackpore	22.7	
		11	Adjacent to Cossiporeferryghat&gunshellDataory	19.8	
		12	ChitpurGhat, Dilarjung Road	15	
		13	Majher Char Khal & Kalyani combined waste sewage near brick field with foam near sluice gate	16.5	
		14	Drain Opposite to Fort William , Judges Court Ghat	7.65	
		15	Adjacent to GarifaRly.Stn., Patterson road, adjacent to Ram Ghat	7.78	
		16	Adjacent to Garifa Rly. Stn.(North side) on Patterson road(domestic)	9.68	
		17	Baranagar Khal Adjacent to Ratan Babu Ghat	10.3	
		18	Mohan Misra lane & crossing of Ghosh para road, Halisahar, adjacent to Prabhat Sangha playground	10.7	
		19	Bagher Khal, adjacent to Hotel Dreamland, near sluice gate, open pucca drain	11.1	
		20	Drain between Pratapnagar and Rajbari	4.19	
		21	By the side of Alliance jute mill, Jagatdal Jetty, opposite side of bank Chandannagar Jetty	4.96	
		22	Adjacent to boundary wall of Gandhighat& near Upashak Social Welfare Organization, Gandhighat, South gate-1,Barrackpore	3.61	
		23	Balughat, Manirampur pucca drain	2.28	

		24	BishalakshmiGhat, adjacent to CESC Power House, Titagarh	4.01	
		25	Thanar Khal, adjacent to Thana & over tank by Naihati Municipality	5.29	
		26	Sasanghat	2.92	
		27	Open pucca drain carrying waste for ward nos. 9 & 10	1.2	
		28	Saidabad kunjaBhata(opposite to auto center)ward no. 25	1.26	
		29	Shovabazar Canal Near Shovabazar Launch Ghat	0.42	
		30	Open pucca drain flowing adjacent to Diamond club,	0.96	
		31	Open Kuccha drain carrying domestic waste for Ward 16	0.66	
		32	Adjacent to boundary wall of Jangipur College and B D Office	1.08	
		33	Shasan (burning) Ghat,Bhairabpur, Purbaparaword9 no16	0.54	
		34	RadharGhat(Old IchagrashasanGhat) Bhairabpur, Purbapara	0.48	
	Right bank	1	Bhagirathi lane, Mahesh, Serampore	41.5	
		2	Hastings Ghat road, adjacent to Hastings jute mill, Rishra, Hooghly	42	
		3	Najerganj Khal, north side of Shalimar paint, near Hans Khali Poll, Sankrail	326	
		4	Singhi More Khal (Singhimara Khal), Manikpur, Sankrail, near brick field	26.1	
		5	Chatra Khal, Beniapara, Serampore, Behind Ganga Darsan, Raja K. L Goswami street, Serampore	28.4	
		6	Bagh Khal, border of Rishra&Konnagar Municipality on G.T Road	18.4	
		7	TelkalGhat	21.9	

		8	RamkrishnaMullickghat Road	12.2	
		9	130 Foreshore Road Martin Burn	17.6	
		10	Shibpur Burning Ghat	13.3	
		11	Jagannath Ghat Road, opposite to China pharmacy, by the side of Bijoy lakshmi rolling mill	17.3	
		12	Combined of Swarasati Khal and Rajganj Khal, near Sankrail Police station, near PareshnathHazraGhat	2.77	
		13	Champdany Ferry Ghat, opposite nabalgarrage, Champdany ,Poura bhavan road, Pin-712222	4.15	
		14	South side of DawnagaziGhat, Bally Municipality, Bally	1.31	
		15	JagatnathGhat, Ward No.-14, LalababuSaha Rd., South side of KathgolaGhat	9.33	
		16	101,Foreshore Road	6.24	
		17	Kuthighat South Side of Belur Math	5.76	
		18	N.C.Pal Khal, Sankrail	3.87	
		19	Adjacent to bazarpara and Garighat (ward no. 18) Kuccha drain	1.2	
		20	Shalimar Coal Deposit No 1Naresh Kumar Ward	0.16	
			Total Discharge	6088.4	

Assessment of Domestic Pollution Load from Urban Agglomeration in Ganga Basin: Madhya Pradesh

GRBMP: Ganga River Basin Management Plan

by

Consortium of 7 "Indian Institute of Technology"s

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 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 (GRBMP). 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 GRBMP. 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. A list of persons who have contributed directly and names of those who have taken lead in preparing this report is given on the reverse side.

Dr Vinod Tare
Professor and Coordinator
Development of GRBMP
IIT Kanpur

The Team

1. A AKazmi, IIT Roorkee *kazmifce@iitr.ernet.in*
2. A K Gupta, IIT Kharagpur *akgupta18@rediffmail.com,akgupta@iitkgp.ac.in*
3. A K Mittal, IIT Delhi *akmittal@civil.iitd.ernet.in*
4. A K Nema, IIT Delhi *aknema@gmail.com*
5. Ajay Kalmhad, IIT Guwahati *kajay@iitg.ernet.in*
6. Anirban Gupta, BESU Shibpur *guptaanirban@hotmail.com*
7. Arun Kumar, IIT Delhi *arunku@civil.iitd.ac.in*
8. G J Chakrapani, IIT Roorkkee *gjcurfes@iitr.ernet.in*
9. GazalaHabib, IIT Delhi *gazalahabib@gmail.com*
10. Himanshu Joshi, IIT Roorkee *himanshujoshi58@gmail.com*
11. InduMehrotra, IIT Roorkee *indumfce@iitr.ernet.in*
12. I M Mishra, IIT Roorkee *imishfch@iitr.ernet.in*
13. Ligy Philip, IIT Madras *ligy@iitm.ac.in*
14. M MGhangrekar, IIT Kharagpur *ghangrekar@civil.iitkgp.ernet.in*
15. MukeshDoble, IIT Bombay *mukeshd@iitm.ac.in*
16. P K Singh, IT BHU *dr_pksingh1@rediffmail.com*
17. Purnendu Bose, IIT Kanpur *pbose@iitk.ac.in*
18. R Ravi Krishna, IIT Madras *rrk@iitm.ac.in*
19. Rakesh Kumar, NEERI Nagpur *r_kumar@neeri.res.in*
20. S M Shivnagendra, IIT Madras *snagendra@iitm.ac.in*
21. SaumyenGuha, IIT Kanpur *sguha@iitk.ac.in*
22. Shyam R Asolekar, IIT Bombay *asolekar@iitb.ac.in*
23. SudhaGoel, IIT Kharagpur *sudhagoel@civil.iitkgp.ernet.in*
24. Suparna Mukherjee, IIT Bombay *mitras@iitb.ac.in*
25. T R Sreekrishanan, IIT Delhi *sree@dbeb.iitd.ac.in*
26. Vinod Tare, IIT Kanpur *vinod@iitk.ac.in*
27. Vivek Kumar, IIT Roorkee *vivekfpt@iitr.ernet.in*

Lead Authors

1. Vinod Tare, IIT Kanpur
2. Purnendu Bose, IIT Kanpur
3. Vishal Kapoor, IIT Kanpur
4. Suresh Kr Gurjar, IIT Kanpur
5. Abhishek Gaur, IIT Kanpur

Contents

1.0 Introduction

Madhya Pradesh is located in the geographic heart of India and covers an area of 308, 252 sq. km (9.38% of the land area of the country) (NIDM, 2000). It is the second largest state by area and sixth largest state by population. Madhya Pradesh shares its boundary with seven other states. The state comprises six percent of the total population of the country. The state is bordered on the west by Gujarat, Rajasthan and Maharashtra, northern border of the state has the state of Rajasthan and Uttar Pradesh, and the southern states are Maharashtra and Andhra Pradesh. The entire eastern border of the state is bounded by the states of Chattisgarh and Jharkhand.
It is a part of peninsular plateau of India lying in north central part, whose boundary can be classified in the north by the plains of Ganga-Yamuna, in the west by the Aravali, east by the Chhattisgarh plain and in the south by the Tapti valley and the plateau of Maharashtra.

The Ganga River Basin (GRB) has a total catchment area of 1,086,000 sq km across India, China, Nepal and Bangladesh. The river basin nearly covers 26% (861,404 sq km) of the total geographical area of the country. Madhya Pradesh is one of the 11 states (Uttarakhand, Uttar Pradesh, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh, Jharkhand and West Bengal) of the entire GRB in India through which the river Ganga or her tributaries flows. In the state of Madhya Pradesh, ten major rivers are originated. As Madhya Pradesh is located in the center of India, most of the rivers are interstate rivers. The rivers contributing in Ganga River Basin are Chambal, Sindh, Betwa, Ken and Son, the first four rivers flow northward and meet with Yamuna whereas the fifth river falls directly into Ganga (Figure 1). Narmada, Tapti and Mahi rivers flow westward and meet Arabian Sea whereas Wainganga and Pench rivers meet Godavari in the south. A comparison of state wise distribution of GRB area with the geographical area of different states is presented in Table 1.

Table 1: State-wise Distribution of the Ganga River Basin Area

State/ Union Territory	*Total Geographical Area (sq km)	#Area contributing to Ganga Basin (sq km)	Percentage of the Basin Area (%)
Uttarakhand	53,483	53,436	6.2
Uttar Pradesh	240,928	240,928	28
Bihar	94,163	94,163	10.9
Jharkhand	79,716	49,798	5.8
Madhya Pradesh	**308,252**	198,962	23.1
Chhattisgarh	135,192		
Delhi	1,484	1,484	0.17
Haryana	44,212	34,341	4.0
Himachal Pradesh	55,673	4,317	0.5
Rajasthan	342,239	112,490	13.1
West Bengal	88,752	71,485	8.3

Source: *Census 2011

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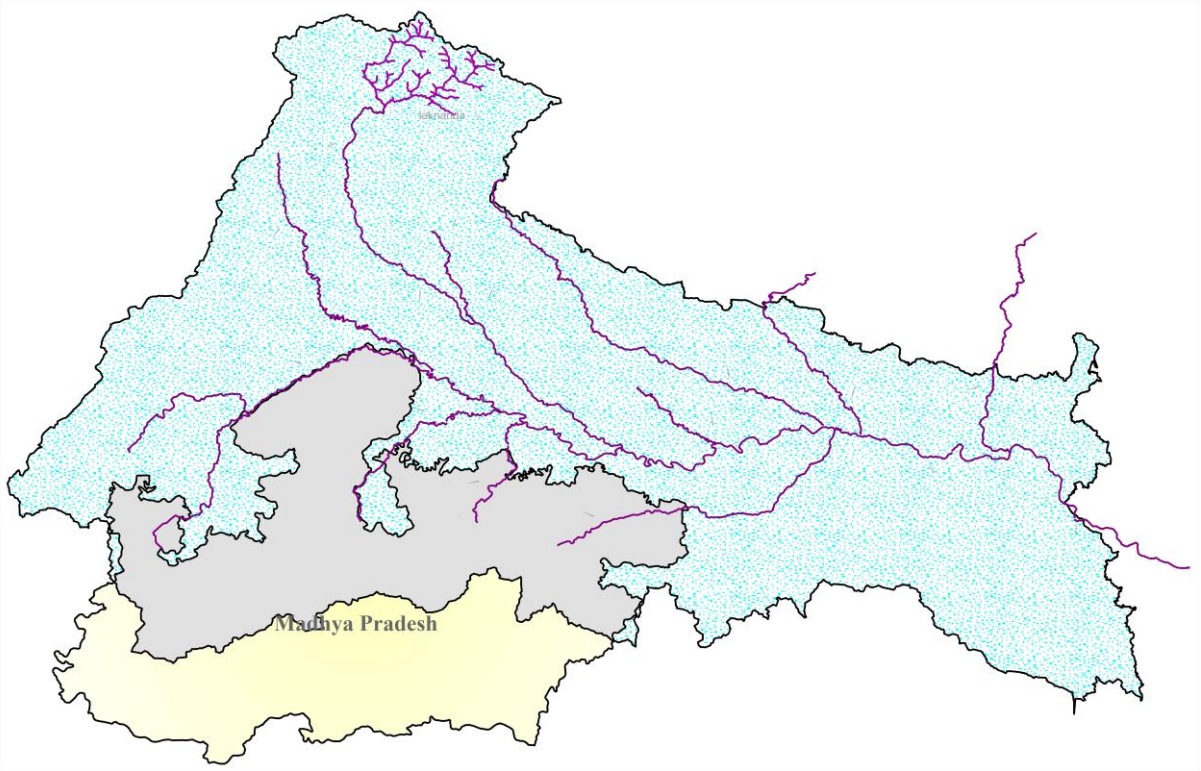

Figure 1: Ganga River Basin with the major tributaries in the state of Madhya Pradesh

Catchments of many rivers of India lie in Madhya Pradesh. The Ganga River Basin which is roughly rectangular in shape and the river flows approximately in the direction of North West to South East has also lie in the state. Most of the rivers which drain into the Ganga flow through the state are Chambal, Shipra, Kali Sindh, Parbati, Sind, Betwa, Dhasan and Ken rivers being the main tributaries of the Yamuna. The Eastern parts of the Ganga basin includes the river Son basin, which directly merge into the Ganga at Dinapur in the Patna district of Bihar. Ganga River Basin (contribution through Chambal, Ken, Sindh, Betwa and Son) covers 53.89% of the total geographic area (308,245 sq km) of the state. These sub-basins are formed by the merging of a number of tributaries and sub-tributaries. The sub basin wise percent area coverage in the state is mentioned in Table 2.

The major portion of the Sindh (94.12%) and Ken basins (86.41%) lie in the state while 68.12% of the Betwa basin and 43.23 and 40.18% of the Son and Chambal basins, respectively, also occupy the geographical area of the state. All of these are inter-state rivers (Chambal between Madhya Pradesh (346 km), Uttar Pradesh (32 km), Rajasthan (225 km), common boundary between Madhya Pradesh and Rajasthan (217 km) and common boundary between Madhya Pradesh and Uttar Pradesh (145 km); Son between Madhya Pradesh (500 km), Uttar Pradesh (82 km) and Bihar (202 km); Ken between Madhya Pradesh (292 km) and Uttar Pradesh (84 km) and common boundary (51 km) between Madhya Pradesh and Uttar Pradesh; Betwa between Madhya Pradesh (232 km) and Uttar Pradesh (358 km); Sindh between Madhya Pradesh (461 km) and Uttar Pradesh (9 km)). The salient features of the tributaries in the state are represented in Table 3. The pictorial presentation of the subbasins distribution and its percentage coverage in the state is presented in Figure 2 and 3.

Table 2: GRB Sub-basin Areas Lying in the State

Basin / Subbasin	Percentage of the Basin Area (%) in the State
Betwa Basin	68.12
Ken Basin	86.41
Sindh Basin	94.12
Chambal Basin	40.18
Son Basin	43.23

Table 3: The Salient Features of Tributaries of the Ganga River Basin Contributing to the River Ganga in the State of Madhya Pradesh

	Major Tributaries/ Sub-tributaries of the state contributing to GRB				
Characteristics	**Son**	**Chambal**	**Sindh**	**Betwa**	**Ken**
Position	Right bank	Right bank	Right bank	Right bank	Right bank
Region of origin	Sonbhadra in the Maikala range of hills (M.P.)	North wards slope of the Vindhyan mountains in native state of Indore (M.P.)	North wards slope of the Vindhyan mountains originates at Hatoli (District Vidisha)	North wards slope of the Vindhyan mountains	North Western slope of the Vindhyan mountains in native state of Bhopal
Mouth	Ganga	Yamuna	Yamuna	Yamuna	Yamuna
Total length (km)	784	960	415	590	427
Total catchment area (sq km)	71,259	143,219	25,879	47,940	28,058
Percent catchment area in MP	43	40	94	68	86
River bed/ Soil texture	Alluvial sediments consist of clay, fine to coarse-grained sand, kankar and gravel	Stony rapid, sand banks and gravel bars	-	Stones, Sand, Riffle and Pools; Pebbles and Cobble	Rocks, Stones, Sand

Gopal and Sah (1993); Dwivedi (2006)

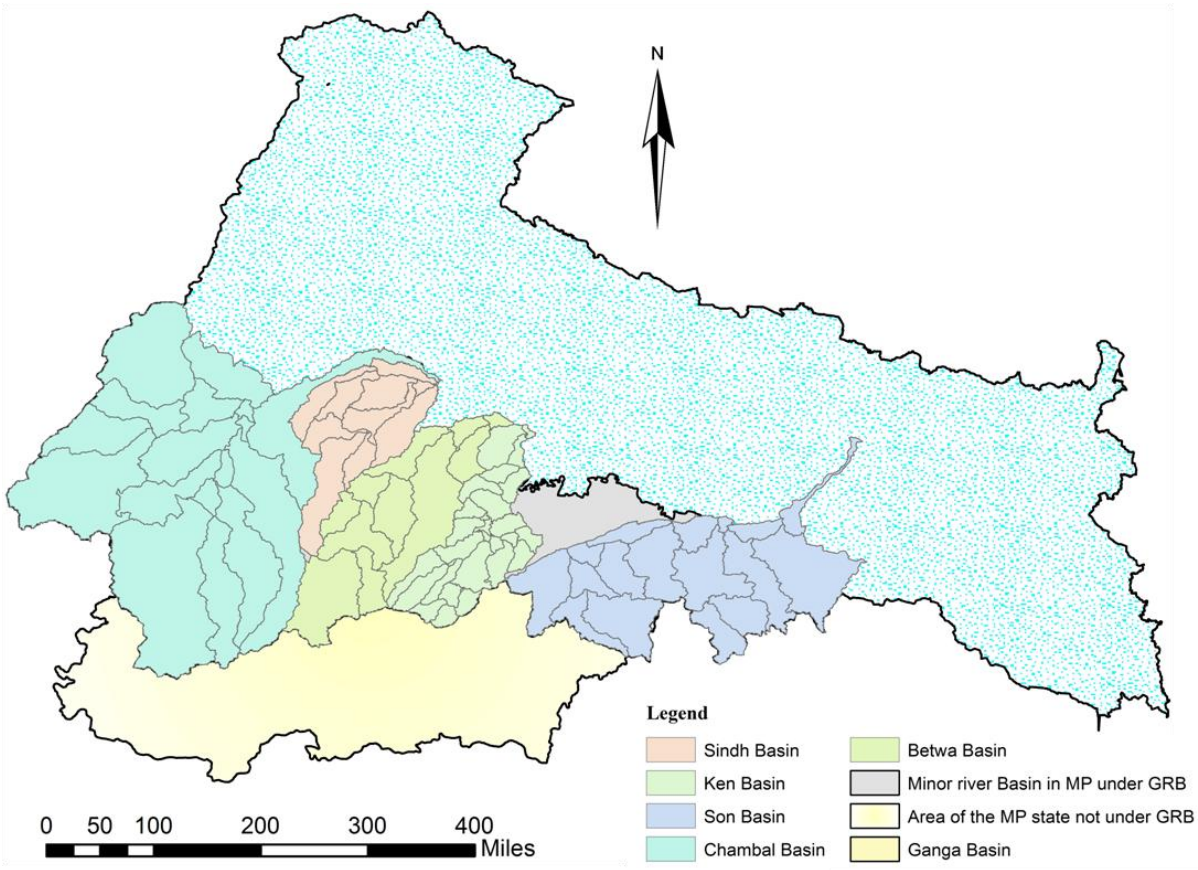

Figure 2: Major Sub-Basins of the State under Ganga River Basin

Figure 3: Basin Wise Percent Contribution of the major Basins in the State

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

The natural flow regime in the rivers and their tributaries in the state have been altered due to construction of a number of dams, barrages and reservoirs for water conservation and irrigation. The state also has strong rural base with more than 55,000 villages which primarily dependent on the natural water resources for their livelihood. In totality nearly 75% of the total population is engaged directly in agriculture. To nourish the agricultural fields the state has more than 750 dams out of which 364 are under GRB. These dams are not only for irrigation but also for flood control, recharging the water table, water supply and hydroelectric power generation. The details of the major projects on the rivers in the state are depicted in Table 4.

Table 4: Details of the Major Dams on the Rivers in the State of Madhya Pradesh

Projects	River	Year of Completion	Purpose
Aoda Dam	Seep	1934	Irrigation
Arnia Bahadarpur Dam	Gandhi	1980	Irrigation
Bagharru Dam	Bagharru	-	Irrigation
Bah Dam	Bah	-	Irrigation
Ban Sagar Dam	Son	2006	Hydroelectric, Irrigation, Water Storage
Bandia Dam	Negri	1994	Irrigation
Barchar Dam	Barchar	1986	Irrigation
Beniganj Dam	Beni	1974	Irrigation, Water Storage
Bhainsakhedi Dam	Chhotikali	1979	Irrigation
Bhaisawar Dam	Khatiari	1978	Irrigation
Bhitrigarh Dam	Niwar	1965	Irrigation
Bila Dam	Bilasi	1973	Irrigation
Birsinghpur Dam	Johilla	1988	Hydroelectric, Water Storage
Bisanda Dam	Bisandha	1992	Irrigation
Bohita Dam	Kantoor	1987	Irrigation
Budhna Dam	Budhna	1995	Irrigation, Water Storage
Chhapi Dam	Chhapi	1972	Irrigation
Chhoti Deori Dam	Bearma	1919	Irrigation
Chillar Dam	Chillar	1972	Irrigation
Dhamdhusar Dam	Charua	1958	Irrigation
Doraha Dam	Utawali	1983	Irrigation
Dudhi Dam	Dudhi	-	Irrigation
Gambhir Dam	Gambhir	1991	Water Storage
Gandhi Sagar Dam	Chambal	1960	Hydroelectric, Irrigation
Govindgarh Dam	Bihar Nadi	1970	Irrigation
Guradia Surdas Dam	Kali Sindh	1997	Irrigation

Projects	River	Year of Completion	Purpose
Harratola Dam	Butti/Shadol	1984	Irrigation
Harsi Dam	Parwati	1917	Irrigation
Hathaikheda Dam	Ajnar	1960	Irrigation, Water Storage
Hirapur Dam	Dehar Nadi	1984	Irrigation
Ichhawar Dam	Ajnal	1981	Irrigation
Jaguwa Dam	Bhadar	1921	Irrigation
Kacchal Dam	Kacchal	-	Irrigation
Kaketo Dam	Parwati	1934	Irrigation
Kaliasote Dam	Kaliasote	1988	Irrigation
Kanchan Dam	Kanchan	1979	Irrigation
Kankerkheda Dam	Utawali	1988	Irrigation
Karmodia Dam	Barna	1975	Irrigation, Pisciculture
Kazikhedi Dam	Kharkhara	1978	Irrigation
Kerwan Dam	Kerwan	1976	Irrigation
Kethan Dam	Kethan	1975	Irrigation
Koncha Dam	Koncha	1973	Irrigation
Kotwal Dam	Asan	1914	Irrigation
Kulgarhi Dam	Durha	1972	Irrigation
Kushalpura Dam	Dudhi	-	Irrigation
Kutni Feeder Dam	Kutni	-	Irrigation
Lakhunder Dam	Lakhunder	2000	Irrigation
Madikheda (Mohini Sagar) Dam	Sindh	2008	Hydroelectric, Irrigation
Mahan Dam	Mahan	2009	Irrigation
Mahuar Dam	Mahuar	-	Irrigation
Makroda Dam	Negri	1980	Irrigation
Mala Dam	Sun Nadi	1929	Irrigation
Marhi Dam	Semra Nadi	1981	Irrigation
Mehroi Dam	Son	1990	Irrigation
Morwan Dam	Gameri	1959	Irrigation
Nagda Dam	Shipra	1977	Irrigation
Naktara Dam	Amra	1980	Irrigation
Nandanwara Dam	Bargi Nadi	1964	Irrigation
Naren Dam	Naren	1981	Irrigation
Pagara Dam	Asan	1927	Irrigation
Paronch Dam	Paronch	1980	Irrigation
Pehsari Dam	Mowar	1984	Irrigation, Water Storage
Pillowa Dam	Sankh	1914	Irrigation
Pipliyakumar Dam	Banganga	1978	Irrigation
Rajiv Sagar (Maksudangarh) Dam	Bhader	2002	Irrigation
Rampur Dam	Negi	1917	Irrigation
Rampurakhurd Dam	Parwati	1992	Irrigation

Projects	River	Year of Completion	Purpose
Rangwan Dam		1957	Irrigation
Ratapani Dam	Godmedi	1965	Irrigation
Rehti Dam	Rehti	-	Irrigation
Sagad Dam	Sagar	-	Irrigation
Sahibkhedi Dam	Surasa	1981	Irrigation
Samrat Ashok Sagar (Halali) Dam	Halali	1997	Irrigation, Water Storage
Sanjay Sagar (Gomukh) Dam	Gomukh	1985	Irrigation
Sarro Dam	Dhonnai	1973	Irrigation
Shamsherpura Dam	Puchi	1992	Hydroelectric, Irrigation
Sirsa Dam	Koil	1953	Irrigation
Tigra Dam	Sankh	1917	Irrigation, Water Storage
Tillar Dam	Tillar	1987	Irrigation
Umrar Dam	Umrar	1978	Irrigation
Upper Kaketo Dam	Parwati	-	Irrigation
Yashvant Sagar Dam	Gambhir	1939	Water Storage

Adopted from India-wris (2015)

3. Demographic Profile of Ganga Basin in the State

Madhya Pradesh in total has 24 Class I cities, 21 Class II towns and 72 Class III towns in catchment of Ganga River as per estimate (based on Census-2011). The total population of the state according to Census 2011 is 72 million out of which 27.6% belong to the urban area. The population density in the state is about 236 people per square kilometer. Some of the Class I cities of M.P. in GRB are Bhind, Bhopal, Chhatarpur, Damoh, Datia, Dewas, Guna, Gwalior, Indore, Mandsaur, Morena, Murwara (Katni), Nagda, Neemach, Pithampur, Ratlam, Rewa, Sagar, Satna, Sehore, Shivpuri, Singrauli, Ujjain and Vidisha. Among all the cities Gwalior, Indore and Bhopal are the most populated cities having more than 1 million resident people according to the Population Census 2011.

The population resident under major basins lying in the state has also been estimated for both Class I and Class II cities/ towns. The largest population reside in Chambal Basin (Class I: 30.61%) and least (1.75%) in Son Basin where a single Class I town of the state comes under GRB. The second least populated basin is Ken (Class I: 2.24%). The least population of Class II town also belongs to Ken basin (0.47%) while maximum to Chambal basin (4.30%). The total population resident outside the selected basins for Class I cities in the state is 5.89%. The overall share of Class III population in the state is 16.76%. Figure 4 shows the population distribution of Class I cities, Class II and III towns in the major sub-basins of GRB in the state. Figures 5, 6 and 7 show the distribution of Class I cities and Class II and Class III towns in the state under Ganga River Basin.

The details of the area, population and the major river systems of all the Class I, II and III cities are presented in Tables 5-7, respectively. The average population of class I town in the state is 0.4 million, which is approximately six times and thirteen times higher than the population of class II and class III towns, respectively. Indore is the most populated class I city having the population of the order of 1.9 million while Nagda is the least populated (0.1 million) class I city. Dhar and Khurai are the cities having maximum and minimum population under class II towns of 0.09 and 0.05 million, respectively. In class III towns where the population is less than 0.05 million, the maximum population is in the Biaora town (0.049 million) while minimum is in Maksi (0.02 million).

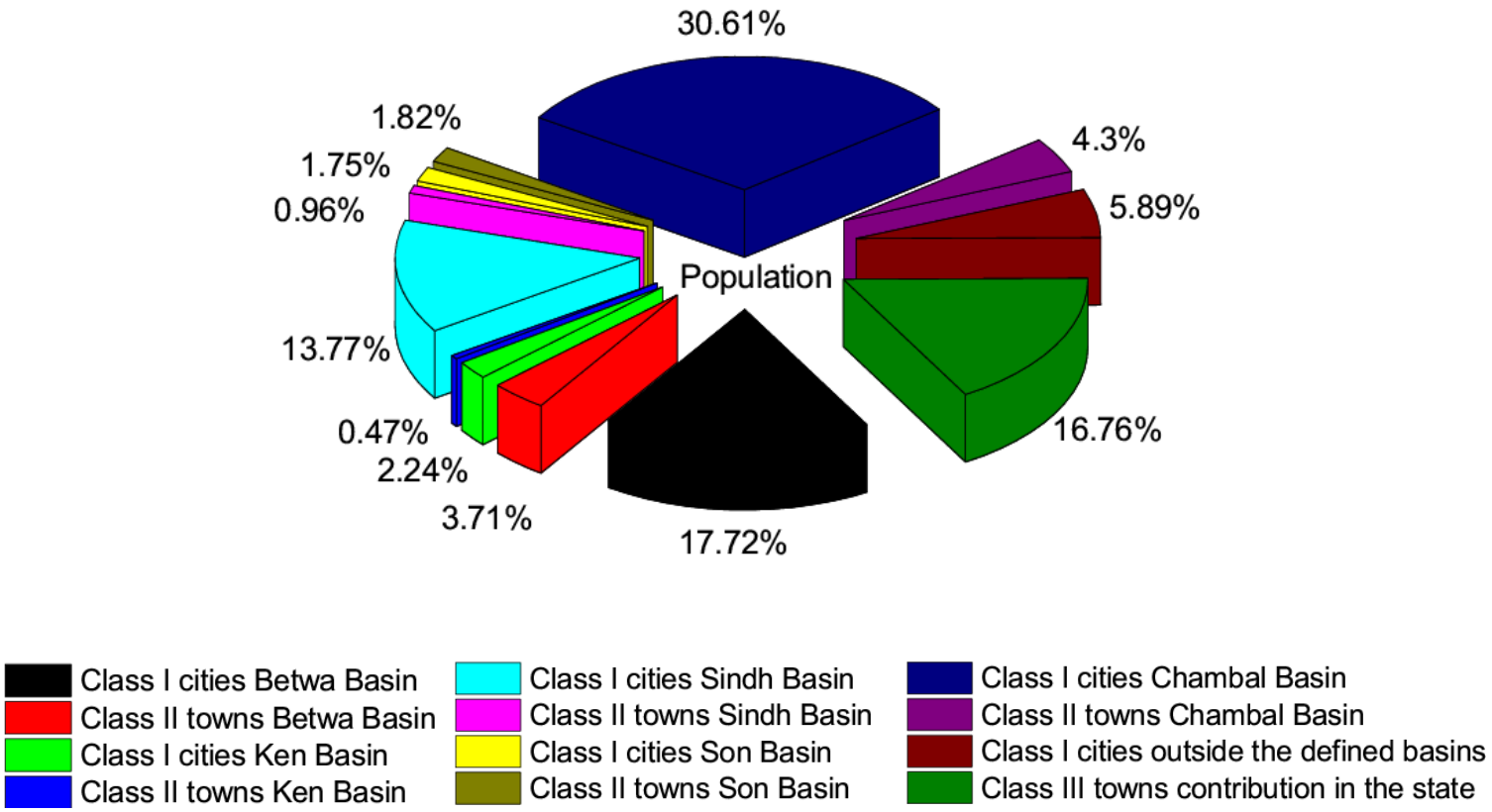

Figure 4: Population Distribution of Class I Cities and Class II, Class III Towns in the Major Sub-basins of GRB in the State

Table 5: Demography of Class I Cities in Portion of the Ganga Basin Lying in the State of Madhya Pradesh

S No.	Town Name	River System	Area (sq km)	Town Population (Census 2011)
1	Bhind	Kunwari River	17.18	197,585
2	Bhopal	Betwa River	285.88	1,798,218
3	Chhatarpur	Dhasan River	15.56	142,128
4	Damoh	Ken River	33.23	139,561
5	Datia	Sindh River	6.64	100,284
6	Dewas	Shipra River	100.22	289,550
7	Guna	Sindh River	45.75	180,935
8	Gwalior	SonRekha River	173.68	1,054,420
9	Indore	Saraswati River	172.39	1,994,397
10	Mandsaur	Shivna River	36.36	141,667
11	Morena	Asan River	12.00	200,482
12	Murwara (Katni)	Katni River	68.57	221,883
13	Nagda	Chambal River	23.83	100,039
14	Neemuch	Ratem River	22.04	128,561
15	Pithampur	Mahi River	75.51	126,200
16	Ratlam	-	39.19	264,914
17	Rewa	Beehar River	102.00	235,654
18	Sagar	Dhasan River	34.26	274,556
19	Satna	Satna River	79.01	282,977
20	Sehore	Parbati River	15.11	109,118
21	Shivpuri	Sindh River	81.11	179,977
22	Singrauli	-	284.46	220,257
23	Ujjain	Kshipra River	92.68	515,215
24	Vidisha	Betwa River	5.83	155,951

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Table 6: Demography of Class II towns in Portion of the Ganga Basin Lying in the State of Madhya Pradesh

S No.	Town Name	River System	Area (sq km)	Town Population (Census 2011)
1	Ashoknagar	Aur River	4.43	81,828
2	Ashta	Prabati river	15.78	53,184
3	Bangarda Chhota	Saraswati River	11.19	64,213
4	Basoda	Betwa River	16.55	78,289
5	Bina	Bina River	12.00	64,529
6	Dabra	Sindh River	3.79	61,277
7	Dhar	-	36.00	93,917
8	Gohad	Chambal River	14.91	58,939
9	Jaora	Maleni River	14.54	74,907
10	Khurai	Bina River	11.03	51,108
11	Kolar	Palar River	50.18	87,882
12	Mandideep	Kaliasot River	12.78	59,654
13	Panna	Kilkila River	10.00	59,091
14	Raghogarh -Vijaypur	Chopan & Parbati River	73.79	62,163
15	Shahdol	Son River	24.28	86,681
16	Shajapur	Chiler River	17.19	69,263
17	Sheopur	Parbati River	6.29	71,951
18	Shujalpur	Newaj River	7.74	51,225
19	Sidhi	Son River	12.31	54,331
20	Sironj	Betwa River 36 km	9.99	52,460
21	Tikamgarh	Jamani River	6.22	79,106

Table 7: Demography of Class III towns in Portion of the Ganga Basin Lying in the State of Madhya Pradesh

S No.	Town Name	River System	Area (sq km)	Town Population (Census 2011)
1	Agar	Kali Sindh River	3.52	37,917
2	Alot	Kshipra River	2.78	24,115
3	Ambah	Chambal River	3.85	47,177
4	Amlai	Son River	19.90	30,336
5	Aron	Sindh River	20.01	28,010
6	Badnagar	Chamla River	7.02	36,438
7	Badnawar	Mahi River	3.01	20,917
8	Bamor Kalan	Betwa River	3.43	32,838
9	Banda	Dhasan River	10.02	30,923
10	Bangawan	-	7.14	20,873
11	Begamganj	Bina River	18.46	34,031
12	Beohari	Banas River	35.14	24,545
13	Berasia	Baanh River	13.99	30,951
14	Bhander	Pahuj River	1.68	25,204
15	Bhanpura	Ahu River	8.00	21,013
16	Biaora	Parbati River	6.96	49,093
17	Bijawar	Dhasan River	25.72	20,513
18	Bijuri	Kewai River	36.65	32,682
19	Binaganj	Parbati River	11.65	21,860
20	Chanderi	Betwa River	14.87	33,081
21	Chitrakoot	Ken & Yamuna River	83.00	23,316
22	Deori	-	5.00	25,632
23	Dhanpuri	Son River	24.86	45,156
24	Garhakota	Sunar River	2.98	32,726
25	Gormi	-	17.00	20,841
26	Hatta	Ken River	6.29	32,465
27	Indergarh	Sindh River	18.05	23,045
28	Jaura Khurd	Asan River	10.42	32,087
29	Jirapur	Kali Sindh River	9.25	21,724
30	Joura	Asan River	4.00	42,153
31	Kailaras	Chambal River	1.72	25,920

S No.	Town Name	River System	Area (sq km)	Town Population (Census 2011)
32	Karera	Mahuar River	12.00	28,705
33	Khachrod	Chambal River	10.40	34,191
34	Khajuraho	Khudar River	59.80	24,481
35	Kotma	Kewai River	12.09	29,704
36	Lahar	Kwari River	19.04	35,674
37	Laundi	Umil River	25.04	22,002
38	Maharajpur	Narmada River	14.50	23,328
39	Maihar	Mahanadi River	10.36	40,192
40	Makronia Buzurg	-	4.32	23,861
41	Maksi	Choti Kali Sindh River	19.19	20,088
42	Manasa	Ratem River	3.61	26,551
43	Mau	Parbati River	58.69	20,147
44	Mauganj	Son River	36.91	26,420
45	Mehidpur	Kshipra River	15.15	34,362
46	Mehgaon	Sindh River	4.00	21,335
47	Mhowgaon	-	13.00	30,012
48	Mungaoli	Betwa River	17.98	26,192
49	Nagod	Satna River	4.40	22,568
50	Narsinghgarh	Parbati River	12.95	32,329
51	Niwari	Betwa River	14.91	23,724
52	Nowgong	Dhasan River	20.86	40,580
53	Nowrozabad	Johilla River	15.96	21,883
54	Obedullaganj	-	29.86	22,845
55	Pachor	Lakhundar River	25.79	27,396
56	Pali	Chambal River	20.42	22,324
57	Pasan	Kewai River	15.06	28,447
58	Patharia	Sunar River	19.24	21,026
59	Porsa	Chambal River	12.17	39,669
60	Prithvipur	Betwa River	0.55	26,883
61	Rahatgarh	Bina River	6.54	31,537
62	Raisen	Bari & Tendoni River	19.08	44,162
63	Rajakhedi	Dhasan River	3.54	20,668
64	Rajgarh	Parbati River 45km	7.77	29,726
65	Rau	Saraswati River	14.74	36,055

S No.	Town Name	River System	Area (sq km)	Town Population (Census 2011)
66	Rehli	Sunar River	27.86	30,329
67	Sabalgarh	Chambal River	8.57	40,333
68	Sarangpur	Kali Sindh River	5.68	37,435
69	Seondha	Sindh River	2.93	23,140
70	Shamgarh	Chambal River	3.02	24,637
71	Tarana	Choti Kali Sindh River	1.45	24,908
72	Umaria	Son River	12.68	33,114

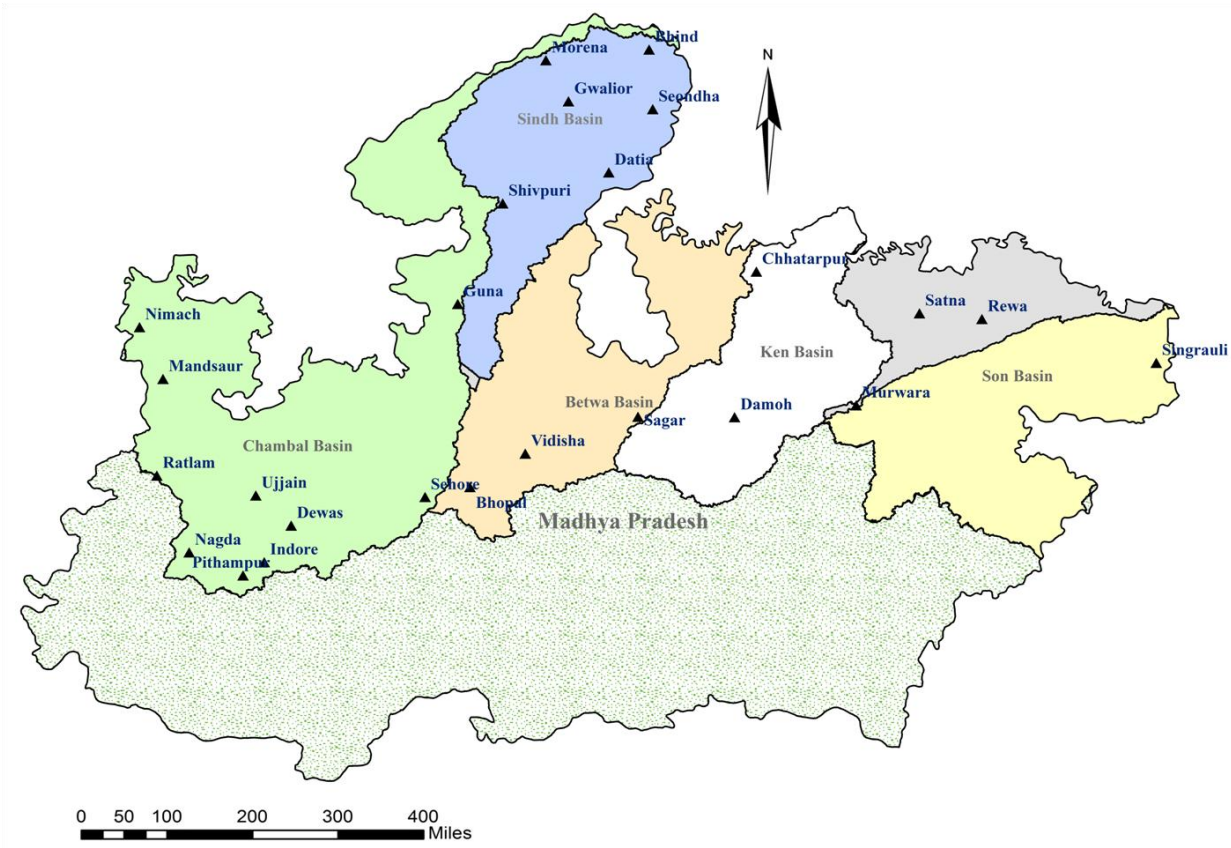

Figure 5: Class I Cities in the State of Madhya Pradesh under Ganga River Basin

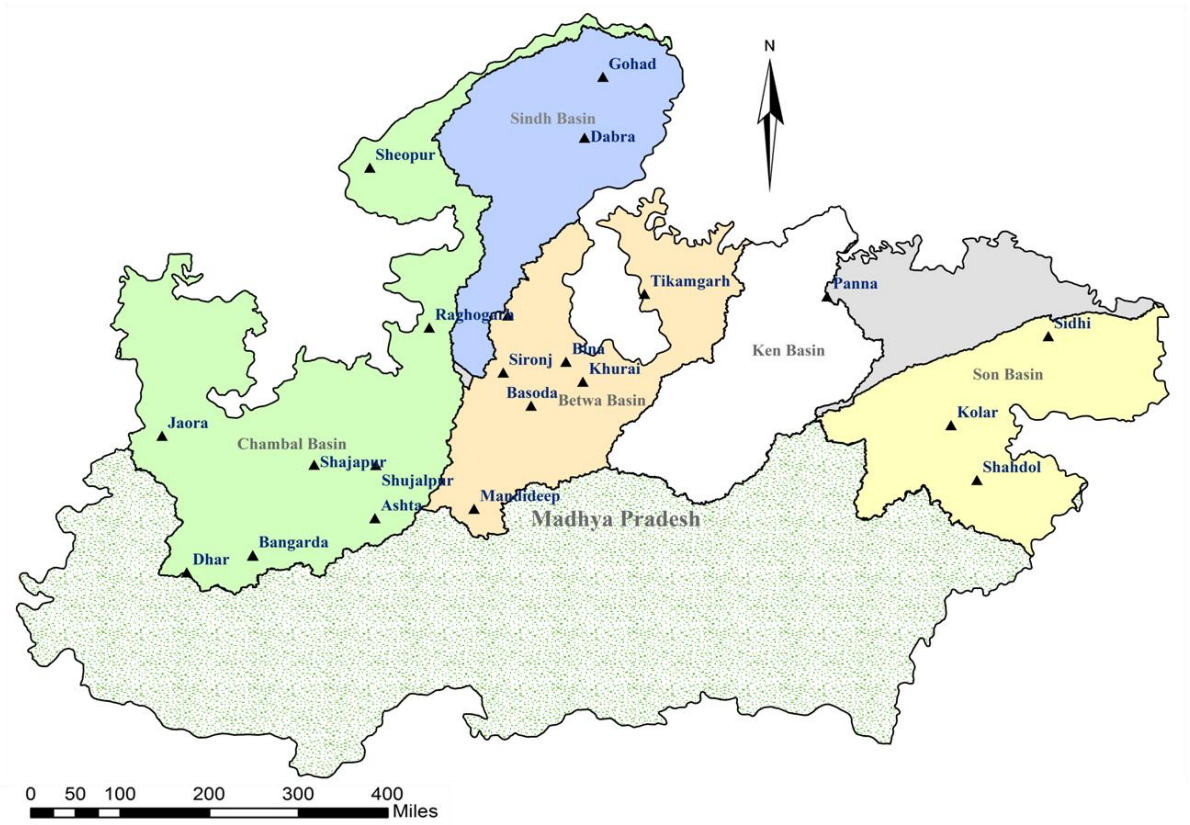

Figure 6: Class II towns in the State of Madhya Pradesh under Ganga River Basin

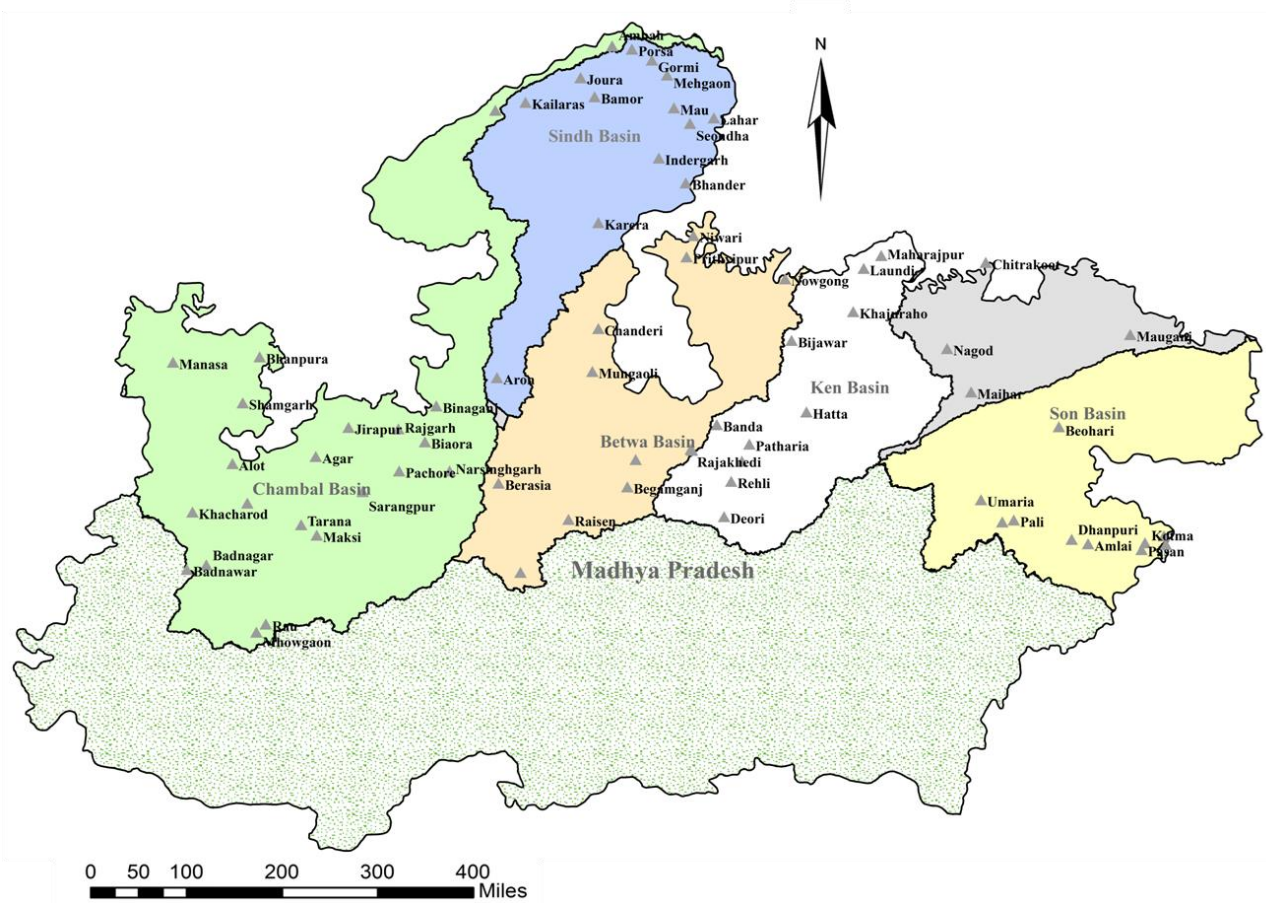

Figure 7: Class III towns in the State of Madhya Pradesh under Ganga River Basin

4. Religious Places and Their Importance

Madhya Pradesh, located at the center of India, is a beautiful and regal state. The state has richness in history, culture, religion and traditions. In every nook and corner of the state one can find religious shades, yet there are several pilgrimage sites. Ujjain, Amarkantak, Orchha, Omkareshwar and Chitrakoot are the most important pilgrimage centers among others. The hordes of pilgrims and devotees visit these places of pilgrimage every year. Hindu temples dominate the pilgrimage as the highest population here is of the Hindus. However, some Buddhist and Jain pilgrimages places are present in state.

Ujjain is an ideal destination for the spiritual souls, dedicated mostly to the Shaivite, Vaishnavite and followers of Shakta. It is one of the seven sacred cities (Sapta Puri) of the Hindus located on the eastern bank of the Kshipra River. The place has several old age temples of 10^{th} and 11^{th} century and ancient caves which are believed to be in existence since Mahabharata era. Ujjain is one out of four pilgrimage sites in India where the largest Hindu fair (Kumbh Mela) celebrated in every 12 years. There are about 15 Ghats along river Kshipra.

Orchha is one of the ancient towns situated on the bank of river Betwa and famous for its architectural heritage and its pilgrimage stature. It has many temples but most famous for the Ram Raja mandir where devotees visit regularly. Orchha receives huge number of devotees on certain important Hindu festivals like the Ram navami, Makar Sankranti, Vivaha Panchami, Basant Panchami, Shivratri and Kartik Purnima.

Bhojpur is a small town near to Bhopal having historical and religious importance. The place is located on river Betwa, famous for an ancient incomplete Bhojeshwar Temple dedicated to Lord Shiva and an unfinished Jain temple. Bhojeshwar Temple is also known as Somnath of the east. During Maha Shivratri, a big fair is organized every year.

Maihar is one of the 52 Shakti Peethas (shrines) located in the district of Satna and associated with the Goddess Shakti, also known as Sharda Devi. Millions of pilgrims throng the temple all round the year.

Chitrakoot, 'the hill of many wonders', lies on the borders of Madhya Pradesh–Uttar Pradesh. The town has spiritual, cultural and historical significance, known for a number of ancient temples as well as bathing ghats along the Mandakini River. The place is a renowned Lord Rama Pilgrimage and devotees believed that Lord Rama along with his brother Lakshman and goddess Sita spent 11 and half years of their 14 years exile in forests around Chitrakoot. This holy town is mostly crowded with pilgrims visiting throughout the year.

Amarkantak was initially called Riksh Parvat, now known as Tirthraj or "king of pilgrimages", an ancient pilgrim center for the Hindus and the source of the rivers Narmada and Son. The

place is surrounded by Vindhya, Satpuras and Maikal mountain ranges. The sanctity of Amarkantak is significantly linked with the sacred river Narmada.

Some major religious events and their features have been illustrated in Table 8.

Table 8: Major Religious Events on River Banks in Madhya Pradesh

S No	Religious Events	Place	River Bank	Duration	Period
1	Kumbha Mela (Simhastha)	Ujjain	Kshipra River	When Jupiter ascends into sun sign Leo's quarter or the Simha constellation of zodiac	Every twelfth year
2	Kartik Poornima	Orchha	Betwa River	October–November	Annual
3	Ram Navmi	Orchha	Betwa River	April	Annual
4	Makar Sankranti	Orchha	Betwa River	14th January	Annual
5	Vivaha panchami	Orchha	Betwa River	November–December	Annual
6	Basant Panchami	Orchha	Betwa River	February	Annual
7	Shivratri	Orchha	Betwa River	March	Annual

5. 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 centres, discharge from open drain carrying sewage, discharges from the tributaries and discharge of untreated/partially treated wastewater from industrial units are the major point sources that contribute to the pollution load in the state. Chambal, Betwa, Ken, Sindh and Son are the major river basins under GRB in the state.

The total sewage generation of Class I cities & Class II towns (MLD) in the state is 1248.72 and 130.9 MLD, respectively while the treatment capacity of the respective cities/towns is 14.9% and 6.87% of the total sewage generated (CPCB, 2009) (Figure 8). According to the same report, the total sewage generation of the Class I cities under GRB (Morena, Indore, Sagar, Bhind, Neemuch, Mandsaur, Dewas, Vidisha, Bhopal, Rewa, Guna, Damoh, Satna, Shivpuri, Singrauli, Gwalior and Ujjain) in the state is 877.4 MLD while the treatment capacity of the cities in the state under GRB is only 13.27% of the total sewage generated. The complete discharge of sewage generated through Class I cities is in the tributaries and sub-tributaries of river Ganga *i.e.,* Kunwari, Khan, Shipra, Dhasan, Chambal, Chhoti Kali Sindh, Betwa, Baichaiya, Sindh, Sonar, Bearma, Tons, Gopad, Son and Vaishali river, as no town comes in direct contact with the river Ganga. Murwara is the only Class I town where the disposal is on land (21.5 MLD). The sewage generated by Class II towns (Dhar, Nagda,

Sehore, Chhatarpur and Mhow Cantt.) in the state under GRB is 40.4 MLD, out of which only 9.0 MLD is treated and remaining discharged directly into the tributaries/ subtributaries (Chambal, Kali Sindh, Ken and Khan river). Other Class II towns (Bina Etawa, Datia, Shahdol, Tikamgarh, Murwara, Pithampur, Ashok Nagar, Dabra, Joara, Seoni, Shajapur, Sheopur and Basoda) under GRB disposed their sewage generated (83.7 MLD) on the land. According to the other report published by CPCB (2009), the total waste water, 626.5 MLD is generated in the state which either disposes directly into the tributaries or subtributaries (503 MLD) of the Ganga or in the land/low lying areas (123.5 MLD).

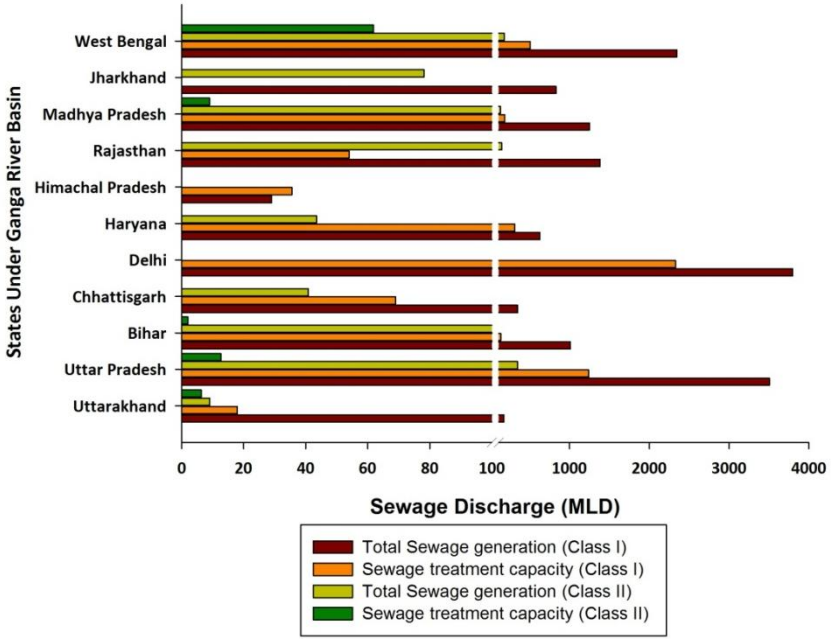

Figure 8: Assessment of Total Sewage Generation (MLD) and Sewage Treatment Capacity of Class I and II Cities in the States under Ganga River Basin

The pollution load for Class I cities, Class II and III towns have been estimated by the data received through rigorous field survey of almost all the major cities and towns in the state (Figure 9).

The maximum sewage generation is in the Class I cities (72.77%) followed by Class III (16.35%) and Class II towns (10.87%). The BOD and COD load for Class I cities, Class II and Class III towns are in the range of 72, 11 and 17%, respectively. The TKN load almost showing the same trend as BOD and COD load. The BOD, COD and TKN load of all the Class I cities, Class II and Class III towns are estimated on per capita basis by using standard values.

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 Indore 278.8 MLD, approximately 80% of the water supply. In case of the class II towns the sewage generation in Dhar is maximum 10.1 MLD, approx 80% of its total water supply. The total BOD and COD load in tons/day has been estimated for Class I towns and its average is approximately 10.2 and 17.3 tons/day, respectively. The average BOD and COD load from the Class II towns is 1.82

and 3.10 tons/day, respectively whereas Class III towns contribute approximately 0.8 tons/day and 1.34 tons/day of BOD and COD, respectively. The maximum and minimum BOD, COD and TKN contributing cities in Class I towns are Indore and Nagda, respectively. In Class II towns, maximum BOD, COD and TKN load is from Dhar, whereas minimum is from Khurai. In class III towns, maximum and minimum BOD, COD and TKN load is from Biaora and Maksi. The estimates of total water supply, total sewage generated, BOD, COD and TKN loads are summarized and illustrated in Figures (10a-12b) 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 13.

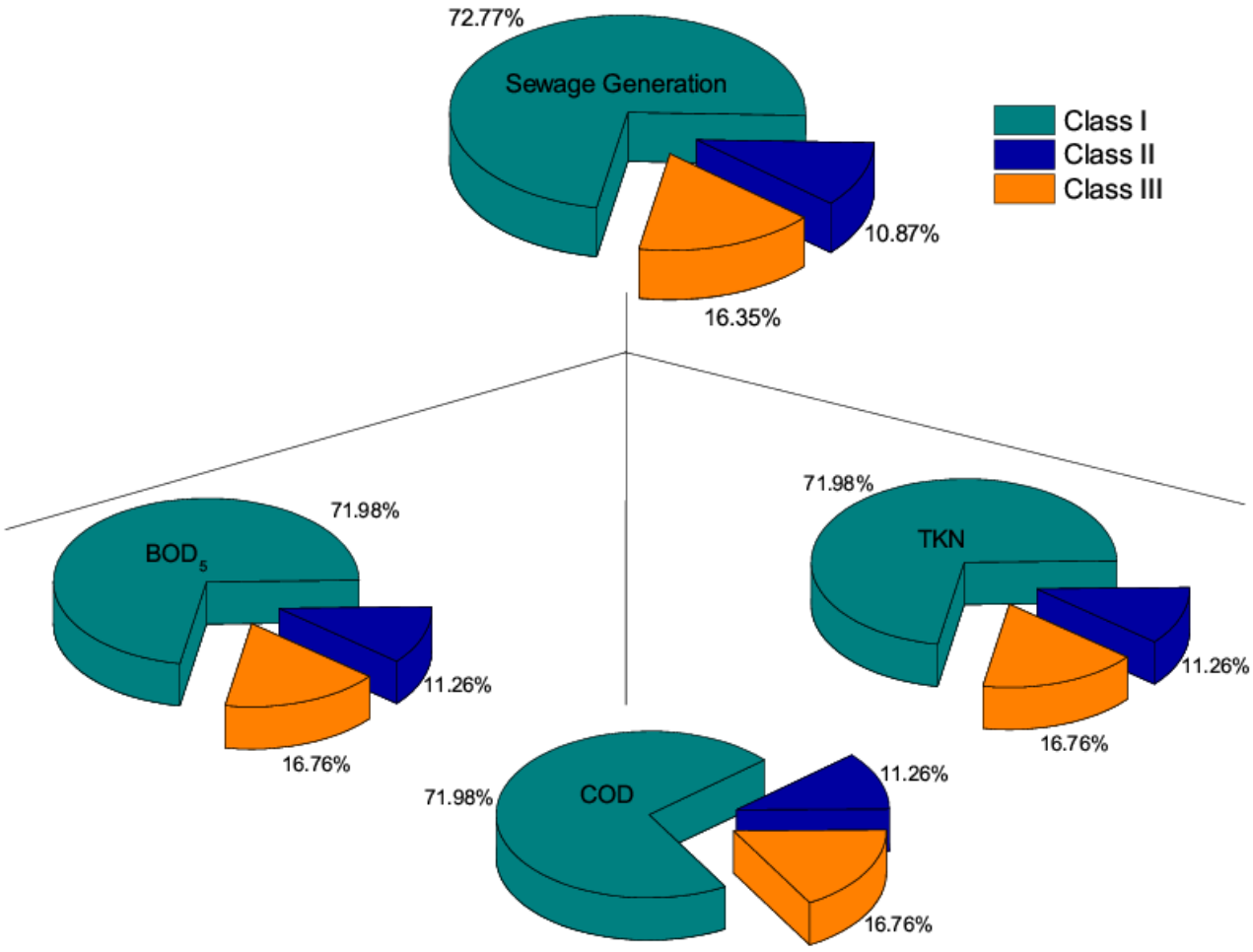

Figure 9: Distribution of Pollution Load of Class I Cities and Class II, Class III Towns in Madhya Pradesh

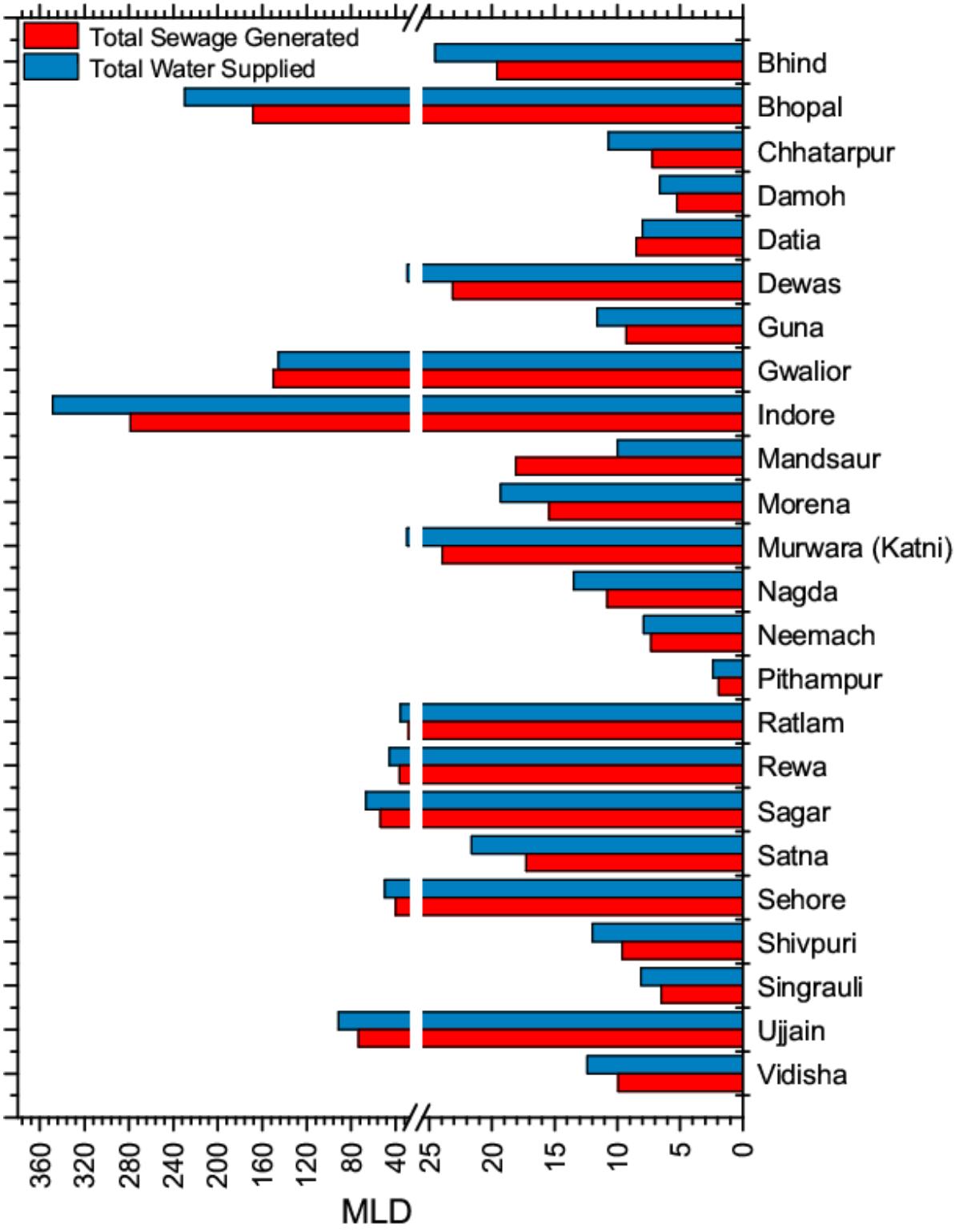

Figure 10a: Assessment of Water Supply and Sewage Generation (MLD) in Class I Towns in the Ganga River Basin Lying in the State of Madhya Pradesh

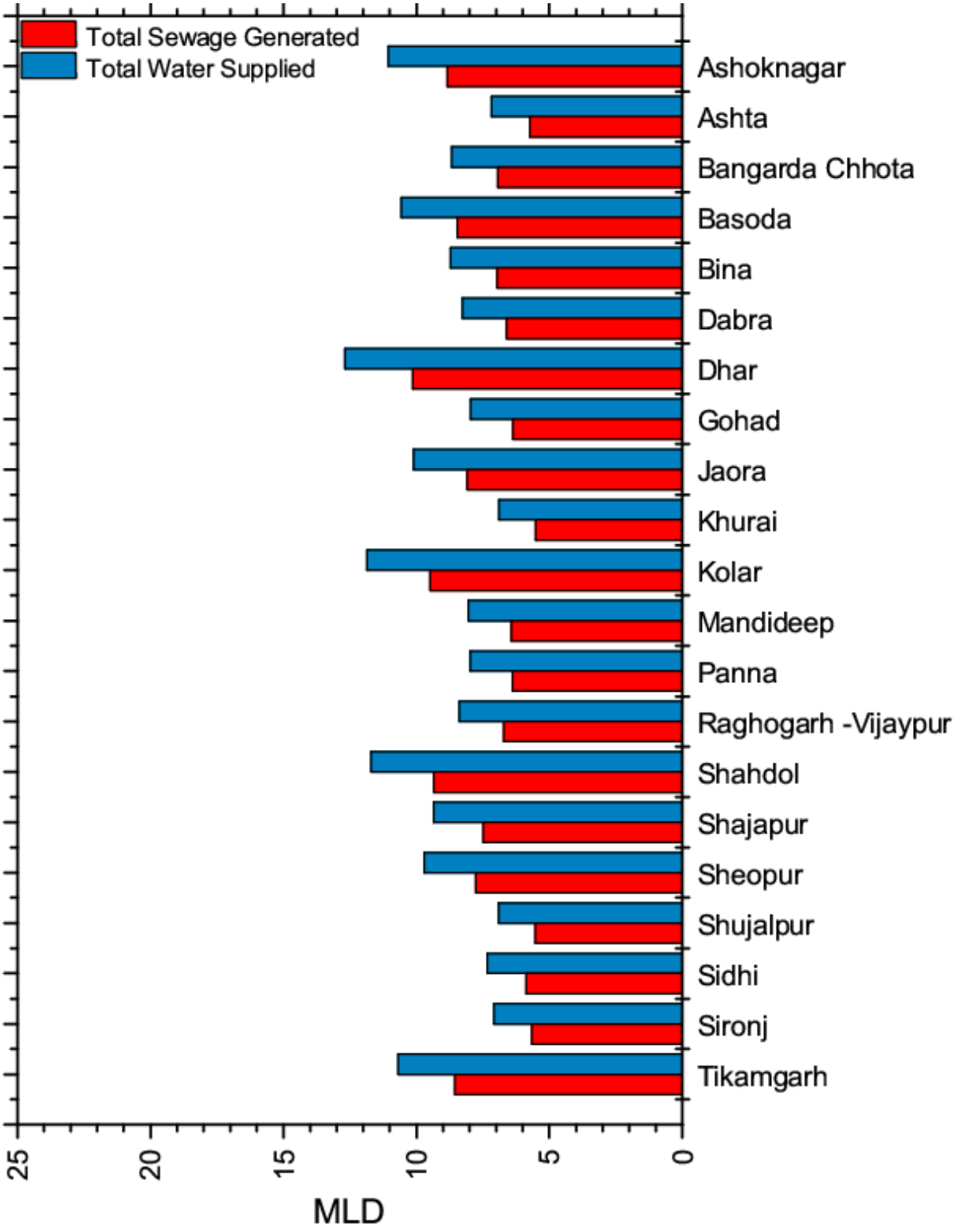

Figure 10b: Assessment of Water Supply and Sewage Generation (MLD) in Class II Towns in the Ganga River Basin Lying in the State of Madhya Pradesh

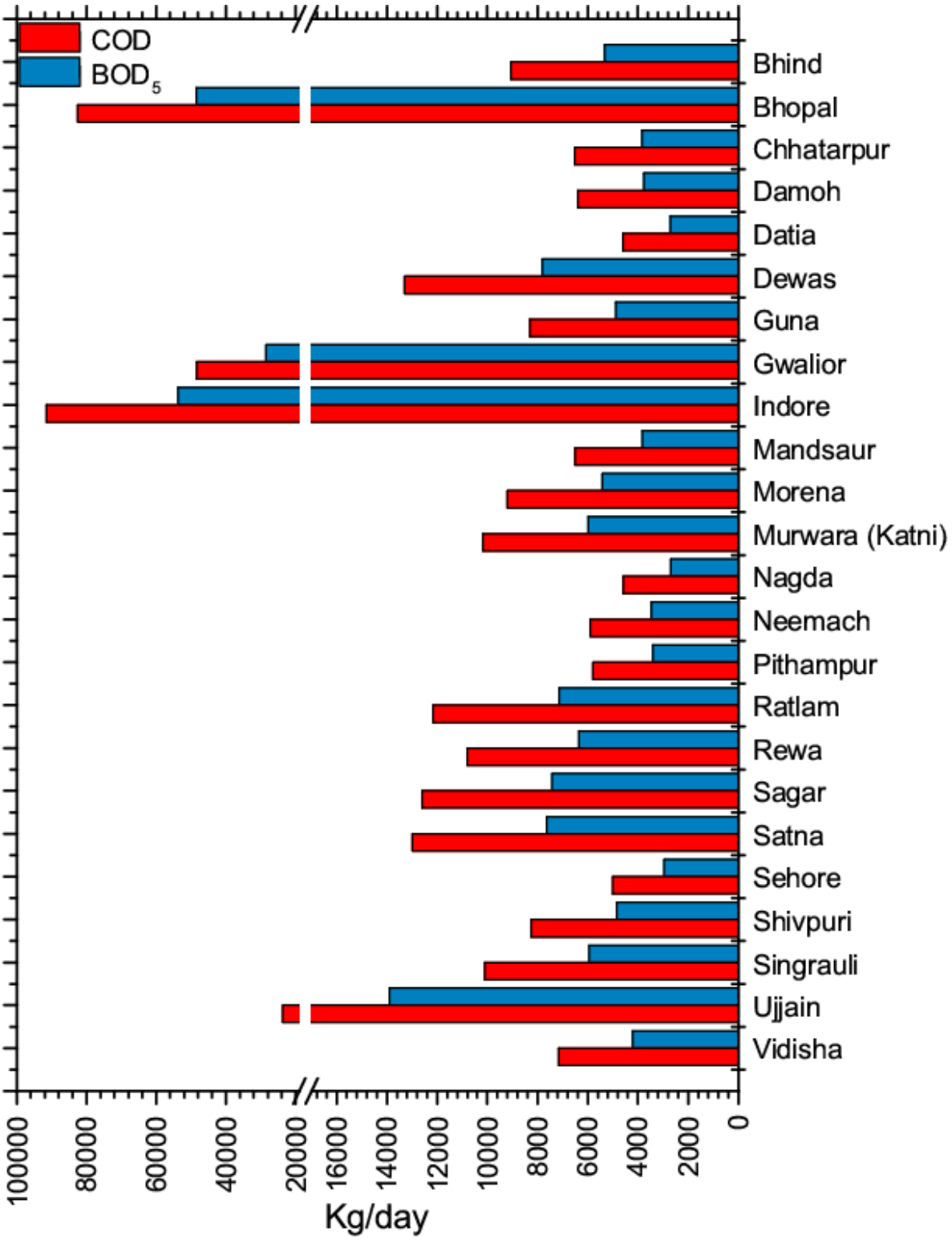

Figure 11a: Assessment of Organic Pollution Load (kg/day) from Class I Towns in the Ganga River Basin lying in Madhya Pradesh

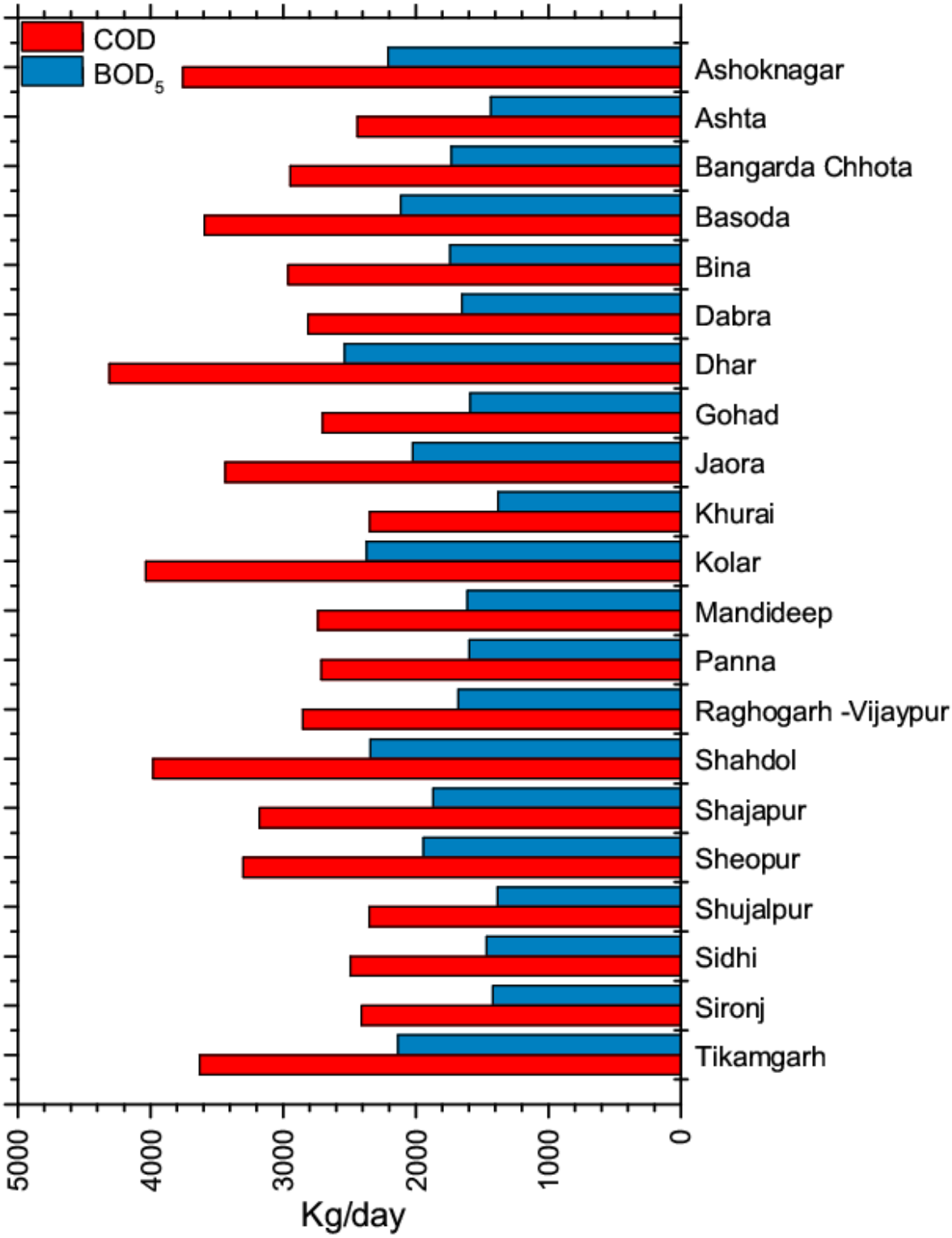

Figure 11b: Assessment of Organic Pollution Load (kg/day) from Class II Towns in the Ganga River Basin Lying in Madhya Pradesh

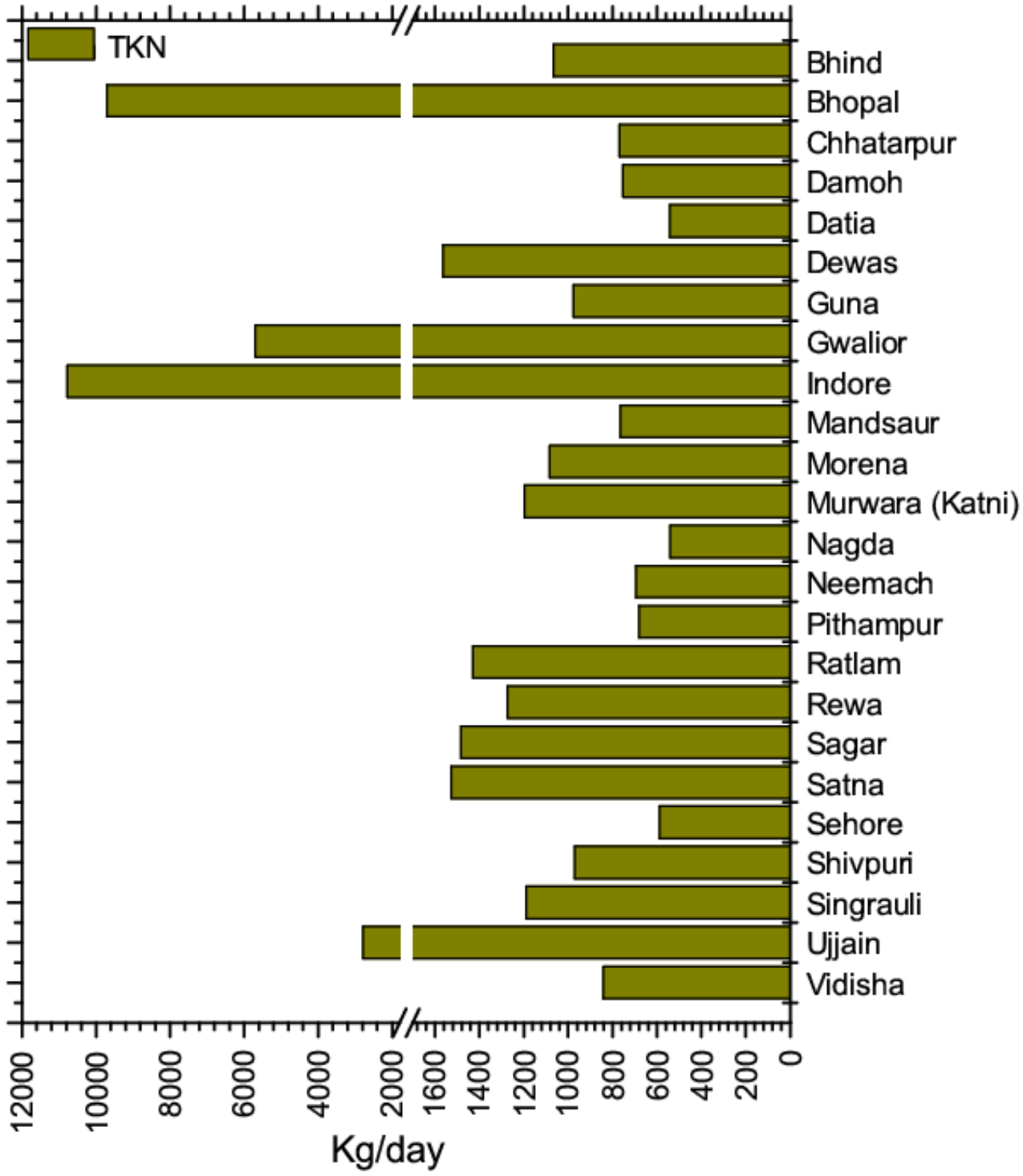

Figure 12a: Assessment of TKN Load (kg/day) from Class I Towns in the Ganga River Basin Lying in the State of Madhya Pradesh

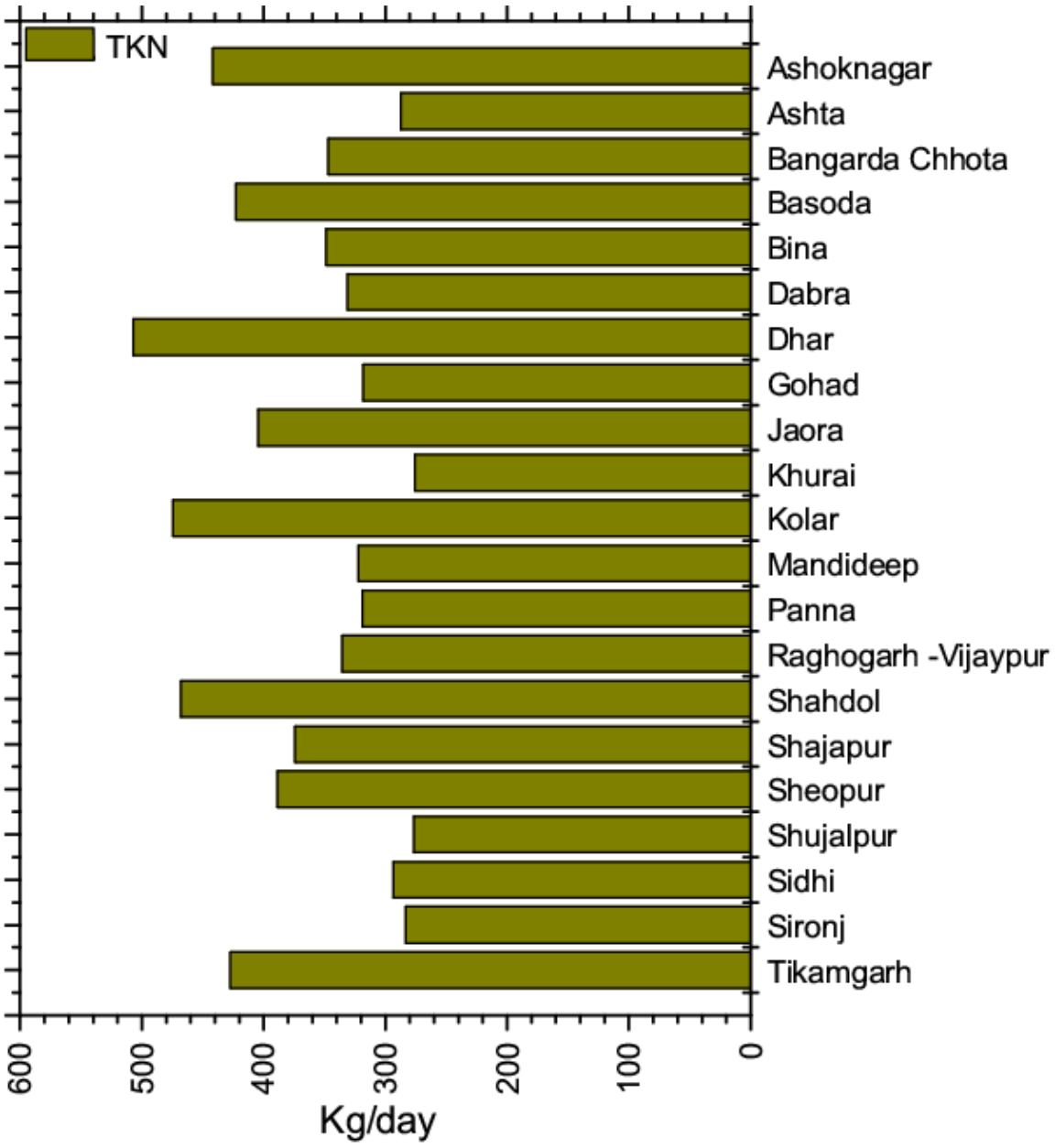

Figure 12b: Assessment of TKN Load (kg/day) from Class II Towns in the Ganga River Basin Lying in the State of Madhya Pradesh

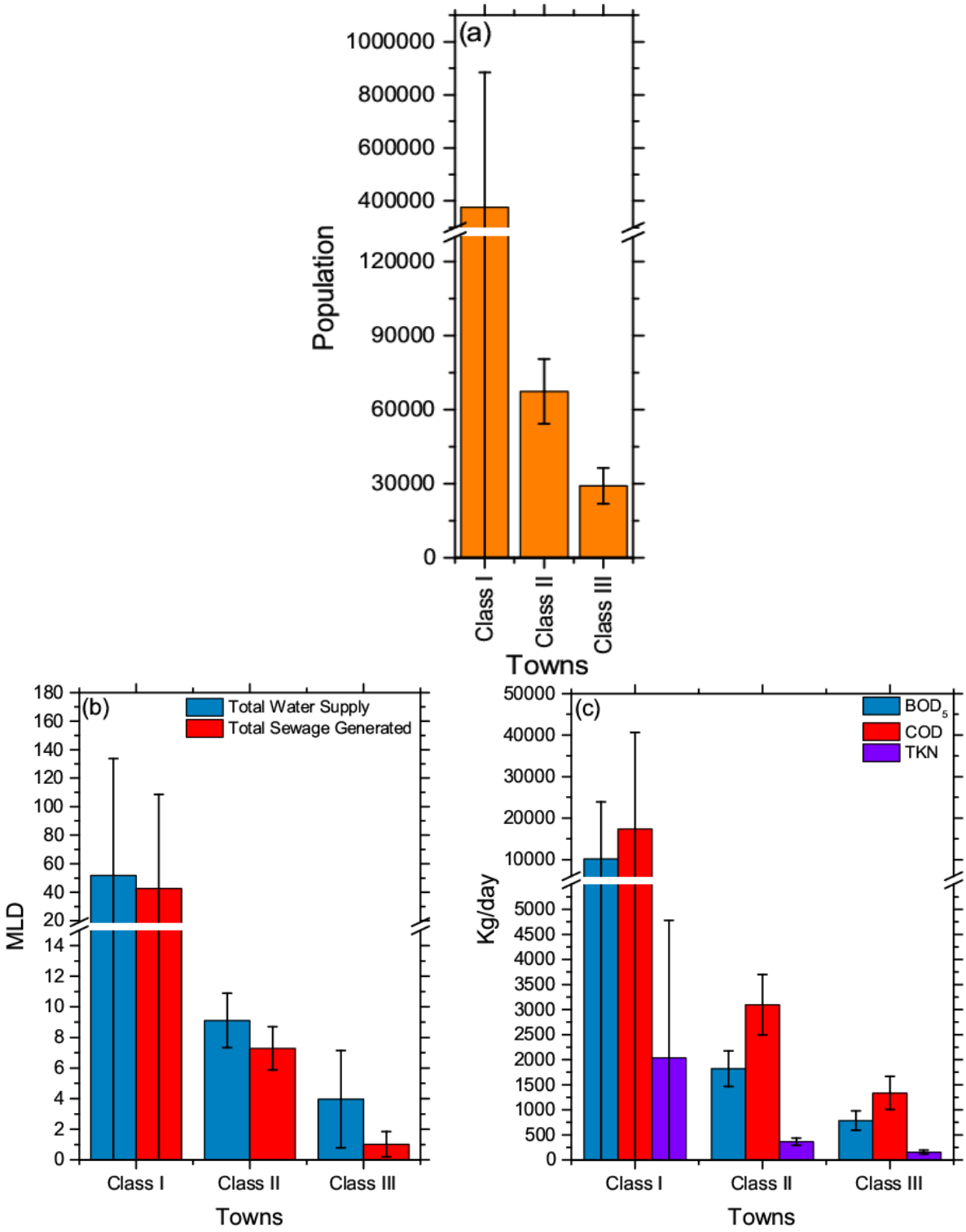

Figure 13: Comparative Analysis of Class I, Class II and Class III Cities/Towns Lying Under the State: (a) Population (b) Total Water Supply and Sewage Generation (c) Pollution Load

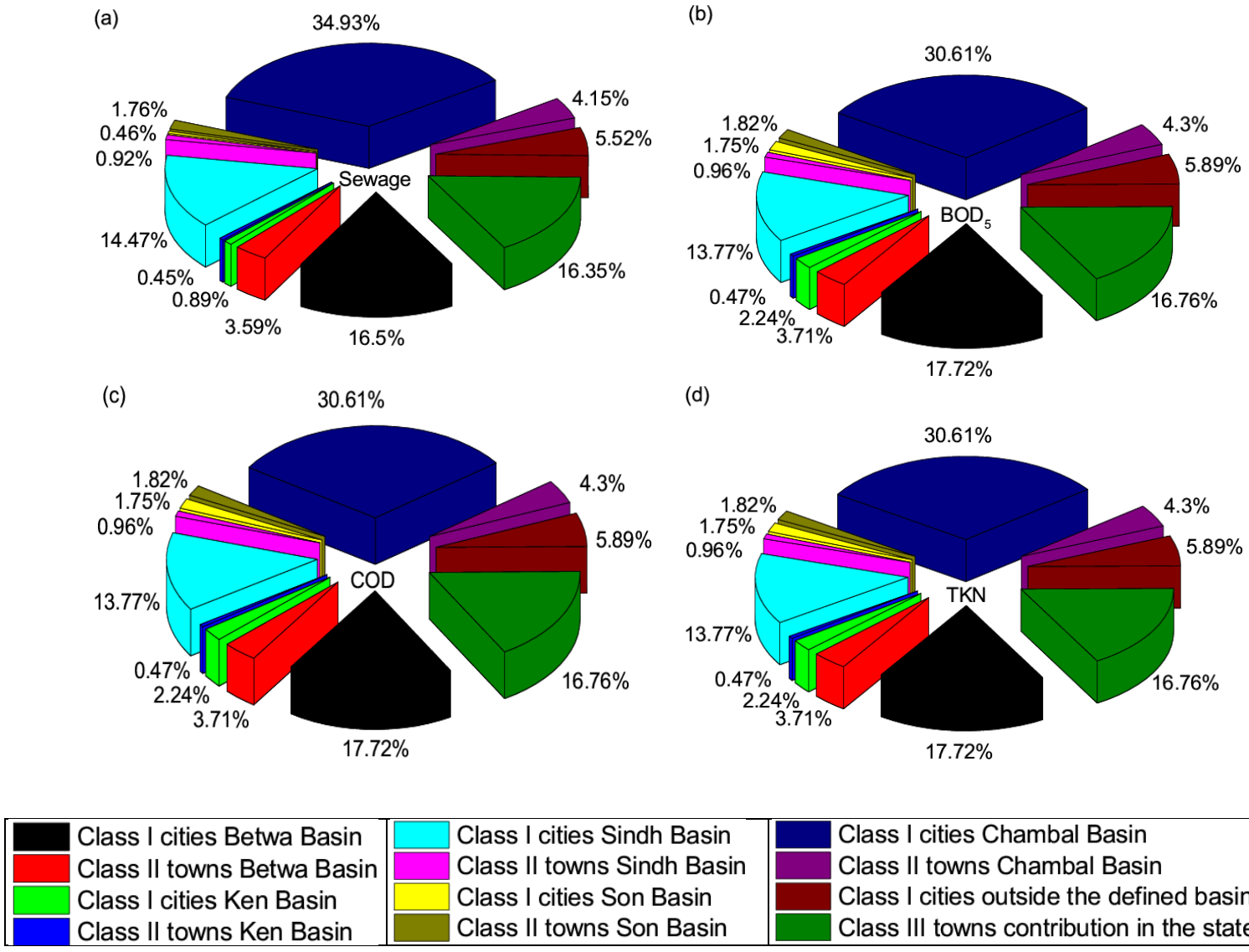

Figure 14 (a-d): Pollution load of Class I Cities and Class II, Class III Towns in the Major Basins in the State: (a) Sewage Generation; (b) BOD_5; (c) COD; (d) TKN

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 14a) and the results revealed that the percentage of the total sewage generation is maximum in Class I cities situated in the Chambal basin (34.93%) which is more than two times higher than the total percent contribution of Class I cities placed in the Betwa basin (16.50%). The percent sewage generation in Class I cities of the other major basins in the state *i.e.,* Sindh, Ken and Son are 14.47, 0.89 and 0.46%, respectively. The Class I cities outside the major defined basins combindly contributed 5.52% of waste water. The percentage sewage generation by Class III towns of the entire state is 16.35% of the total sewage generated by the state. The Class II towns of each basin separately contributing less than 4.5% of the total sewage generation with the maximum contribution by Chambal (4.15%) and the minimum by towns under Ken basin (0.45%).

The Class III towns of the state impart around 16.0-18.0% of the total BOD, COD and TKN load. The basin wise major contributors of Class I cities for BOD, COD and TKN load are Chambal (31.0%), Betwa (18.0%) and Sindh (14.0%). The other basins like Ken and Son contributed relatively lesser BOD, COD and TKN load and are in the range of 1.8-2.2%. But significant BOD, COD and TKN loads are also contributed by the Class I cities lying outside the selected basins (17.0%). The details of the BOD and COD load in the state are presented in Figure 14b and c while the TKN load is presented in Figure 14 d.

2.0 Conclusions

River Ganga flowing in the Indo-Gangetic plains having a broad basin covers more than 50% geographical area of the state. The major portion of the Sindh (94.12%) and Ken basin (86.41%) lie in the state while 68.12% of the Betwa basin and 43.23% and 40.18% of the Son and Chambal basin, respectively, also lie in the state. The catchment of the river bears the load of 24 Class I Cities, 21 Class II and 72 Class III Towns indirectly as all the cities/ towns are not directly in contact with the main stem of river Ganga. The maximum number of Class I cities lies in the Chambal basin of the state; these are Nimach, Mandsaur, Ratlam, Ujjain, Dewas, Indore, Pithampur, Nagda, Sehore and Guna.

The scenario of water quality in the system fluctuates from bad to worse based on the spatial and temporal alterations. Multitudinous problems also arise during lean season due to the continuous discharge of untreated and/or partially treated sewage and industrial wastewater. The Chambal and Son tributaries discharge their partially treated and untreated effluent into river Ganga.

The maximum sewage generation is in the Class I cities (72.77%) followed by Class III (16.35%) and Class II towns (10.87%). The BOD and COD load for Class I cities, Class II and Class III towns are in the range of 72, 11 and 17%, respectively. Indore and Dhar 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 in the state are Indore, Dhar and Biaora while the minimum load is from Nagda (Class I), Khurai (Class II) and Maksi (Class III).

Plate 1: Major Drains Disposing Sewage into Tributaries of River Ganga

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Appendix-1

Compilation of Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class II Cities/Towns in Madhya Pradesh

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Bhind		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	17.18
2	Population as in 2011		:	197585
3	Population Growth Rate as in 2011 (%)		:	28.51
4	Total Number of Wards		:	39
5	Population per Ward (Thousands)		:	5,066
6	Total Number of Household as in 2011		:	33592
7	Number of Household per Ward		:	861
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	19.08
10	Number of Bore Wells		:	42
11	Ground Water Extraction per Bore Well (MLD)		:	0.45
12	Number of Hand Pumps/ Tubewells		:	5400
13	Ground Water Extraction per Hand Pump (lpd)		:	1000
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	24.50
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	124.00
18	Total Sewage Generation (MLD)*		:	19.60
19	Per Capita Sewage Generation (lpcd)		:	99.20
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	5334.80
		COD	:	9069.20
		TKN	:	1067.00
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Kunwari River
31	Number of Drains/Nallah for Wastewater Disposal		:	2
32	Number of Water Bodies		:	2
33	Gross Area of Water Bodies (Hectare)		:	27.00
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Bhopal		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	285.88
2	Population as in 2011		:	1798218
3	Population Growth Rate as in 2011 (%)		:	23.30
4	Total Number of Wards		:	70
5	Population per Ward (Thousands)		:	25,689
6	Total Number of Household as in 2011		:	382690
7	Number of Household per Ward		:	5467
8	Surface Water Supply (MLD)		:	211.96
9	Ground Water (GW) Supply (MLD)		:	15.14
10	Number of Bore Wells		:	1675
11	Ground Water Extraction per Bore Well (MLD)		:	0.01
12	Number of Hand Pumps/ Tubewells		:	5275
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	211.96
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	229.70
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	127.70
18	Total Sewage Generation (MLD)*		:	168.50
19	Per Capita Sewage Generation (lpcd)		:	93.70
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	48551.90
		COD	:	82538.20
		TKN	:	9710.40
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Betwa River
31	Number of Drains/Nallah for Wastewater Disposal		:	5
32	Number of Water Bodies		:	29
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Chhatarpur		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	15.56
2	Population as in 2011		:	142128
3	Population Growth Rate as in 2011 (%)		:	30.30
4	Total Number of Wards		:	40
5	Population per Ward (Thousands)		:	3,553
6	Total Number of Household as in 2011		:	26793
7	Number of Household per Ward		:	670
8	Surface Water Supply (MLD)		:	0.75
9	Ground Water (GW) Supply (MLD)		:	1.67
10	Number of Bore Wells		:	10
11	Ground Water Extraction per Bore Well (MLD)		:	0.17
12	Number of Hand Pumps/ Tubewells		:	16480
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	0.75
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	10.70
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	75.30
18	Total Sewage Generation (MLD)*		:	7.20
19	Per Capita Sewage Generation (lpcd)		:	50.70
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	3837.50
		COD	:	6523.70
		TKN	:	767.50
29	Wastewater Disposal Means		:	Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Land Disposal
31	Number of Drains/Nallah for Wastewater Disposal		:	2
32	Number of Water Bodies		:	7
33	Gross Area of Water Bodies (Hectare)		:	10.00
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Damoh		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	33.23
2	Population as in 2011		:	139561
3	Population Growth Rate as in 2011 (%)		:	9.06
4	Total Number of Wards		:	39
5	Population per Ward (Thousands)		:	3,578
6	Total Number of Household as in 2011		:	28274
7	Number of Household per Ward		:	725
8	Surface Water Supply (MLD)		:	6.30
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		:	550
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	6.30
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.60
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	47.30
18	Total Sewage Generation (MLD)*		:	5.30
19	Per Capita Sewage Generation (lpcd)		:	37.80
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	3768.10
		COD	:	6405.80
		TKN	:	753.60
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Sunar River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	9
33	Gross Area of Water Bodies (Hectare)		:	119.44
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Datia		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.64
2	Population as in 2011		:	100284
3	Population Growth Rate as in 2011 (%)		:	21.18
4	Total Number of Wards		:	36
5	Population per Ward (Thousands)		:	2,786
6	Total Number of Household as in 2011		:	19254
7	Number of Household per Ward		:	535
8	Surface Water Supply (MLD)		:	4
9	Ground Water (GW) Supply (MLD)		:	1
10	Number of Bore Wells		:	26
11	Ground Water Extraction per Bore Well (MLD)		:	0.04
12	Number of Hand Pumps/ Tubewells		:	3000
13	Ground Water Extraction per Hand Pump (lpd)		:	1000
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	4
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.00
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	79.80
18	Total Sewage Generation (MLD)*		:	8.50
19	Per Capita Sewage Generation (lpcd)		:	84.80
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	2707.70
		COD	:	4603.00
		TKN	:	541.50
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Sindh River
31	Number of Drains/Nallah for Wastewater Disposal		:	4
32	Number of Water Bodies		:	10
33	Gross Area of Water Bodies (Hectare)		:	60.80
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Dewas		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	100.22
2	Population as in 2011		:	289550
3	Population Growth Rate as in 2011 (%)		:	24.98
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	6,434
6	Total Number of Household as in 2011		:	57397
7	Number of Household per Ward		:	1275
8	Surface Water Supply (MLD)		:	6.35
9	Ground Water (GW) Supply (MLD)		:	4
10	Number of Bore Wells		:	507
11	Ground Water Extraction per Bore Well (MLD)		:	0.01
12	Number of Hand Pumps/ Tubewells		:	236
13	Ground Water Extraction per Hand Pump (lpd)		:	4238
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	6.35
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	29.40
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	101.50
18	Total Sewage Generation (MLD)*		:	23.10
19	Per Capita Sewage Generation (lpcd)		:	79.80
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	7817.90
		COD	:	13290.30
		TKN	:	1563.60
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Kshipra River
31	Number of Drains/Nallah for Wastewater Disposal		:	3
32	Number of Water Bodies		:	2
33	Gross Area of Water Bodies (Hectare)		:	3.06
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Guna		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	45.75
2	Population as in 2011		:	180935
3	Population Growth Rate as in 2011 (%)		:	31.90
4	Total Number of Wards		:	37
5	Population per Ward (Thousands)		:	4,890
6	Total Number of Household as in 2011		:	34383
7	Number of Household per Ward		:	929
8	Surface Water Supply (MLD)		:	5
9	Ground Water (GW) Supply (MLD)		:	5.50
10	Number of Bore Wells		:	254
11	Ground Water Extraction per Bore Well (MLD)		:	0.02
12	Number of Hand Pumps/ Tubewells		:	284
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	5
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	11.60
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	64.10
18	Total Sewage Generation (MLD)*		:	9.30
19	Per Capita Sewage Generation (lpcd)		:	51.30
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	4885.20
		COD	:	8304.90
		TKN	:	977.00
29	Wastewater Disposal Means		:	Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Land Disposal
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	3
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Gwalior		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	173.68
2	Population as in 2011		:	1054420
3	Population Growth Rate as in 2011 (%)		:	27.50
4	Total Number of Wards		:	60
5	Population per Ward (Thousands)		:	17,574
6	Total Number of Household as in 2011		:	199466
7	Number of Household per Ward		:	3324
8	Surface Water Supply (MLD)		:	135
9	Ground Water (GW) Supply (MLD)		:	10
10	Number of Bore Wells		:	1485
11	Ground Water Extraction per Bore Well (MLD)		:	0.01
12	Number of Hand Pumps/ Tubewells		:	1270
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	135
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	145.60
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	138.10
18	Total Sewage Generation (MLD)*		:	150.30
19	Per Capita Sewage Generation (lpcd)		:	142.50
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	28469.30
		COD	:	48397.90
		TKN	:	5693.90
29	Wastewater Disposal Means		:	Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Land Disposal
31	Number of Drains/Nallah for Wastewater Disposal		:	2
32	Number of Water Bodies		:	14
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Indore		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	172.39
2	Population as in 2011		:	1994397
3	Population Growth Rate as in 2011 (%)		:	32.42
4	Total Number of Wards		:	96
5	Population per Ward (Thousands)		:	20,775
6	Total Number of Household as in 2011		:	405090
7	Number of Household per Ward		:	4220
8	Surface Water Supply (MLD)		:	221.50
9	Ground Water (GW) Supply (MLD)		:	27
10	Number of Bore Wells		:	4000
11	Ground Water Extraction per Bore Well (MLD)		:	0.01
12	Number of Hand Pumps/ Tubewells		:	50000
13	Ground Water Extraction per Hand Pump (lpd)		:	2000
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	221.50
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	348.50
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	174.70
18	Total Sewage Generation (MLD)*		:	278.80
19	Per Capita Sewage Generation (lpcd)		:	139.80
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	53848.70
		COD	:	91542.80
		TKN	:	10769.70
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Saraswati River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	25
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Mandsaur		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	36.36
2	Population as in 2011		:	141667
3	Population Growth Rate as in 2011 (%)		:	20.51
4	Total Number of Wards		:	40
5	Population per Ward (Thousands)		:	3,542
6	Total Number of Household as in 2011		:	28916
7	Number of Household per Ward		:	723
8	Surface Water Supply (MLD)		:	0.75
9	Ground Water (GW) Supply (MLD)		:	9.09
10	Number of Bore Wells		:	42
11	Ground Water Extraction per Bore Well (MLD)		:	0.22
12	Number of Hand Pumps/ Tubewells		:	350
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	0.75
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	10.00
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	70.60
18	Total Sewage Generation (MLD)*		:	18.10
19	Per Capita Sewage Generation (lpcd)		:	127.80
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	3825.00
		COD	:	6502.50
		TKN	:	765.00
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Shivna River
31	Number of Drains/Nallah for Wastewater Disposal		:	5
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Morena		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.00
2	Population as in 2011		:	200482
3	Population Growth Rate as in 2011 (%)		:	32.81
4	Total Number of Wards		:	39
5	Population per Ward (Thousands)		:	5,141
6	Total Number of Household as in 2011		:	33104
7	Number of Household per Ward		:	849
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	18
10	Number of Bore Wells		:	85
11	Ground Water Extraction per Bore Well (MLD)		:	0.21
12	Number of Hand Pumps/ Tubewells		:	2600
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	19.30
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	96.30
18	Total Sewage Generation (MLD)*		:	15.40
19	Per Capita Sewage Generation (lpcd)		:	77.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	5413.00
		COD	:	9202.10
		TKN	:	1082.60
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Asan, Chambal River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Pithampur		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	75.51
2	Population as in 2011		:	126200
3	Population Growth Rate as in 2011 (%)		:	85.37
4	Total Number of Wards		:	31
5	Population per Ward (Thousands)		:	4,071
6	Total Number of Household as in 2011		:	31136
7	Number of Household per Ward		:	1004
8	Surface Water Supply (MLD)		:	1
9	Ground Water (GW) Supply (MLD)		:	1.2
10	Number of Bore Wells		:	30
11	Ground Water Extraction per Bore Well (MLD)		:	0.04
12	Number of Hand Pumps/ Tubewells		:	225
13	Ground Water Extraction per Hand Pump (lpd)		:	900
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	1
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	2.4
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	19.0
18	Total Sewage Generation (MLD)*		:	1.9
19	Per Capita Sewage Generation (lpcd)		:	15.2
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	3407.4
		COD	:	5792.6
		TKN	:	681.5
29	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
31	Number of Drains/Nallah for Wastewater Disposal		:	NA
32	Number of Water Bodies		:	1
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Ratlam		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	39.19
2	Population as in 2011		:	264914
3	Population Growth Rate as in 2011 (%)		:	19.22
4	Total Number of Wards		:	49
5	Population per Ward (Thousands)		:	5,406
6	Total Number of Household as in 2011		:	53133
7	Number of Household per Ward		:	1084
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	96
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	961
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	35.80
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	133.6
18	Total Sewage Generation (MLD)*		:	28.60
19	Per Capita Sewage Generation (lpcd)		:	108.0
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	7152.7
		COD	:	12159.6
		TKN	:	1430.5
29	Wastewater Disposal Means		:	Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Land Disposal
31	Number of Drains/Nallah for Wastewater Disposal		:	5
32	Number of Water Bodies		:	2
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Singrauli		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	284.46
2	Population as in 2011		:	220257
3	Population Growth Rate as in 2011 (%)		:	18.94
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	4,895
6	Total Number of Household as in 2011		:	44682
7	Number of Household per Ward		:	993
8	Surface Water Supply (MLD)		:	NA
9	Ground Water (GW) Supply (MLD)		:	NA
10	Number of Bore Wells		:	45
11	Ground Water Extraction per Bore Well (MLD)		:	NA
12	Number of Hand Pumps/ Tubewells		:	2219
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.1
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	36.8
18	Total Sewage Generation (MLD)*		:	6.5
19	Per Capita Sewage Generation (lpcd)		:	29.4
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	5946.9
		COD	:	10109.8
		TKN	:	1189.4
29	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Mahan River
31	Number of Drains/Nallah for Wastewater Disposal		:	4
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Sehore		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	15.11
2	Population as in 2011		:	109118
3	Population Growth Rate as in 2011 (%)		:	17.94
4	Total Number of Wards		:	35
5	Population per Ward (Thousands)		:	3,118
6	Total Number of Household as in 2011		:	20314
7	Number of Household per Ward		:	580
8	Surface Water Supply (MLD)		:	40
9	Ground Water (GW) Supply (MLD)		:	10
10	Number of Bore Wells		:	55
11	Ground Water Extraction per Bore Well (MLD)		:	0.18
12	Number of Hand Pumps/ Tubewells		:	440
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	40
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	50.20
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	460.10
18	Total Sewage Generation (MLD)*		:	40.20
19	Per Capita Sewage Generation (lpcd)		:	368.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	2946.20
		COD	:	5008.50
		TKN	:	589.20
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Karbala River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Shivpuri		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	81.11
2	Population as in 2011		:	179977
3	Population Growth Rate as in 2011 (%)		:	22.52
4	Total Number of Wards		:	39
5	Population per Ward (Thousands)		:	4,615
6	Total Number of Household as in 2011		:	33803
7	Number of Household per Ward		:	867
8	Surface Water Supply (MLD)		:	5
9	Ground Water (GW) Supply (MLD)		:	7
10	Number of Bore Wells		:	430
11	Ground Water Extraction per Bore Well (MLD)		:	0.02
12	Number of Hand Pumps/ Tubewells		:	80
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	5
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	12.00
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	66.70
18	Total Sewage Generation (MLD)*		:	9.60
19	Per Capita Sewage Generation (lpcd)		:	53.30
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	4859.40
		COD	:	8260.90
		TKN	:	971.90
29	Wastewater Disposal Means		:	Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Land Disposal
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	7
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Ujjain		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	92.68
2	Population as in 2011		:	515215
3	Population Growth Rate as in 2011 (%)		:	19.49
4	Total Number of Wards		:	54
5	Population per Ward (Thousands)		:	9,541
6	Total Number of Household as in 2011		:	102401
7	Number of Household per Ward		:	1896
8	Surface Water Supply (MLD)		:	87.06
9	Ground Water (GW) Supply (MLD)		:	3.79
10	Number of Bore Wells		:	85
11	Ground Water Extraction per Bore Well (MLD)		:	0.04
12	Number of Hand Pumps/ Tubewells		:	1282
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	87.06
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	91.50
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	177.60
18	Total Sewage Generation (MLD)*		:	73.20
19	Per Capita Sewage Generation (lpcd)		:	142.10
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	13910.80
		COD	:	23648.40
		TKN	:	2782.20
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Kshipra River
31	Number of Drains/Nallah for Wastewater Disposal		:	9
32	Number of Water Bodies		:	23
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Vidisha		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.83
2	Population as in 2011		:	155951
3	Population Growth Rate as in 2011 (%)		:	24.31
4	Total Number of Wards		:	36
5	Population per Ward (Thousands)		:	4,332
6	Total Number of Household as in 2011		:	31627
7	Number of Household per Ward		:	879
8	Surface Water Supply (MLD)		:	9
9	Ground Water (GW) Supply (MLD)		:	1
10	Number of Bore Wells		:	12
11	Ground Water Extraction per Bore Well (MLD)		:	0.08
12	Number of Hand Pumps/ Tubewells		:	4830
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	9
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	12.40
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	79.50
18	Total Sewage Generation (MLD)*		:	9.92
19	Per Capita Sewage Generation (lpcd)		:	63.60
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	4210.70
		COD	:	7158.20
		TKN	:	842.10
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Betwa River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	1
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Murwara (Katni)				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	68.57
2	Population as in 2011		:	221883
3	Population Growth Rate as in 2011 (%)		:	18.64
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	4,931
6	Total Number of Household as in 2011		:	46261
7	Number of Household per Ward		:	1028
8	Surface Water Supply (MLD)		:	7.50
9	Ground Water (GW) Supply (MLD)		:	8
10	Number of Bore Wells		:	133
11	Ground Water Extraction per Bore Well (MLD)		:	0.06
12	Number of Hand Pumps/ Tubewells		:	565
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	7.50
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	30.00
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	24.00
19	Per Capita Sewage Generation (lpcd)		:	108.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	5990.80
		COD	:	10184.40
		TKN	:	1198.20
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Katni River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	59
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Neemach				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	22.04
2	Population as in 2011		:	128561
3	Population Growth Rate as in 2011 (%)		:	13.92
4	Total Number of Wards		:	40
5	Population per Ward (Thousands)		:	3,214
6	Total Number of Household as in 2011		:	25549
7	Number of Household per Ward		:	639
8	Surface Water Supply (MLD)		:	6.82
9	Ground Water (GW) Supply (MLD)		:	1
10	Number of Bore Wells		:	40
11	Ground Water Extraction per Bore Well (MLD)		:	0.03
12	Number of Hand Pumps/ Tubewells		:	193
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	6.82
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.90
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	96.50
18	Total Sewage Generation (MLD)*		:	7.30
19	Per Capita Sewage Generation (lpcd)		:	45.90
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	3471.10
		COD	:	5900.90
		TKN	:	694.20
29	Wastewater Disposal Means		:	Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Land Disposal
31	Number of Drains/Nallah for Wastewater Disposal		:	5
32	Number of Water Bodies		:	3
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Rewa			State: Madhya Pradesh	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	102.00
2	Population as in 2011		:	235654
3	Population Growth Rate as in 2011 (%)		:	28.58
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	5,237
6	Total Number of Household as in 2011		:	45275
7	Number of Household per Ward		:	1006
8	Surface Water Supply (MLD)		:	44
9	Ground Water (GW) Supply (MLD)		:	1
10	Number of Bore Wells		:	66
11	Ground Water Extraction per Bore Well (MLD)		:	0.02
12	Number of Hand Pumps/ Tubewells		:	910
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	44
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	45.50
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	193.10
18	Total Sewage Generation (MLD)*		:	36.40
19	Per Capita Sewage Generation (lpcd)		:	154.50
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	6362.70
		COD	:	10816.50
		TKN	:	1272.50
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Beehar River
31	Number of Drains/Nallah for Wastewater Disposal		:	23
32	Number of Water Bodies		:	2
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Sagar		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	34.26
2	Population as in 2011		:	274556
3	Population Growth Rate as in 2011 (%)		:	12.19
4	Total Number of Wards		:	48
5	Population per Ward (Thousands)		:	5,720
6	Total Number of Household as in 2011		:	52573
7	Number of Household per Ward		:	1095
8	Surface Water Supply (MLD)		:	65
9	Ground Water (GW) Supply (MLD)		:	2
10	Number of Bore Wells		:	28
11	Ground Water Extraction per Bore Well (MLD)		:	0.07
12	Number of Hand Pumps/ Tubewells		:	225
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	65
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	67.10
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	244.40
18	Total Sewage Generation (MLD)*		:	53.70
19	Per Capita Sewage Generation (lpcd)		:	195.50
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	7413.00
		COD	:	12602.10
		TKN	:	1482.60
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Choti River
31	Number of Drains/Nallah for Wastewater Disposal		:	5
32	Number of Water Bodies		:	3
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Satna		**State: Madhya Pradesh**		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	79.01
2	Population as in 2011		:	282977
3	Population Growth Rate as in 2011 (%)		:	23.41
4	Total Number of Wards		:	45
5	Population per Ward (Thousands)		:	6,288
6	Total Number of Household as in 2011		:	54699
7	Number of Household per Ward		:	1216
8	Surface Water Supply (MLD)		:	18
9	Ground Water (GW) Supply (MLD)		:	3
10	Number of Bore Wells		:	308
11	Ground Water Extraction per Bore Well (MLD)		:	0.01
12	Number of Hand Pumps/ Tubewells		:	1198
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	18
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	21.60
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	76.30
18	Total Sewage Generation (MLD)*		:	17.30
19	Per Capita Sewage Generation (lpcd)		:	61.10
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	7640.40
		COD	:	12988.60
		TKN	:	1528.10
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Satna River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	7
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Nagda		State: Madhya Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.58
2	Population as in 2011		:	100039
3	Population Growth Rate as in 2011 (%)		:	23.83
4	Total Number of Wards		:	36
5	Population per Ward (Thousands)		:	2779
6	Total Number of Household as in 2011		:	20177
7	Number of Household per Ward		:	560
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	13.50
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	134.90
18	Total Sewage Generation (MLD)*		:	10.80
19	Per Capita Sewage Generation (lpcd)		:	108.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD5	:	2701.10
		COD	:	4591.80
		TKN	:	540.20
29	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Chambal, Kshipra River
31	Number of Drains/Nallah for Wastewater Disposal		:	NA
32	Number of Water Bodies		:	1
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Appendix-2

Compilation of Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class II Cities/Towns in Madhya Pradesh

Water Balance & Pollution Load (Domestic) Data Sheet

City: Askok Nagar				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.43
2	Population as in 2011		:	81828
3	Population Growth Rate as in 2011 (%)		:	41.80
4	Total Number of Wards		:	22
5	Population per Ward (Thousands)		:	3,719
6	Total Number of Household as in 2011		:	15806
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	11.00
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	134.40
18	Total Sewage Generation (MLD)*		:	8.80
19	Per Capita Sewage Generation (lpcd)		:	107.50
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	2209.40
		COD	:	3755.90
		TKN	:	441.90
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Aur River
31	Number of Drains/Nallah for Wastewater Disposal		:	NA
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Ashta				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	15.78
2	Population as in 2011		:	53184
3	Population Growth Rate as in 2011 (%)		:	30.90
4	Total Number of Wards		:	19
5	Population per Ward (Thousands)		:	2,799
6	Total Number of Household as in 2011		:	10006
7	Number of Household per Ward		:	527
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.20
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.40
18	Total Sewage Generation (MLD)*		:	5.70
19	Per Capita Sewage Generation (lpcd)		:	107.20
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1436.00
		COD	:	2441.10
		TKN	:	287.20
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Parbati River
31	Number of Drains/Nallah for Wastewater Disposal		:	NA
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Basoda				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	16.55
2	Population as in 2011		:	78289
3	Population Growth Rate as in 2011 (%)		:	20.56
4	Total Number of Wards		:	24
5	Population per Ward (Thousands)		:	3,262
6	Total Number of Household as in 2011		:	14219
7	Number of Household per Ward		:	592
8	Surface Water Supply (MLD)		:	2.27
9	Ground Water (GW) Supply (MLD)		:	2.33
10	Number of Bore Wells		:	29
11	Ground Water Extraction per Bore Well (MLD)		:	0.08
12	Number of Hand Pumps/ Tubewells		:	3520
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	2.27
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	10.60
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	158.40
18	Total Sewage Generation (MLD)*		:	8.50
19	Per Capita Sewage Generation (lpcd)		:	75.40
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	2113.80
		COD	:	3593.50
		TKN	:	422.80
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Betwa River
31	Number of Drains/Nallah for Wastewater Disposal		:	2
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bangarda Chhota				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	11.19
2	Population as in 2011		:	64213
3	Population Growth Rate as in 2011 (%)		:	18.94
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	64,213
6	Total Number of Household as in 2011		:	13345
7	Number of Household per Ward		:	13345
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.70
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.50
18	Total Sewage Generation (MLD)*		:	6.90
19	Per Capita Sewage Generation (lpcd)		:	107.50
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1733.80
		COD	:	2947.40
		TKN	:	346.80
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Kherkhali River
31	Number of Drains/Nallah for Wastewater Disposal		:	NA
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bina		State: Madhya Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.00
2	Population as in 2011		:	64529
3	Population Growth Rate as in 2011 (%)		:	26.08
4	Total Number of Wards		:	25
5	Population per Ward (Thousands)		:	2,581
6	Total Number of Household as in 2011		:	12356
7	Number of Household per Ward		:	494
8	Surface Water Supply (MLD)		:	4
9	Ground Water (GW) Supply (MLD)		:	2
10	Number of Bore Wells		:	32
11	Ground Water Extraction per Bore Well (MLD)		:	0.06
12	Number of Hand Pumps/ Tubewells		:	1520
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	4
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.70
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	7.00
19	Per Capita Sewage Generation (lpcd)		:	108.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1742.30
		COD	:	2961.90
		TKN	:	348.50
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Motichur, Bina, Betwa River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Dabra				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.79
2	Population as in 2011		:	61277
3	Population Growth Rate as in 2011 (%)		:	8.13
4	Total Number of Wards		:	24
5	Population per Ward (Thousands)		:	2,553
6	Total Number of Household as in 2011		:	11085
7	Number of Household per Ward		:	462
8	Surface Water Supply (MLD)		:	1.50
9	Ground Water (GW) Supply (MLD)		:	4
10	Number of Bore Wells		:	107
11	Ground Water Extraction per Bore Well (MLD)		:	0.04
12	Number of Hand Pumps/ Tubewells		:	130
13	Ground Water Extraction per Hand Pump (lpd)		:	3000
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	1.50
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.30
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	6.60
19	Per Capita Sewage Generation (lpcd)		:	108.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1654.50
		COD	:	2812.60
		TKN	:	330.90
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Sindh River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Dhar			**State: Madhya Pradesh**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	36.00
2	Population as in 2011		:	93917
3	Population Growth Rate as in 2011 (%)		:	24.60
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	3,131
6	Total Number of Household as in 2011		:	18531
7	Number of Household per Ward		:	618
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		:	263
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	NA
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	12.7
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.2
18	Total Sewage Generation (MLD)*		:	10.1
19	Per Capita Sewage Generation (lpcd)		:	107.5
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	2535.8
		COD	:	4310.8
		TKN	:	507.2
29	Wastewater Disposal Means		:	Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Land Disposal
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	4
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Gohad			**State: Madhya Pradesh**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	14.91
2	Population as in 2011		:	58939
3	Population Growth Rate as in 2011 (%)		:	30.30
4	Total Number of Wards		:	18
5	Population per Ward (Thousands)		:	3,274
6	Total Number of Household as in 2011		:	10161
7	Number of Household per Ward		:	565
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.00
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.70
18	Total Sewage Generation (MLD)*		:	6.40
19	Per Capita Sewage Generation (lpcd)		:	108.60
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1591.40
		COD	:	2705.30
		TKN	:	318.30
29	Wastewater Disposal Means		:	Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Land Disposal
31	Number of Drains/Nallah for Wastewater Disposal		:	NA
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Jaora				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	14.54
2	Population as in 2011		:	74907
3	Population Growth Rate as in 2011 (%)		:	15.05
4	Total Number of Wards		:	30
5	Population per Ward (Thousands)		:	2,497
6	Total Number of Household as in 2011		:	13102
7	Number of Household per Ward		:	437
8	Surface Water Supply (MLD)		:	3.25
9	Ground Water (GW) Supply (MLD)		:	0.15
10	Number of Bore Wells		:	61
11	Ground Water Extraction per Bore Well (MLD)		:	0.00
12	Number of Hand Pumps/ Tubewells		:	159
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	3.25
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	10.10
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	8.10
19	Per Capita Sewage Generation (lpcd)		:	108.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	2022.50
		COD	:	3438.20
		TKN	:	404.50
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Maleni River
31	Number of Drains/Nallah for Wastewater Disposal		:	2
32	Number of Water Bodies		:	2
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Khurai				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	11.03
2	Population as in 2011		:	51108
3	Population Growth Rate as in 2011 (%)		:	23.12
4	Total Number of Wards		:	27
5	Population per Ward (Thousands)		:	1,893
6	Total Number of Household as in 2011		:	9798
7	Number of Household per Ward		:	363
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.90
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	5.50
19	Per Capita Sewage Generation (lpcd)		:	107.60
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1379.90
		COD	:	2345.90
		TKN	:	276.00
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Bina River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	2
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Kolar				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	50.18
2	Population as in 2011		:	87882
3	Population Growth Rate as in 2011 (%)		:	NA
4	Total Number of Wards		:	21
5	Population per Ward (Thousands)		:	4,182
6	Total Number of Household as in 2011		:	19800
7	Number of Household per Ward		:	943
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	11.9
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.5
18	Total Sewage Generation (MLD)*		:	9.5
19	Per Capita Sewage Generation (lpcd)		:	108.2
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	2371.2
		COD	:	4031.0
		TKN	:	474.2
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Son River
31	Number of Drains/Nallah for Wastewater Disposal		:	NA
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Mandideep				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	12.78
2	Population as in 2011		:	59654
3	Population Growth Rate as in 2011 (%)		:	49.66
4	Total Number of Wards		:	18
5	Population per Ward (Thousands)		:	3,314
6	Total Number of Household as in 2011		:	14330
7	Number of Household per Ward		:	796
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		:	NIL
15	Total Pumping Capacity (MLD)		:	NA
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.1
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.8
18	Total Sewage Generation (MLD)*		:	6.4
19	Per Capita Sewage Generation (lpcd)		:	107.3
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1610.7
		COD	:	2738.1
		TKN	:	322.1
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Kaliasot River
31	Number of Drains/Nallah for Wastewater Disposal		:	NA
32	Number of Water Bodies		:	1
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Panna				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.00
2	Population as in 2011		:	59091
3	Population Growth Rate as in 2011 (%)		:	13.51
4	Total Number of Wards		:	22
5	Population per Ward (Thousands)		:	2,686
6	Total Number of Household as in 2011		:	10019
7	Number of Household per Ward		:	455
8	Surface Water Supply (MLD)		:	2.34
9	Ground Water (GW) Supply (MLD)		:	1.06
10	Number of Bore Wells		:	65
11	Ground Water Extraction per Bore Well (MLD)		:	0.02
12	Number of Hand Pumps/ Tubewells		:	NA
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	2.34
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.00
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	6.40
19	Per Capita Sewage Generation (lpcd)		:	108.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1595.50
		COD	:	2712.30
		TKN	:	319.10
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Kilkila, Ken River
31	Number of Drains/Nallah for Wastewater Disposal		:	1
32	Number of Water Bodies		:	12
33	Gross Area of Water Bodies (Hectare)		:	54.47
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Raghogarh-Vijaypur			State: Madhya Pradesh	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	73.79
2	Population as in 2011		:	62163
3	Population Growth Rate as in 2011 (%)		:	26.42
4	Total Number of Wards		:	24
5	Population per Ward (Thousands)		:	2,590
6	Total Number of Household as in 2011		:	12409
7	Number of Household per Ward		:	517
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	8.4
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.1
18	Total Sewage Generation (MLD)*		:	6.7
19	Per Capita Sewage Generation (lpcd)		:	107.8
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1678.4
		COD	:	2853.3
		TKN	:	335.7
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Parbati, Chopan River
31	Number of Drains/Nallah for Wastewater Disposal		:	NA
32	Number of Water Bodies		:	7
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet				
City: Shahdol			**State: Madhya Pradesh**	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.25
2	Population as in 2011		:	86681
3	Population Growth Rate as in 2011 (%)		:	24.28
4	Total Number of Wards		:	34
5	Population per Ward (Thousands)		:	2,549
6	Total Number of Household as in 2011		:	17833
7	Number of Household per Ward		:	525
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	11.70
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	9.40
19	Per Capita Sewage Generation (lpcd)		:	108.40
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	2340.40
		COD	:	3978.70
		TKN	:	468.10
29	Wastewater Disposal Means		:	River Disposal
30	Name of River/Streams for Wastewater Disposal		:	Son River
31	Number of Drains/Nallah for Wastewater Disposal		:	2
32	Number of Water Bodies		:	51
33	Gross Area of Water Bodies (Hectare)		:	81.30
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Shajapur		State: Madhya Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	17.19
2	Population as in 2011		:	69263
3	Population Growth Rate as in 2011 (%)		:	19.79
4	Total Number of Wards		:	29
5	Population per Ward (Thousands)		:	2,388
6	Total Number of Household as in 2011		:	13066
7	Number of Household per Ward		:	451
8	Surface Water Supply (MLD)		:	4
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		:	60
13	Ground Water Extraction per Hand Pump (lpd)		:	500
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	4
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	9.40
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	7.50
19	Per Capita Sewage Generation (lpcd)		:	108.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NIL
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1870.10
		COD	:	3179.20
		TKN	:	374.00
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Chiler, Lakhunder River
31	Number of Drains/Nallah for Wastewater Disposal		:	9
32	Number of Water Bodies		:	2
33	Gross Area of Water Bodies (Hectare)		:	3.04
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Sheopur		State: Madhya Pradesh		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.29
2	Population as in 2011		:	71951
3	Population Growth Rate as in 2011 (%)		:	23.33
4	Total Number of Wards		:	23
5	Population per Ward (Thousands)		:	3,128
6	Total Number of Household as in 2011		:	13724
7	Number of Household per Ward		:	597
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	9.70
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	7.80
19	Per Capita Sewage Generation (lpcd)		:	108.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1942.70
		COD	:	3302.60
		TKN	:	388.50
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Parbati River
31	Number of Drains/Nallah for Wastewater Disposal		:	5
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Shujalpur				State: Madhya Pradesh
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.74
2	Population as in 2011		:	51225
3	Population Growth Rate as in 2011 (%)		:	20.63
4	Total Number of Wards		:	21
5	Population per Ward (Thousands)		:	2,439
6	Total Number of Household as in 2011		:	9833
7	Number of Household per Ward		:	468
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	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	6.90
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	5.50
19	Per Capita Sewage Generation (lpcd)		:	108.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1383.10
		COD	:	2351.20
		TKN	:	276.60
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Newaj River
31	Number of Drains/Nallah for Wastewater Disposal		:	NA
32	Number of Water Bodies		:	NA
33	Gross Area of Water Bodies (Hectare)		:	NA
34	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Sidhi				State: Madhya Pradesh
S.No.	**Items**			**Value**
1	Total Area (sq km)		:	12.31
2	Population as in 2011		:	54331
3	Population Growth Rate as in 2011 (%)		:	18.89
4	Total Number of Wards		:	24
5	Population per Ward (Thousands)		:	2,264
6	Total Number of Household as in 2011		:	10599
7	Number of Household per Ward		:	442
8	Surface Water Supply (MLD)		:	4
9	Ground Water (GW) Supply (MLD)		:	0.40
10	Number of Bore Wells		:	21
11	Ground Water Extraction per Bore Well (MLD)		:	0.02
12	Number of Hand Pumps/ Tubewells		:	2410
13	Ground Water Extraction per Hand Pump (lpd)		:	900
14	Number of Pumping Stations for Water Supply		:	NA
15	Total Pumping Capacity (MLD)		:	4
16	Total Water Supply from ULB and Non-ULB Sources (MLD)		:	7.30
17	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
18	Total Sewage Generation (MLD)*		:	5.90
19	Per Capita Sewage Generation (lpcd)		:	108.00
20	Sewage Collection (MLD)		:	NA
21	Percentage of Sewage Collection (%)		:	NA
22	Number of STPs		:	NA
23	Total Installed Capacity of STPs under GAP I & II (MLD)		:	NA
24	Current Utilized Capacity of STPs (MLD)		:	NA
25	Percentage Utilization of Installed Capacity (%)		:	NA
26	Capacity of STPs Sanctioned under JNNURM & Others (MLD)		:	NA
27	Pollution Load (Domestic) (Method 1: Actual Flow) (kg/d)	BOD_5	:	NA
		COD	:	NA
		TKN	:	NA
28	Pollution Load (Domestic) (Method 2: Per Capita Contribution) (kg/d)	BOD_5	:	1466.90
		COD	:	2493.80
		TKN	:	293.40
29	Wastewater Disposal Means		:	River & Land Disposal
30	Name of River/Streams for Wastewater Disposal		:	Son River
31	Number of Drains/Nallah for Wastewater Disposal		:	2
32	Number of Water Bodies		:	4
33	Gross Area of Water Bodies (Hectare)		:	15.00
34	Area of Water Bodies as % of Total Area		:	<<< 1

Assessment of Domestic Pollution Load from Urban Agglomeration in Ganga Basin: West Bengal

GRBMP: Ganga River Basin Management Plan

by

Consortium of 7 "Indian Institute of Technology"s (IITs)







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 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 (GRBMP). 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 GRBMP. 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. A list of persons who have contributed directly and names of those who have taken lead in preparing this report is given on the reverse side.

Dr Vinod Tare
Professor and Coordinator
Development of GRBMP
IIT Kanpur

The Team

1. AAKazmi, IIT Roorkee *kazmifce@iitr.ernet.in*
2. A K Gupta, IIT Kharagpur *akgupta18@rediffmail.com,akgupta@iitkgp.ac.in*
3. A K Mittal, IIT Delhi *akmittal@civil.iitd.ernet.in*
4. A K Nema, IIT Delhi *aknema@gmail.com*
5. Ajay Kalmhad, IIT Guwahati *kajay@iitg.ernet.in*
6. Anirban Gupta, BESU Shibpur *guptaanirban@hotmail.com*
7. Arun Kumar, IIT Delhi *arunku@civil.iitd.ac.in*
8. G J Chakrapani, IIT Roorkkee *gjcurfes@iitr.ernet.in*
9. GazalaHabib, IIT Delhi *gazalahabib@gmail.com*
10. Himanshu Joshi, IIT Roorkee *himanshujoshi58@gmail.com*
11. InduMehrotra, IIT Roorkee *indumfce@iitr.ernet.in*
12. I M Mishra, IIT Roorkee *imishfch@iitr.ernet.in*
13. Ligy Philip, IIT Madras *ligy@iitm.ac.in*
14. M MGhangrekar, IIT Kharagpur *ghangrekar@civil.iitkgp.ernet.in*
15. MukeshDoble, IIT Bombay *mukeshd@iitm.ac.in*
16. P K Singh, IT BHU *dr_pksingh1@rediffmail.com*
17. Purnendu Bose, IIT Kanpur *pbose@iitk.ac.in*
18. R Ravi Krishna, IIT Madras *rrk@iitm.ac.in*
19. Rakesh Kumar, NEERI Nagpur *r_kumar@neeri.res.in*
20. S M Shivnagendra, IIT Madras *snagendra@iitm.ac.in*
21. SaumyenGuha, IIT Kanpur *sguha@iitk.ac.in*
22. Shyam RAsolekar, IIT Bombay *asolekar@iitb.ac.in*
23. SudhaGoel, IIT Kharagpur *sudhagoel@civil.iitkgp.ernet.in*
24. Suparna Mukherjee, IIT Bombay *mitras@iitb.ac.in*
25. T R Sreekrishanan, IIT Delhi *sree@dbeb.iitd.ac.in*
26. Vinod Tare, IIT Kanpur *vinod@iitk.ac.in*
27. Vivek Kumar, IIT Roorkee *vivekfpt@iitr.ernet.in*

Lead Authors

1. Vinod Tare, IIT Kanpur
2. Purnendu Bose, IIT Kanpur
3. Vishal Kapoor, IIT Kanpur
4. Suresh Kr Gurjar, IIT Kanpur
5. Abhishek Gaur, IIT Kanpur

Contents

1. Introduction

West Bengal with the total area of 88,752 sq km, is the 14th largest state of India. The state population is 91,276,115 as per census 2011 provisional data. The total population growth in this decade was 13.84 percent (Census 2011). Only six of its 22 drainage basins fall completely within the political boundary of West Bengal. The major river basins of the state are the Ganga (81% of area), the Brahmaputra (12%), and the Subarnarekha (4%) and two small coastal basins constitute the reminder (3%) (Bandyopadhyay, 2014). West Bengal has a total of 23 districts with Kolkata as its capital. Kolkata is the largest city of the state and also the seventh largest city in India. The second largest city and urban agglomeration of the state is Howrah.

As per political geography the state is divided into 5 divisions i.e., Burdwan, Midnapur, Jalpaiguri, Malda and Presidency division. While on the basis of soil and climate it is divided into six divisions i.e., the hill region in the north, terai and teesta alluvial region of north, the laterectic, red and gravely undulating region in the west, the coastal alluvial region in the south, the gangetic alluvial region in the west and the Vindhya alluvial region in the centre.

The Ganga River Basin (GRB) has a total catchment area of 1,086,000 sq km across India, Tibet (China), Nepal and Bangladesh. The river basin in India, nearly covers 26% (861,404 sq km; about 80% of total catchment area of Ganga river basin) of the total geographical area. The sprawling Ganga basin, spread across 11 states, is the world's most populous river basin and home to more than 492 million Indians. West Bengal is one of the 11 states (Uttarakhand, Uttar Pradesh, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh, Jharkhand and West Bengal) of the GRB in India through which the Ganga River and her tributaries flows. The 81% of the geographical area of the state lies in GRB (Figures 1 and 2). A comparison of state-wise distribution of GRB area within the geographical areas of different states is presented in Table 1.

Table 1: State-wise Distribution of the Ganga River Basin Area

State/ Union Territory	*Total Geographical Area (sq km)	#Area contributing to Ganga Basin (sq km)	Percentage of the Basin Area (%)
Uttarakhand	53,483	53,436	6.2
Uttar Pradesh	240,928	240,928	28
Bihar	94,163	94,163	10.9
Jharkhand	79,716	49,798	5.8
Madhya Pradesh	308,252	198,962	23.1
Chhattisgarh	135,192		
Delhi	1,484	1,484	0.17
Haryana	44,212	34,341	4.0
Himachal Pradesh	55,673	4,317	0.5
Rajasthan	342,239	112,490	13.1
West Bengal	**88,752**	**71,485**	**8.3**

Source: *Census 2011

#https://nmcg.nic.in/location.aspx

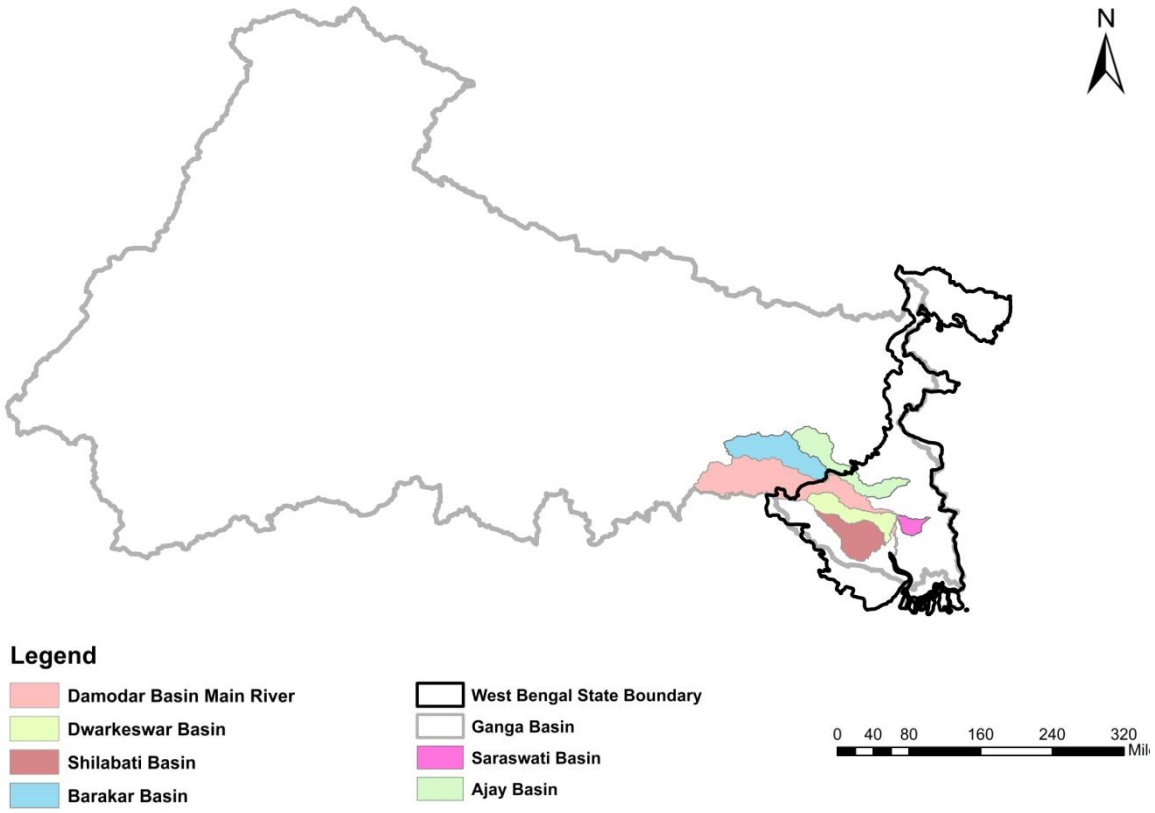


Figure 1: Ganga River Basin with its Major Sub-Basins in West Bengal

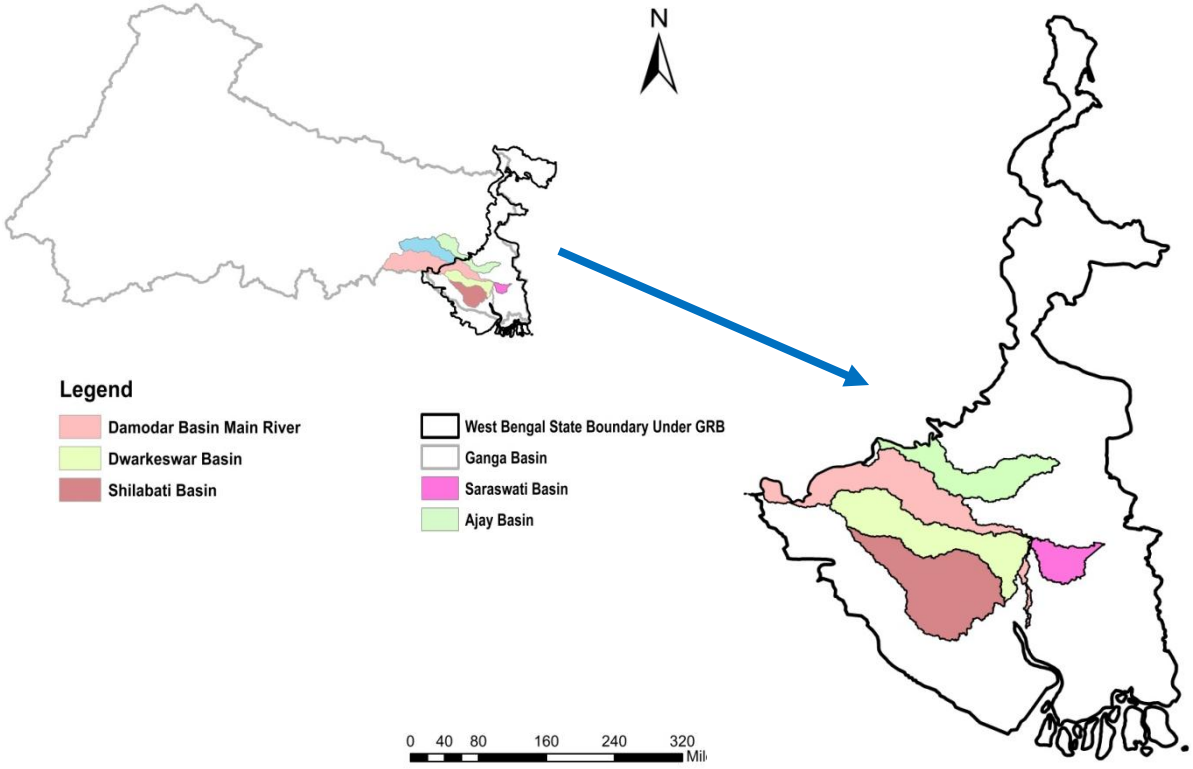


Figure 2: Part of Major Sub-Basins of Ganga River Basin in the State of West Bengal

River Ganga enters in West Bengal near Keserpur, and forms the major channel through which the Ganges entered the Bay of Bengal. River Ganga in the state after Farakka is known as the Bhagirathi–Hooghly River. In general, the Bhagirathi–Hooghly River is considered as the western limit of the Ganga delta. The major portion (in terms of volume) of the river Ganga enters into the Bangladesh territory known as Padma river. In the state after the Farakka barrage, the non-tidal part is known as Bhagirathi, whereas the tidal part from Nabadwip to the Bay is called the Hooghly (Garrett, 1910; Willcocks, 1930; Chatterjee, 2014). During her course many tributaries such as Damodar, Rupnarayan, Ajay and Mahananda merges into it. The salient features of some tributaries and sub-tributaries contributing directly or indirectly to the river Ganga in the state of West Bengal are presented in Table 2.

Table 2: Salient Features of Tributaries/ Sub-Tributaries of River Ganga (Hooghly) in the State of West Bengal

	Tributaries/ Sub-tributaries			
Characteristics	**Damodar**	**Rupnaryan**	**Ajay**	**Dwarakeswar**
Position	Right bank	Right bank	Right bank	Right bank
Region of origin	Khamarpet Hills (1050 meters) of the Chotonagpur Plateau	Dhaleswari (Dhalkisor) in the Chhota Nagpur plateau foothills	Chotanagpur Plateau from Chakai hill, Munger district of Bihar	Tilaboni hill in Purulia district of Bihar
Mouth	Hooghly	Hooghly	Bhagirathi	Rupnarayan
Total length (km)	540	78	288	200.2
Total catchment area (sq km)	23,370.98	-	5813.8	4000.5
Catchment area in W.B. (%)	26.3	100	-	100
River bed/ Soil texture	Alluvial	-	Laterite & alluvial soil	-

-Ghosh and Guchhait (2014); Ghosh, (2014); Maity and Maiti, (2013)

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

West Bengal counts 30 dams on the major rivers for irrigation, hydroelectricity and flood control. The most recent (Teesta Low Dam IV) is on the Teesta river for hydroelectricity purpose. In West Bengal, the transformation of rivers has a long history (the Massanjore dam on Mayurakshi river 1955). The two largest dams in the state are the Massanjore dam on the Mayurakshi river, with a height of 47 m (height above lowest foundation) and the Teesta Low Dam IV on the Teesta river, with a height of 45 m. Apart of the above mentioned benefits, these dams also allow for the regulation of natural flows. Another important barrage on river Ganga in the state is Farakka barrage in Murshidabad district. The feeder canal from the barrage is about 40 km long. Diversion of Ganga water through Farakka barrage affects the ecology and economics of the cities/states/ countries located not only upstream but also downstream of the barrage. The ecological impact of pre and post-Farakka period on the fisheries is well documented in the reports published by CIFRI (Central Inland Fisheries Research Institute). The list of the dams on river Ganga and its tributaries in West Bengal are mentioned underneath (Table 3).

Table 3: Details of the Major Dams on the River Ganga and Her Tributaries in the State of West Bengal

Projects	River	Year of Completion	Remark
Bandhu Extension	Bandhu	2004	Irrigation
Bara Mandira	Baramandira	1977	Irrigation
Barabhum	Barabhum	1991	Irrigation
Beko	Beko	1990	Irrigation
Dangra	Dungrajhore	1982	Irrigation
Dimu	Dimu	1989	Irrigation
Futiary	Futiary	2004	Irrigation
Golamarjore	Golamarajore	1984	Irrigation
Hanumata	Hanumata	2004	Irrigation
Hinglow	Hinglow	1976	Irrigation
Kangsabati Kumari	Kangsabati Kumari	1965	Irrigation / Flood Control
Karrior	Karrior	1988	Irrigation
Khairabera	Khairabera	1989	Irrigation
Kumari	Kumari	1984	Irrigation
Lipania	Lipania	1985	Irrigation
Maliarajore	Maliarajore	1978	Irrigation
Massanjore	Mayurakshi	1955	Irrigation / Hydroelectricity / Flood Control
Moutorejore	Moutorejore	1990	Irrigation
Nachan	NachanKandar	1977	Irrigation
Parga	Parga	1982	Irrigation

Projects	River	Year of Completion	Remark
Patloi	Patloi	2004	Irrigation
Ramchandrapur	Machkandajore	1991	Irrigation
Rupai	Rupai	1982	Irrigation
Saharajore	Saharajore	1982	Irrigation
Sali	Sali	1985	Irrigation
Taragonia	Taragonia	1987	Irrigation
Tatko	Tatko	1985	Irrigation
Teesta Low Dam III Barrage	Teesta Basin	2013	Hydroelectricity
Teesta Low Dam IV	Teesta Basin	U/C	Hydroelectricity
Turga	Turga	1990	Irrigation

(Source: National Register of Large Dams)

3. Demographic Profile of Ganga Basin in the State

West Bengal in total has 58 Class I cities, 33 Class II towns and 71 Class III towns in catchment of Ganga River as per estimate based on Census-2011. The total population of the state according to the Census 2011 is approximately 91 million. The population density of the state is 1,028 per km^2. Some of the class I cities in the state are Asansol, Barddhaman, Barrackpore, Durgapur, Haldia, Dumdum, Howrah, Kharagpur, Kolkata, Medinipur, North Dumdum and South Dumdum. The maximum town population in the state resides in Kolkata followed by Howrah. In the state, nearly 70% of the population live in Class I Cities under Ganga river basin (devoid by the population reside under Ajay, Dwarkeshwar, Damodar, Saraswati and Shilbati basin) (designated as “others under GRB” in Figure 3). The Class II and III covered by nearly 9% and 8% population, respectively under the same basin area (others under GRB). The total population of Class I, II and III towns under the entire GRB in the state are 17.6, 2.2 and 2.0 million, respectively. The population resides under major sub-basins lying in the state has also been estimated for Class I, II and IIII cities/ towns. Within the sub-basins, Damodar basin having the maximum numbers of Class I cities (Asansol, Barddhaman, Durgapur, Jamuria and Raniganj). The total population of Class I cities in Damodar basin is nearly 8% of the total population of the state. The least population of Class I town belong to Ajay and Shilbati basin (0%). The major share of Class II town's population under the selected sub-basins in the state is in Ajay and Dwarkeshwar basin (nearly 1% each). The Ajay and Damodar sub-basins also having the maximum number of Class III towns. Kolkata, Dhulian and Gobardanga are the cities having maximum population of Class I, Class II and Class III cities, respectively. Map in the Figure 4, 5 and 6 showing the distribution of Class I cities, Class II and Class III towns in the state under Ganga River 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 4-6, respectively.

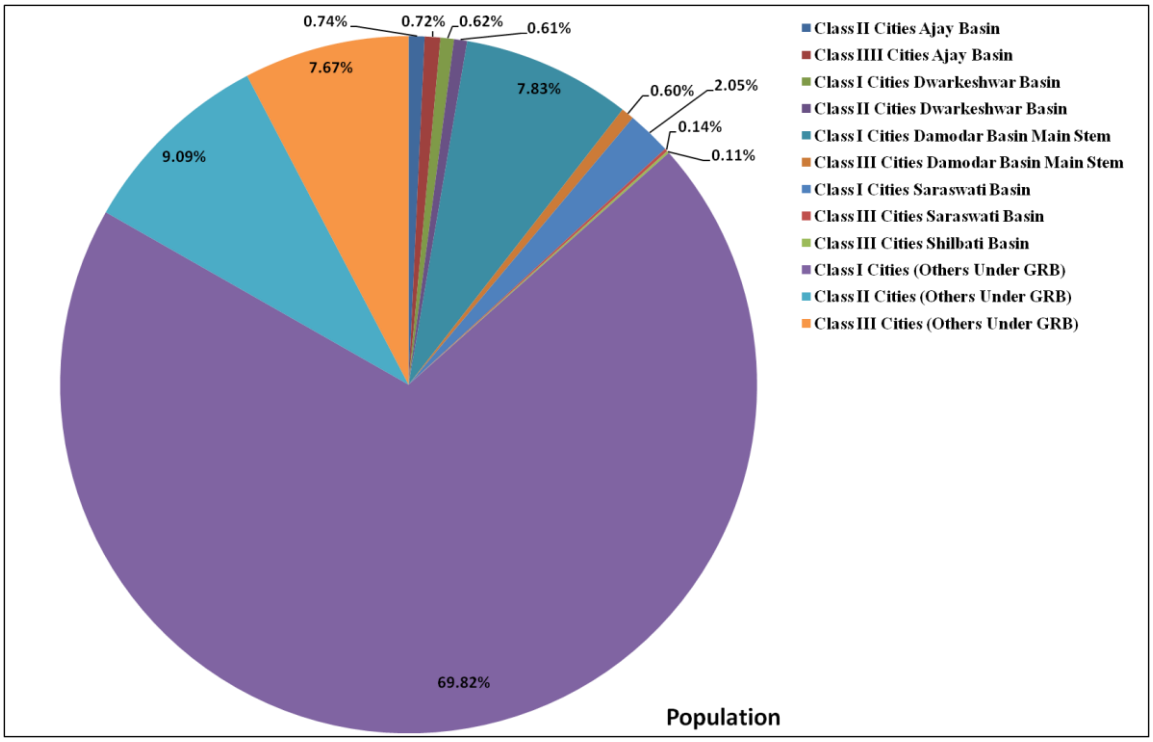


Figure 3: **Population Distribution of Class I Cities and Class II, Class III Towns in the Major Sub-Basins and Along the Main Stem of River Ganga in West Bengal.**

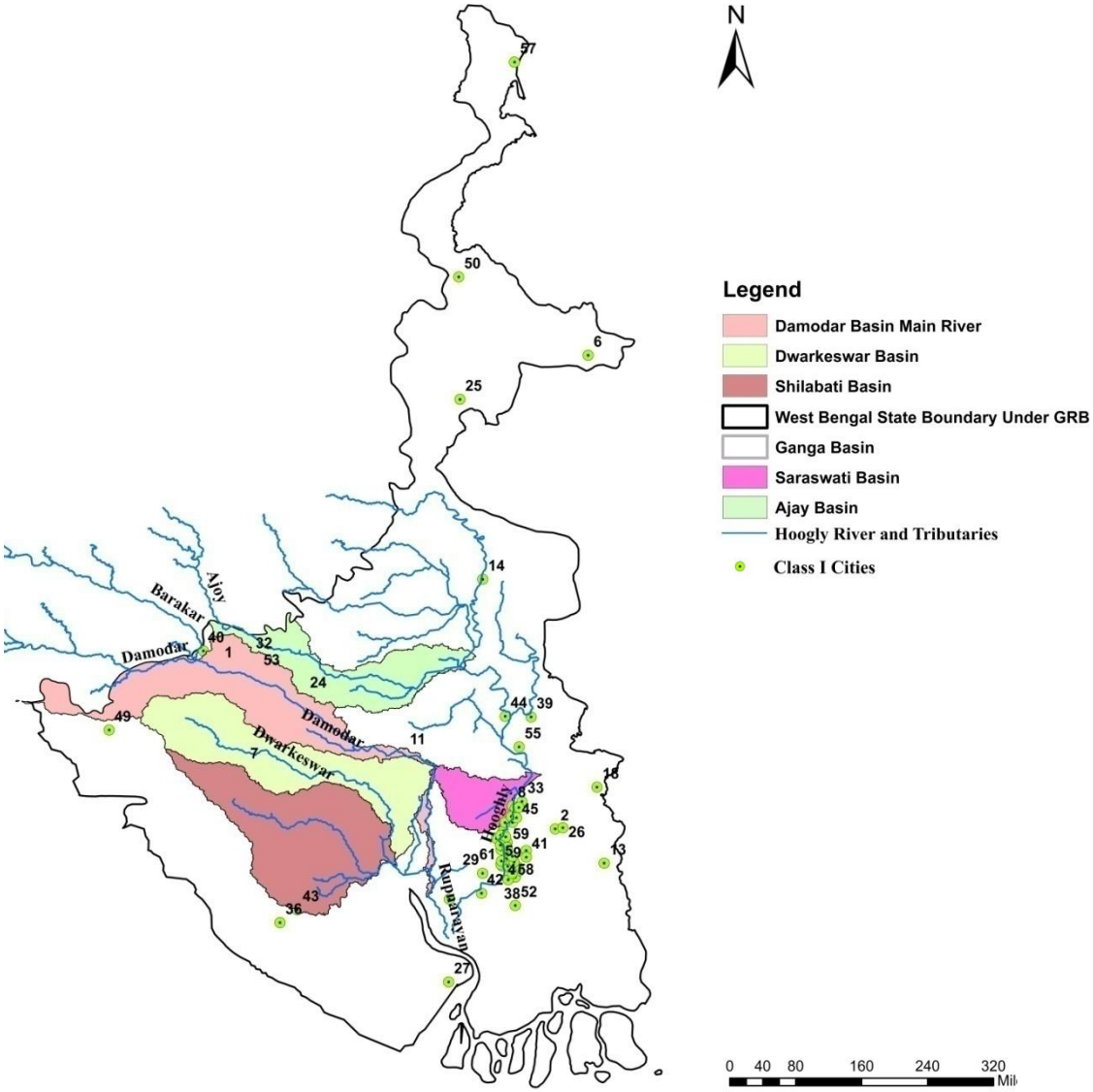
The sub-basins having 0% contributions in any Class have been excluded from the figure

Table 4: **Demography of Class I Cities in Portion of the Ganga Basin Lying in the State of West Bengal**

S No.	Town Name	River System	Area (sq km)	Town Population (Census, 2011)
1	Asansol	Damoder	125	563,917
2	Ashokenagar Kalyangarh (Ashoknagar)	Jamuna	20.5	121,592
3	Baidyabati	Hooghly	12.1	121,110
4	Bally	Hooghly	11.8	293,373
5	Bally	Hooghly	11.7	113,377
6	Balurghat	Atrai	10.8	153,279
7	Bankura	Dwarakeswar	19.1	137,386
8	Bansberia	Saraswati	9.07	103,920
9	Baranagar	Hooghly	7.12	245,213
10	Barasat	Hooghly	34.5	278,435
11	Barddhaman (Bardhaman)	Damoder	26.3	314,265
12	Barrackpore	Hooghly	10.6	152,783

S No.	Town Name	River System	Area (sq km)	Town Population (Census, 2011)
1	Asansol	Damoder	125	563,917
14	Berhampore (Baharampur)	Hooghly	31.4	195,223
15	Bhadreswar	Hooghly	8.28	101,477
16	Bhatpara	Hooghly	34.7	386,019
17	Bidhannagar	Hooghly	33.1	215,514
18	Bongaon (Bangaon)	Ichamati	14.3	108,864
19	Champdani	Hooghly	6.54	111,251
20	Chandannagar	Saraswati	22.1	166,867
21	Dumdum	Hooghly	9.23	114,786
22	Durgapur	Damoder	154	566,517
23	English Bazar	Mahananda	13.3	205,521
24	Habra	Jamuna	21.8	147,221
25	Haldia	Hooghly, Haldi	110	200,827
26	Halisahar	Hooghly	8.29	124,939
27	Haora (Howrah)	Hooghly	51.7	1,077,075
28	Hugli-Chinsurah	Saraswati	17.3	179,931
29	Jamuria	Ajay, Damoder	79.2	149,220
30	Kalyani	Hooghly	29.2	100,575
31	Kamarhati	Hooghly	11.0	330,211
32	Kanchrapara	Hooghly	9.06	129,576
33	Kharagpur	Kansabati	90.7	207,604
34	Khardah	Hooghly	6.87	108,496
35	Kolkata	Hooghly	185	4,496,694
36	Krishnanagar	Jalangi	16.0	153,062
37	Kulti	Barakar	96.0	313,809
38	Madhyamgram	Hooghly	21.5	196,127
39	Maheshtala	Hooghly	44.2	448,317
40	Medinipur (Midnapore)	kansabati	18.4	169,264
41	Nabadwip	Hooghly	11.7	125,543
42	Naihati	Hooghly	11.6	217,900
43	North Barrackpore	Hooghly	12.6	132,806
44	North Dumdum	Hooghly	26.4	249,142
45	Panihati	Hooghly	19.4	377,347
46	Puruliya (Purulia)	Kangsabati	14.0	121,067
47	Raiganj	Kulik River	10.8	183,612
48	Rajarhat Gopalpur	Hooghly	28.0	402,844
49	Rajpur Sonarpur	Hooghly	49.3	424,368
50	Raniganj	Damoder	25.0	129,441
51	Rishra	Hooghly	6.48	124,577
52	Santipur (Shantipur)	Hooghly	25.9	151,777

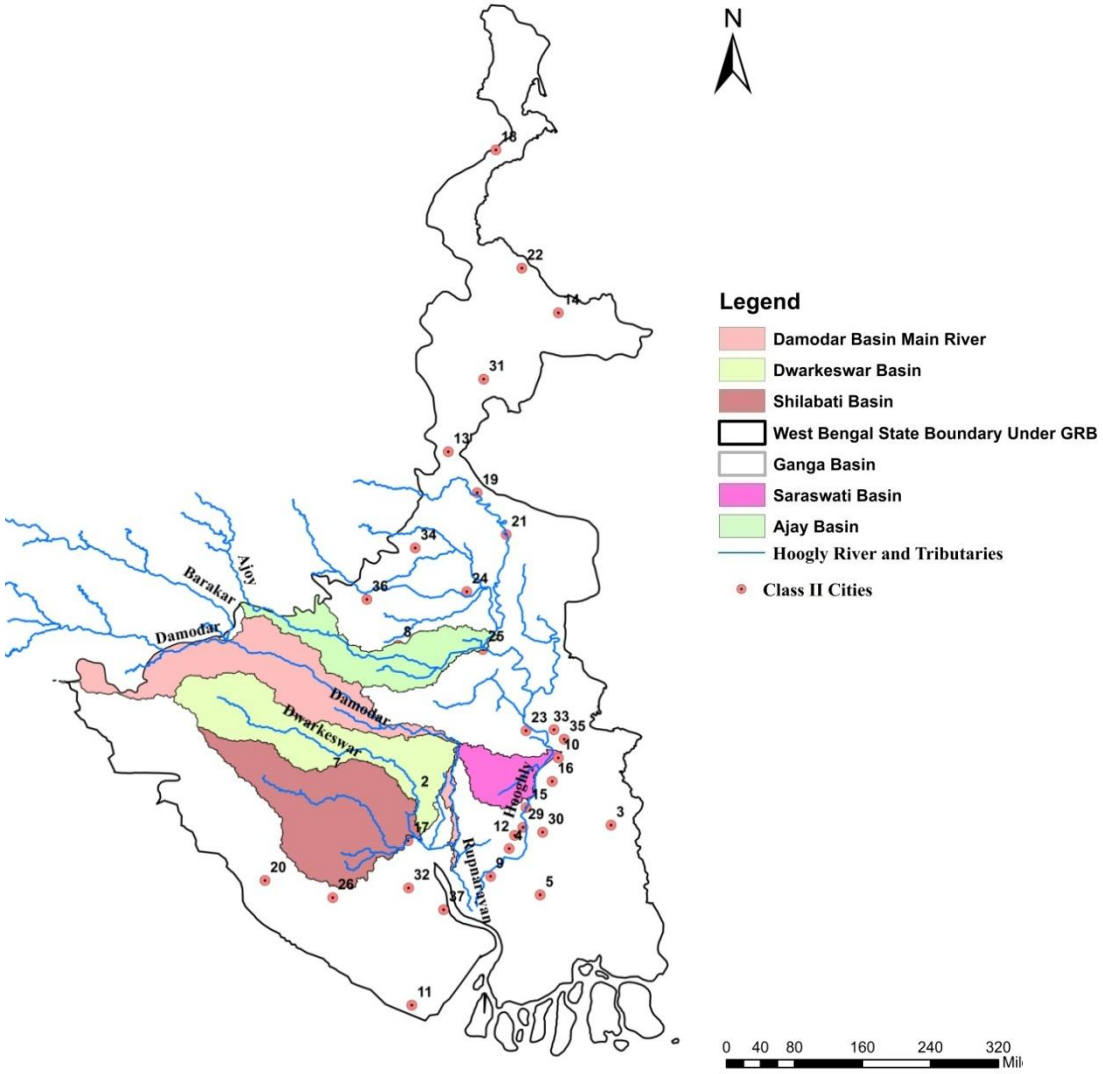
S No.	Town Name	River System	Area (sq km)	Town Population (Census, 2011)
53	Serampore	Hooghly	17.6	181,842
54	Siliguri	Mahananda	41.9	513,264
55	South Dumdum	Hooghly	18.0	403,316
56	Titagarh	Hooghly	3.24	116,541
57	Uluberia	Hooghly	33.3	235,345
58	Uttarpara Kotrung	Hooghly	12.6	159,147



Class I Cities

1	Asansol	33	Kalyani
2	Ashokenagar Kalyangarh	34	Kamarhati
3	Baidyabati	35	Kanchrapara
4	Bally	36	Kharagpur
5	Bally	37	Khardah
6	Balurghat	38	Kolkata
7	Bankura	39	Krishnanagar
8	Bansberia	40	Kulti
9	Baranagar	41	Madhyamgram
10	Barasat	42	Maheshtala
11	Barddhaman	43	Medinipur
12	Barrackpore	44	Nabadwip
13	Basirhat	45	Naihati
14	Berhampore	46	North Barrackpore
15	Bhadreswar	47	North Dumdum
16	Bhatpara	48	Panihati
17	Bidhannagar	49	Puruliya
18	Bongaon	50	Raiganj
19	Champdani	51	Rajarhat Gopalpur
20	Chandannagar	52	Rajpur Sonarpur
23	Dum Dum	53	Raniganj
24	Durgapur	54	Rishra
25	English Bazar	55	Santipur
26	Habra	56	Serampore
27	Haldia	57	Siliguri
28	Halisahar	58	South Dumdum
29	Haora	59	Titagarh
30	Hugli-Chinsurah	60	Uluberia
32	Jamuria	61	Uttarpara Kotrung

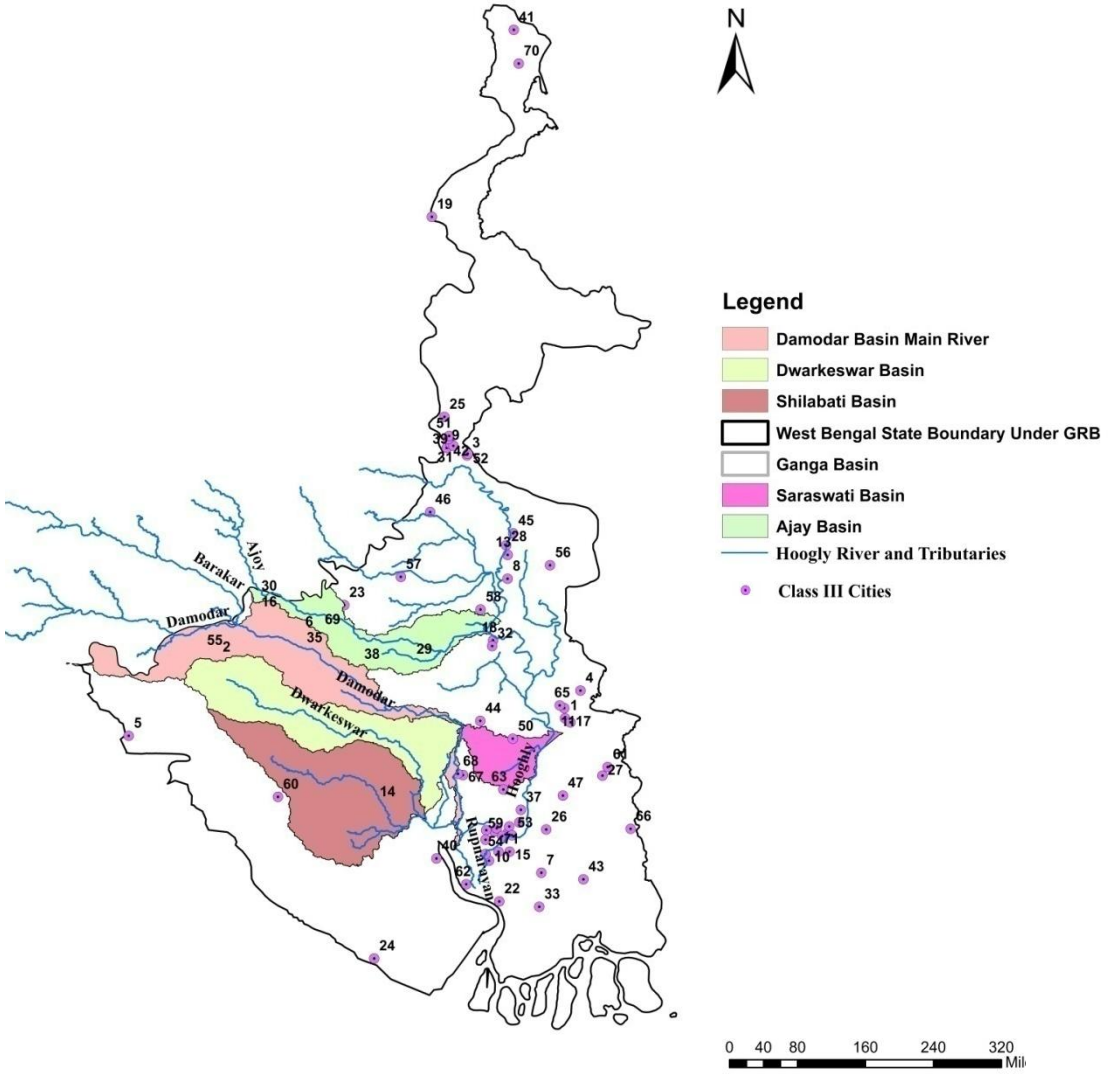
Figure 4: Class I Cities in the State of West Bengal under Ganga River Basin



Class II Cities

2	Arambag	19	Jangipur
3	Baduria	20	Jhargram
4	Bankra	21	Jiaganj-Azimganj
5	Baruipur	22	Kaliaganj
7	Bishnupur	23	Kalna
8	Bolpur	24	Kandi
9	Budge Budge	25	Katwa
10	Chakdaha	26	Kharagpur Railway Settlement
11	Contai	29	Konnagar
12	Dankuni	30	New Barrackpore
13	Dhulian	31	Old Malda
14	Gangarampur	32	Panskura
15	Garulia	33	Phulia
16	Gayespur	34	Rampurhat
17	Ghatal	35	Ranaghat
18	Islampur	36	Suri
		37	Tamluk

Figure 5: Class II Cities in the State of West Bengal under Ganga River Basin



Class III Cities

1	Aistala	37	Kanaipur
2	Arra	38	Kanksa
3	Aurangabad	39	Kankuria
4	Bagula	40	Kolaghat
5	Balarampur	41	Kurseong
6	Banshra	42	Mahadeb Nagar
7	Baruipur (P)	43	Matla
8	Beldanga	44	Memari
9	Bhasaipaikar	45	Murshidabad
10	Birlapur	46	Nalhati
11	Birnagar	47	Nebadhai Duttapukur
12	Chakapara	48	Nibra
13	Chaltia	49	Panchla
14	Chandrakona	50	Pandua
15	Chata Kalikapur	51	Paranpara
16	Chittaranjan	52	Paschim Punropara
17	Cooper's Camp	53	Podara
18	Dainhat	54	Pujali
19	Dalkhola	55	Raghunathpur
20	Dhuilya	56	Sahajadpur
21	Dhulagari	57	Sainthia
22	Diamond Harbour	58	Salar
23	Dubrajpur	59	Sankrail
24	Egra	60	Sarenga
25	Farakka Barrage Township	61	Shimulpur
26	Ghuni	62	Shyampur
27	Gobardanga	63	Singur
28	Gopjan	64	Sonamukhi
29	Guskara	65	Taherpur
30	Hindusthan Cables Town	66	Taki
31	Jafrabad	67	Tarakeswar
32	Jagadanandapur	68	Teghari
33	Jaynagar Mazilpur	69	Ukhra
34	Jujarsaha	70	Uttar Bagdogra
35	Kajora	71	Uttar Raypur
36	Kalara		

Figure 6: Class III Cities in the State of West Bengal under Ganga River Basin

Table 5: Demography of Class II Towns in Portion of the Ganga River Basin Lying in the State of West Bengal

S No.	Town Name	River System	Area (sq km)	Town Population (Census, 2011)
1	Arambag	Dwarkeswar	34.8	66,175
2	Baduria	Ichamati	22.4	52,493
3	Bankra	Hooghly	3.59	63,957
4	Baruipur	Hooghly	9.50	53,128
5	Bishnupur	Dwarkeswar	22.0	67,783
6	Bolpur	Ajay	13.1	80,210
7	Budge Budge	Hooghly	9.06	76,837
8	Chakdaha	Hooghly	9.06	95,203
9	Contai	Hooghly	14.3	92,226
10	Dankuni	Hooghly	19.5	94,936
11	Dhulian	Ganges	6.25	95,706
12	Gangarampur	Tangan	10.3	56,217
13	Garulia	Hooghly	6.47	85,336
14	Gayespur	Hooghly	30.0	58,998
15	Ghatal	Shilabati, Dwarkeswar	10.4	54,591
16	Islampur	-	11.1	54,340
17	Jangipur	Hooghly, Padma	8.20	88,165
18	Jhargram	kansabati	21.4	61,712
19	Jiaganj-Azimganj	Hooghly	11.7	51,790
20	Kaliaganj	Tangan	11.7	53,530
21	Kalna	Hooghly	4.40	56,722
22	Kandi	Mayurakshi	13.0	55,632
23	Katwa	Ajay, Hooghly	8.43	81,615
24	Kharagpur Railway Settlement	Kansabati	32.4	82,735
25	Konnagar	Hooghly	4.32	76,172
26	New Barrackpore	Hooghly	6.89	76,846
27	Old Malda	Mahananda	9.68	84,012
28	Panskura	Kansabati	19.9	57,932
29	Phulia	Hooghly	15.0	55,653
30	Rampurhat	Mayurakshi	6.25	57,833
31	Ranaghat	Churni	7.72	75,365
32	Suri	Mayurakshi	9.47	67,864
33	Tamluk	Rupnarayan	17.9	65,306

Table 6: Demography of Class III Towns in Portion of the Ganga Basin Lying in the State of West Bengal

S No.	Town Name	River System	Area (sq km)	Town Population (Census, 2011)
1	Aistala	Churni	2.94	20,662
2	Arra	Damoder	8.64	21,272
3	Aurangabad	Padma	2.77	39,261
4	Bagula	Churni	3.60	22,649
5	Balarampur	Kangsabati	9.51	24,431
6	Banshra	Damoder	7.20	29,521
7	Baruipur (P)	Hooghly	10.0	22,430
8	Beldanga	Hooghly	3.98	29,205
9	Bhasaipaikar	Ganges	3.05	23,141
10	Birlapur	Hooghly	4.84	22,078
11	Birnagar	Churni	5.52	30,799
12	Chakapara	Hooghly	3.72	35,282
13	Chaltia	Hooghly	5.13	25,336
14	Chandrakona	Shilabati	16.6	23,629
15	Chata Kalikapur	Hooghly	5.66	24,985
16	Chittaranjan	Ajay	19.6	39,098
17	Cooper's Camp	Churni	1.50	23,119
18	Dainhat	Hooghly	10.4	24,397
19	Dalkhola	Fulahar	15.9	36,930
20	Dhuilya	Hooghly	2.43	20,962
21	Dhulagari	Hooghly	3.22	23,740
22	Diamond Harbour	Hooghly	10.4	41,802
23	Dubrajpur	Ajay	16.8	38,041
24	Egra	Champa	17.2	30,148
25	Farakka Barrage Township	Ganga	3.70	20,126
26	Ghuni	Hooghly	3.89	24,249
27	Gobardanga	Jamuna	13.5	45,377
28	Gopjan	Hooghly	9.62	23,415
29	Guskara	Kunur	17.2	35,388
30	Hindusthan Cables Town (Rupnarainpur)	Ajay	3.90	22,599
31	Jafrabad	Ganges	3.05	28,332
32	Jagadanandapur	Hooghly	3.93	23,822

S No.	Town Name	River System	Area (sq km)	Town Population (Census, 2011)
33	Jaynagar Mazilpur	Piyali, Hooghly	5.85	25,922
34	Jujarsaha	Hooghly	4.04	21,820
35	Kajora	Damoder	10.3	27,275
36	Kalara	Hooghly	4.64	27,210
37	Kanaipur	Hooghly	1.60	26,814
38	Kanksa	Damoder	8.66	23,789
39	Kankuria	Ganges	3.46	36,925
40	Kolaghat	Rupnarayan	6.07	25,191
41	Kurseong	Balason	7.85	42,446
42	Mahadeb Nagar	Ganga	3.43	21,737
43	Matla	Matla, Bidyadhari	10.2	31,920
44	Memari	Damoder River	8.84	41,451
45	Murshidabad	Hooghly	17.3	44,019
46	Nalhati	Hooghly	12.0	41,534
47	Nebadhai Duttapukur	Hooghly	3.29	25,557
48	Nibra	Hooghly	3.47	27,818
49	Panchla	Hooghly	4.51	26,432
50	Pandua	Hooghly	3.75	30,700
51	Paranpara	Ganges	5.66	22,297
52	Paschim Punropara	Padma	7.72	40,683
53	Podara	Hooghly	1.54	21,589
54	Pujali	Hooghly	8.32	37,047
55	Raghunathpur	Damoder	12.9	25,561
56	Sahajadpur	Jalangi	1.57	23,280
57	Sainthia	Mayurakshi	10.0	44,601
58	Salar	Hooghly	7.15	22,894
59	Sankrail	Hooghly	2.82	29,114
60	Sarenga	Kansabati	4.35	25,200
61	Shimulpur	Jamuna, Ichhamati	5.87	20,803
62	Shyampur	Old Damoder	7.45	22,024
63	Singur	Hooghly	6.40	21,382
64	Sonamukhi	Sali	18.0	29,085
65	Taherpur	Hooghly	2.01	38,039

S No.	Town Name	River System	Area (sq km)	Town Population (Census, 2011)
66	Taki	Ichamati	13.0	38,263
67	Tarakeswar	Damoder	3.88	30,947
68	Teghari	Damoder	3.54	25,058
69	Ukhra	Ajay, Damoder	7.33	24,104
70	Uttar Bagdogra	Balason	1.63	25,044
71	Uttar Raypur	Hooghly	5.32	23,084

4. Religious Places and Their Importance

The eastern bottleneck of the country is the state West Bengal covering Himalayan stretch in the north to the Bay of Bengal in the south. The state of West Bengal has significant importance in terms of religions and cultures live here. Many ancient and famous temples are found throughout the state. Belur Math, Kalighat Kali temple, Dakshineswar Kali temple, Tarapith temple, Rasmancha temple and many more temples are located near the rivers in the state. A significant number of devotees visited in these temples throughout the year and taking bath in holy river Ganga and its tributaries. The Kenduli fair and the Gangasagar fair or Gangasagar Yatra or Ganga Snan is the well known fairs congregate devotees around the river Ajay and river Hooghly. These fairs are also responsible for the dynamic change in the state economy. Some major religious events and their features have been illustrated in Table 7.

Table 7: Major Religious Events on River Banks in West Bengal

S No.	Religious Events	Place	Place/ River	Occasion
1	Ganga Sagar Mela	South 24 Pargana	Ganga Sagar	Makar Sankranti
2	Tusu Festival	Purulia, Bankura, Midnapur	Sessa river, Konsaboti river	Poush Sankranti
3	Dakshinray Utsav	South 24 Parganas	Hooghly river	-
4	Jaydev Kenduli Mela	Bolpur (Birbhum)	Ajay river	Makar Sankranti
5	Bera Utsav	Murshidabad	Bhagirathi river	-
6	Rath Yatra	Hooghly	Hooghly river	-
7	Mahalaya (Pitri Paksh)	All over West Bengal	-	Pitri Paksh
8	Durga Puja (Sharadotsav)	All over West Bengal	-	-
9	Rash Utsav	North 24 Paragana	Ganga river	-

S No.	Religious Events	Place	Place/ River	Occasion
10	Jagaddhatri Puja	Hooghly	Ganga river	
11	Kartikeya Puja	All over West Bengal	Ganga river	Karthik purnima
12	Chatth Puja	Kolkata, Siliguri	Ganga river	Chatth
13	Ganga Snan Mela	Nadia	Ganga river	Ramnavmi
14	Buddha Purnima	Siliguri	Ganga river	Buddha Purnima
15	Jalpesh Mela	Jalpaiguri	Teesta river	Shivratri

5. 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 centres, discharge from open drain carrying sewage, discharges from the tributaries and discharge of untreated/partially treated wastewater from industrial units are the major point sources that contribute to the pollution load in the state. Damodar, Ajay, Dwarkeshwar, Saraswati and Shilbati are the major river basins under GRB in the state. All these basins are also contributing to the Hooghly basin. In the report published in 2009 by CPCB, the total water supply for Class I and Class II cities in the state was 3,723.53 and 225.56 MLD, respectively while sewage generation was 2345.2 and 180.4 MLD, respectively. The treatment capacity for Class I and Class II cities was only 21.6 and 34.3%, respectively of the total sewage generated (CPCB, 2009) (Figure 7).

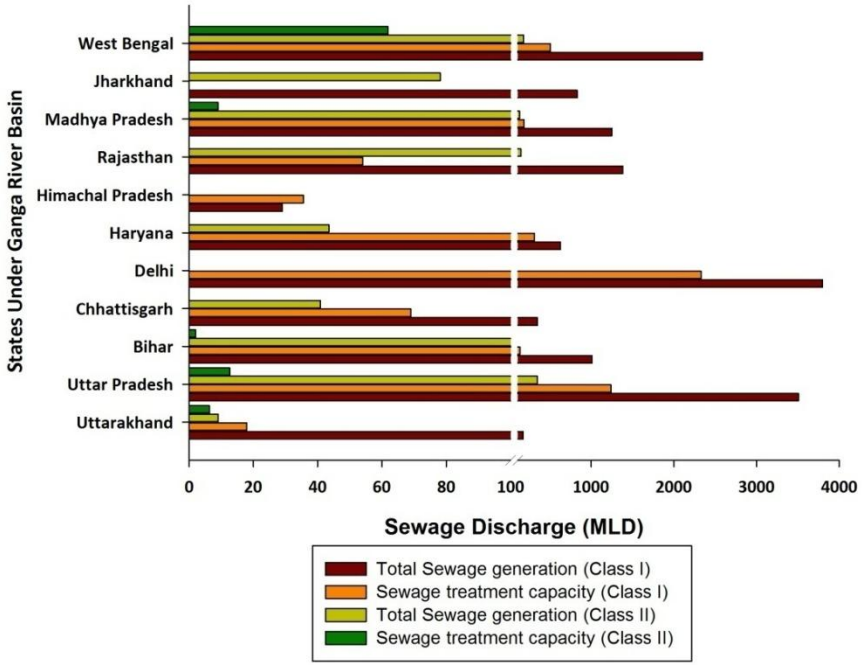


Figure 7: Assessment of Total Sewage Generation (MLD) and Sewage Treatment Capacity of Class I and II Cities in the States under Ganga River Basin

The pollution load for Class I cities, Class II and III towns have been estimated for the state (Figure 8). The maximum sewage generation is in the Class I cities (80%) followed by Class II (11%) and Class III towns (9%). The BOD and COD load for Class I cities, Class II and Class III towns are in the range of 76, 17 and 7%, respectively. The TKN load almost showing the same trend as BOD and COD load. The BOD, COD and TKN load of all the Class I cities, Class II and Class III towns are estimated on per capita basis by using standard values (Figure 8).

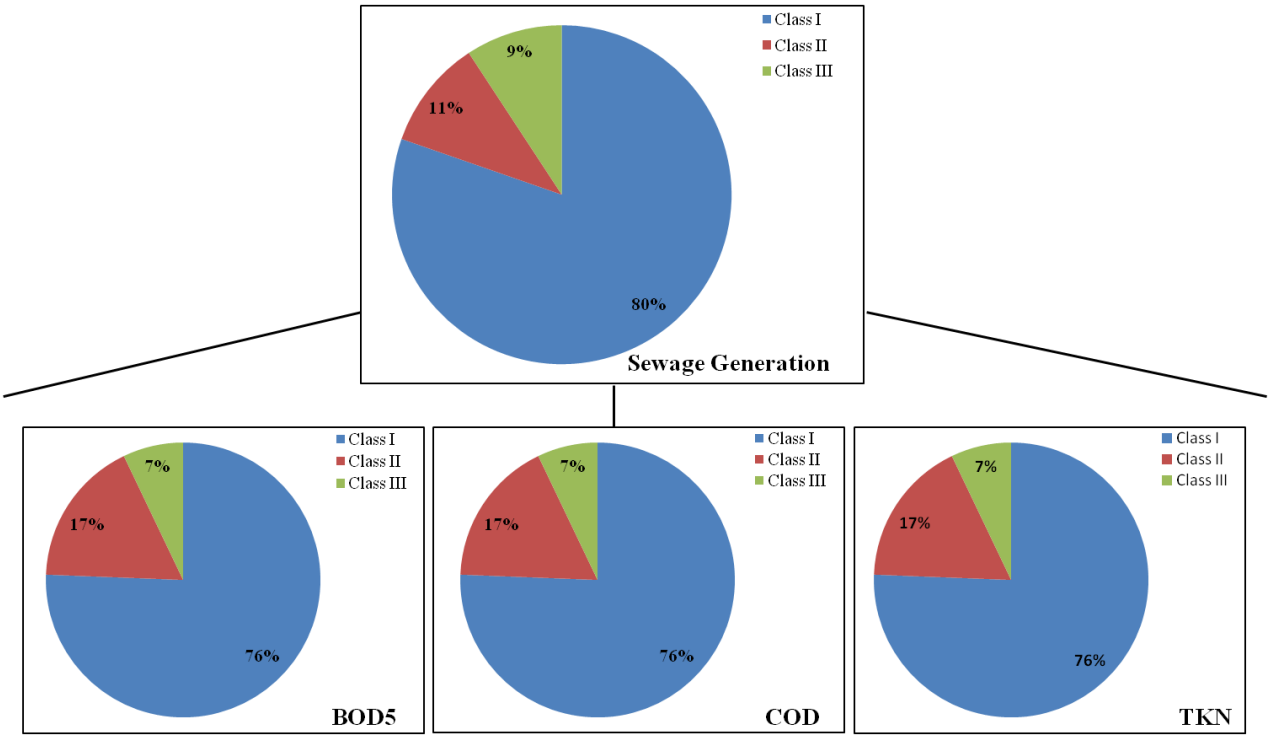


Figure 8: Distribution of Pollution Load of Class I Cities and Class II, Class III Towns in West Bengal

For Class I cities, the maximum sewage is generated in the city of Kolkata (485.6 MLD) followed by Howrah (116.3 MLD). The average sewage generation for Class I, II and III cities are 32.9, 10.3 and 3.1 MLD, respectively. As per the estimation, the total BOD and COD load in the state is nearly 477 and 811 tons/day, respectively from Class I cities. The load reduces for Class II cities and it is calculated as approximately 62 tons/day (BOD load) and 105 tons/day (COD load). The load due to Class III towns is even lesser (BOD: 54 tons /day and COD: 93 tons/ day). The average BOD and COD load from Class I towns is 8.2 and 13.9 tons/day, respectively whereas Class II towns contribute approximately 1.8 tons/day and 3.2 tons/day of BOD and COD, respectively. For Class III town the average values in the state are 0.8 tons/day for BOD and 1.3 tons/day for COD. In Class I towns, maximum BOD, COD and TKN load is from Kolkata,

whereas minimum is from Kalyani. The maximum and minimum BOD, COD and TKN contributing cities in Class II towns are Dhulian and Jiaganj-Azimganj, respectively. In class III towns, maximum and minimum BOD, COD and TKN load is from Gobardanga and Farakka Barrage Township, respectively. The estimates of total water supply, total sewage generated, BOD, COD and TKN loads are summarized and illustrated in Figures 9a-11c for class I cities, class II and class III towns. The comparative account of all the classes (I, II and III) for its population, sewage generation, water supply and BOD, COD and TKN loads are presented in Figure 12.

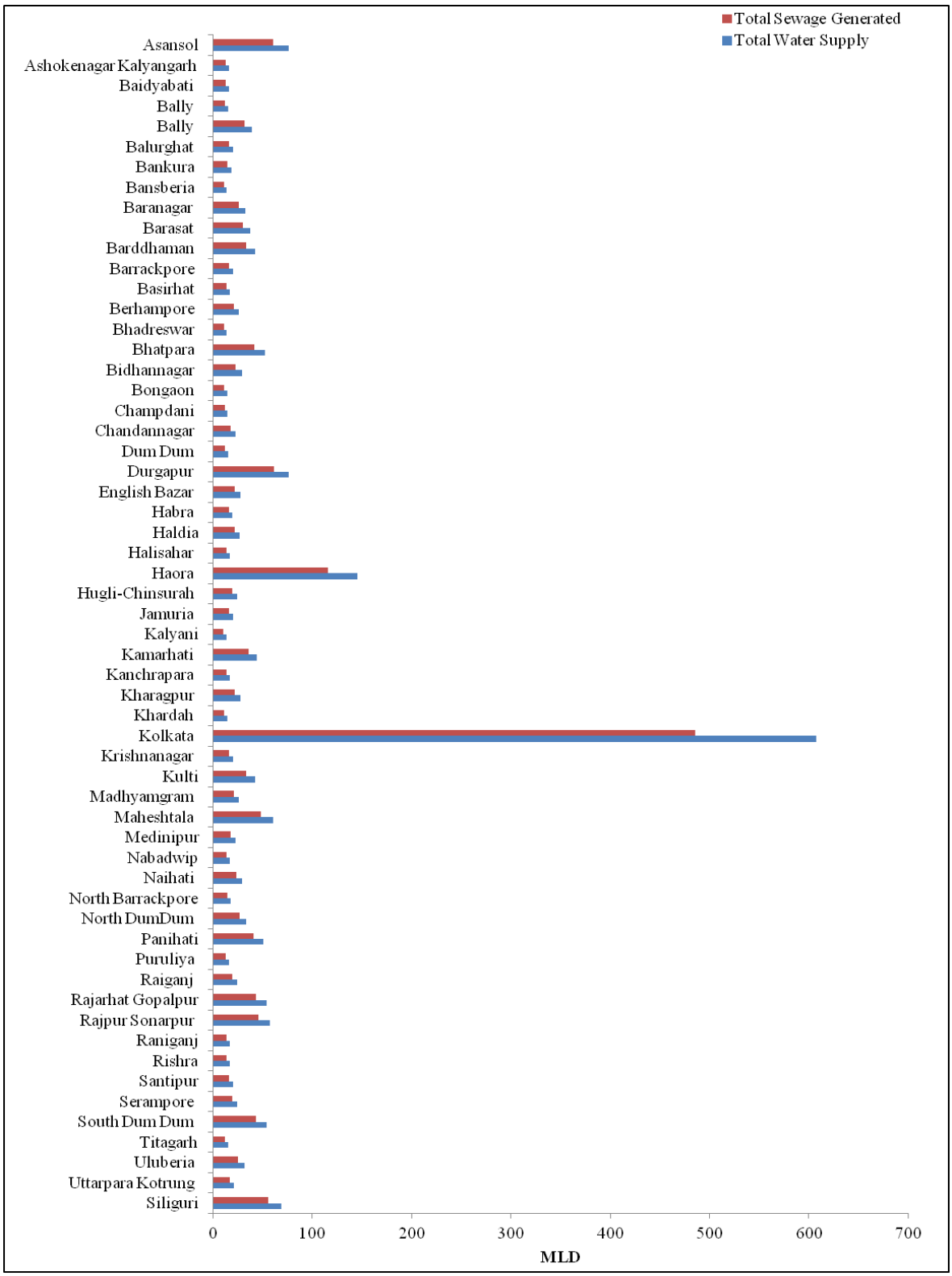


Figure 9a: Assessment of Water Supply and Sewage Generation (MLD) in Class I Cities in the Ganga River Basin Lying in the State of West Bengal

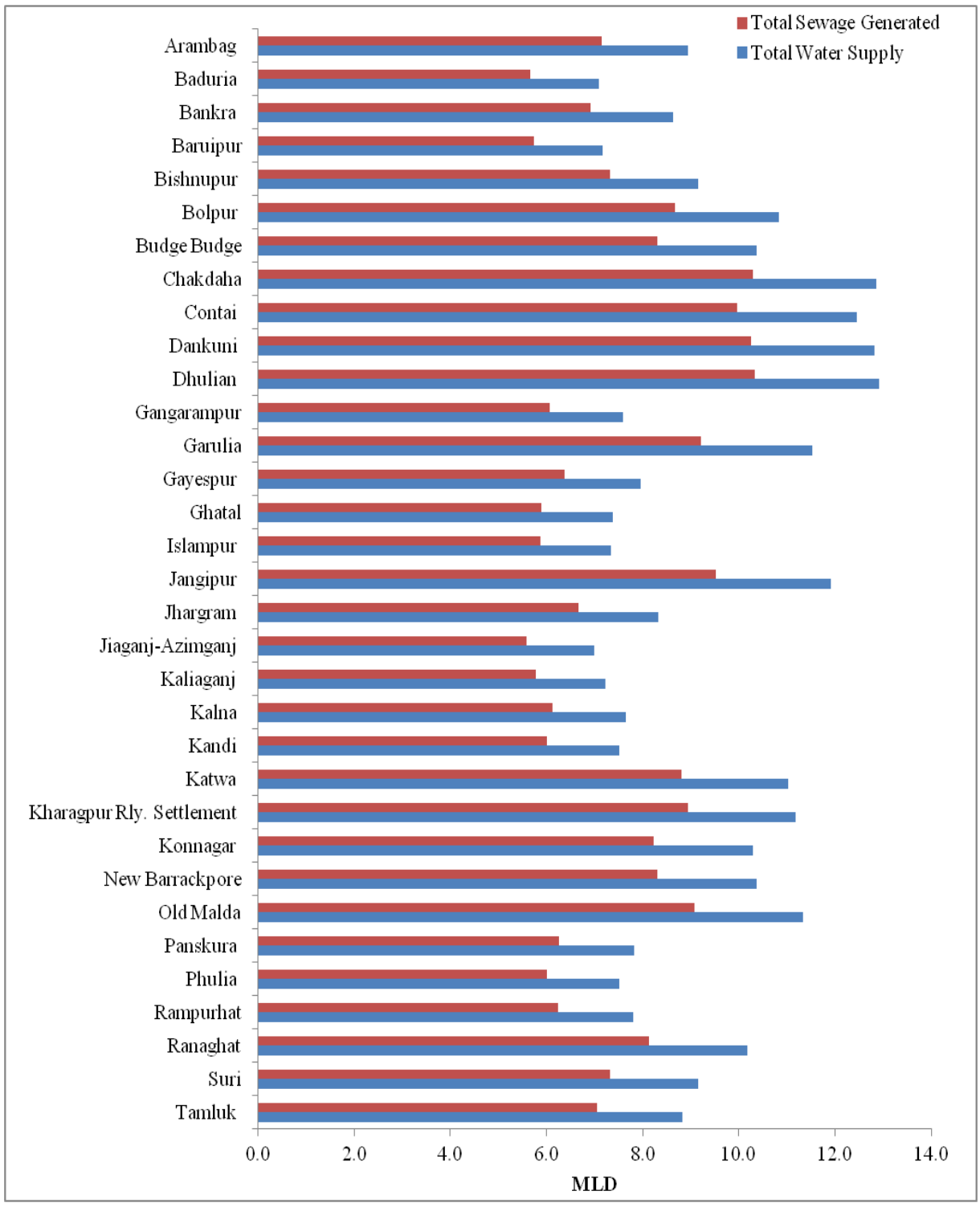


Figure 9b: Assessment of Water Supply and Sewage Generation (MLD) in Class II Towns in the Ganga River Basin Lying in the State of West Bengal

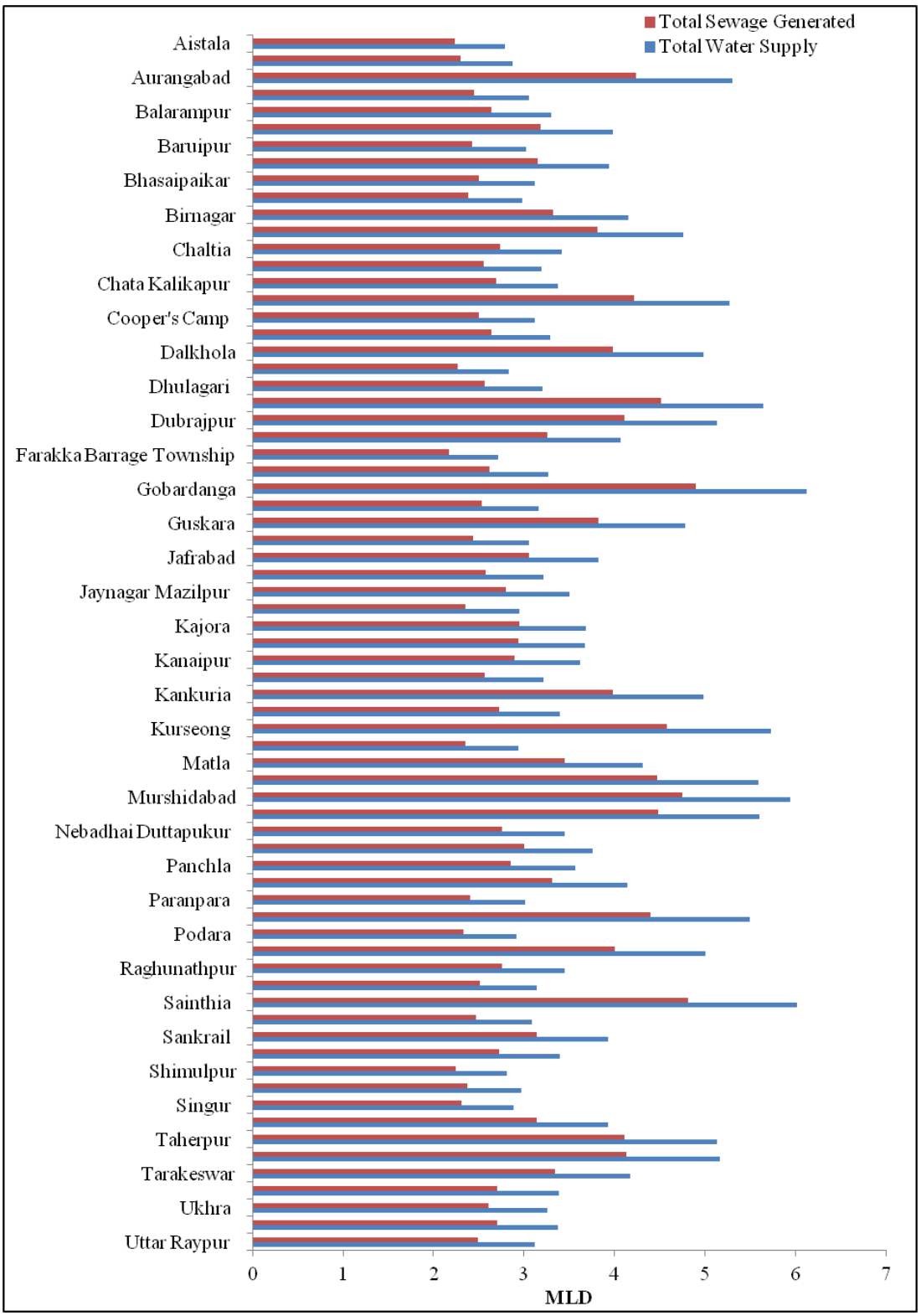


Figure 9c: Assessment of Water Supply and Sewage Generation (MLD) in Class III Towns in the Ganga River Basin Lying in the State of West Bengal

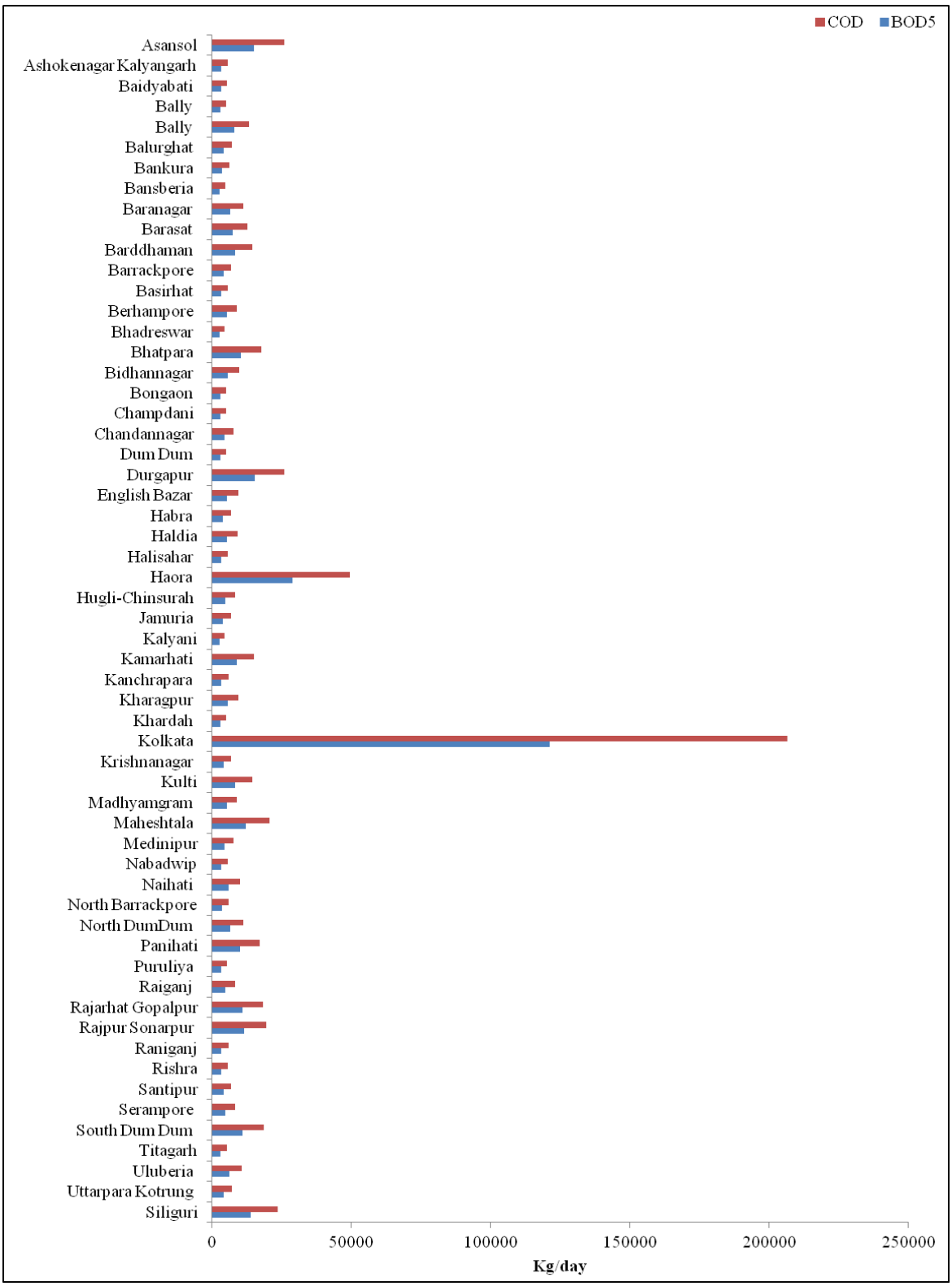


Figure 10a: Assessment of Organic Pollution Load (kg/day) from Class I Cities in the Ganga River Basin lying in West Bengal

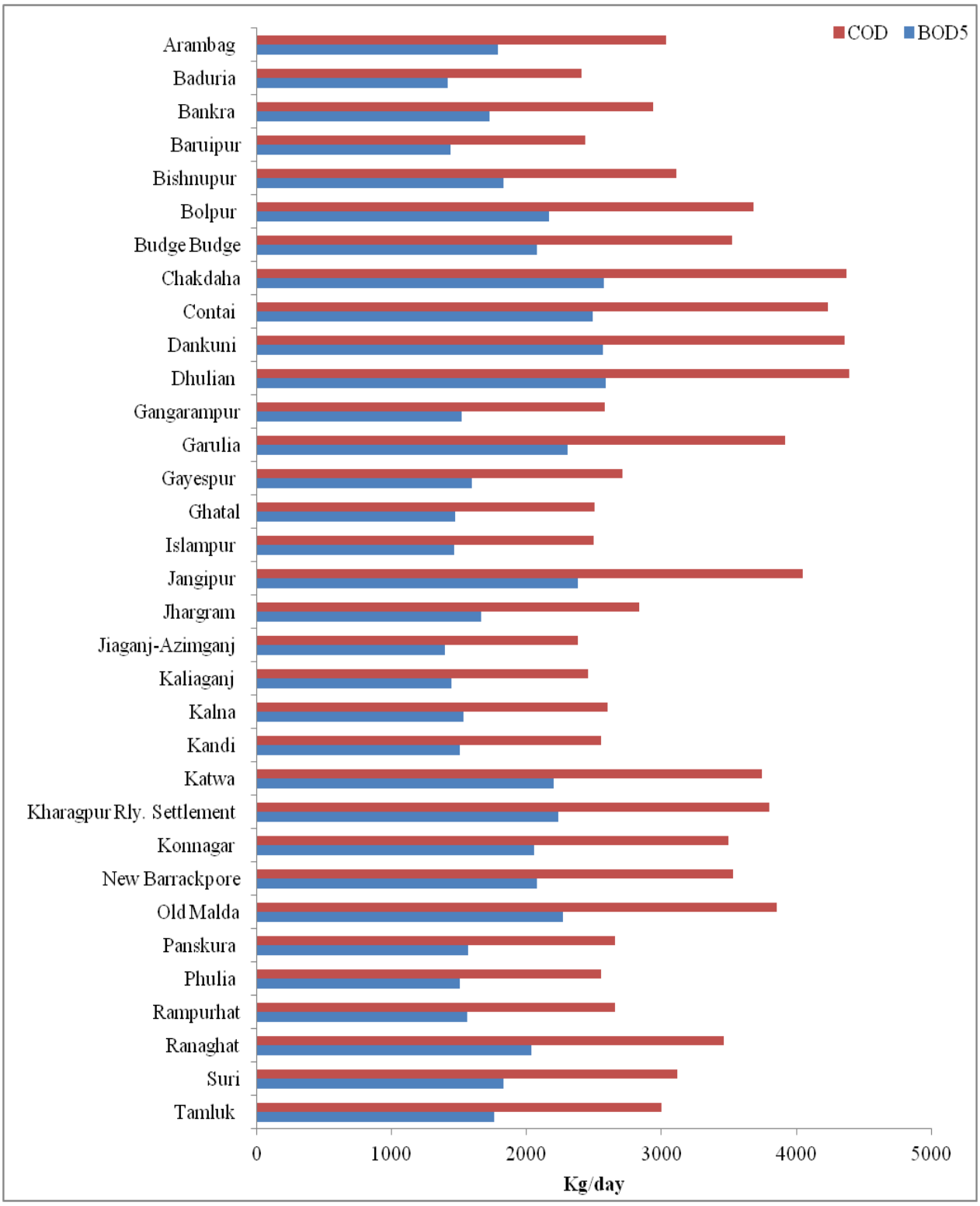


Figure 10b: Assessment of Organic Pollution Load (kg/day) from Class II Towns in the Ganga River Basin Lying in West Bengal

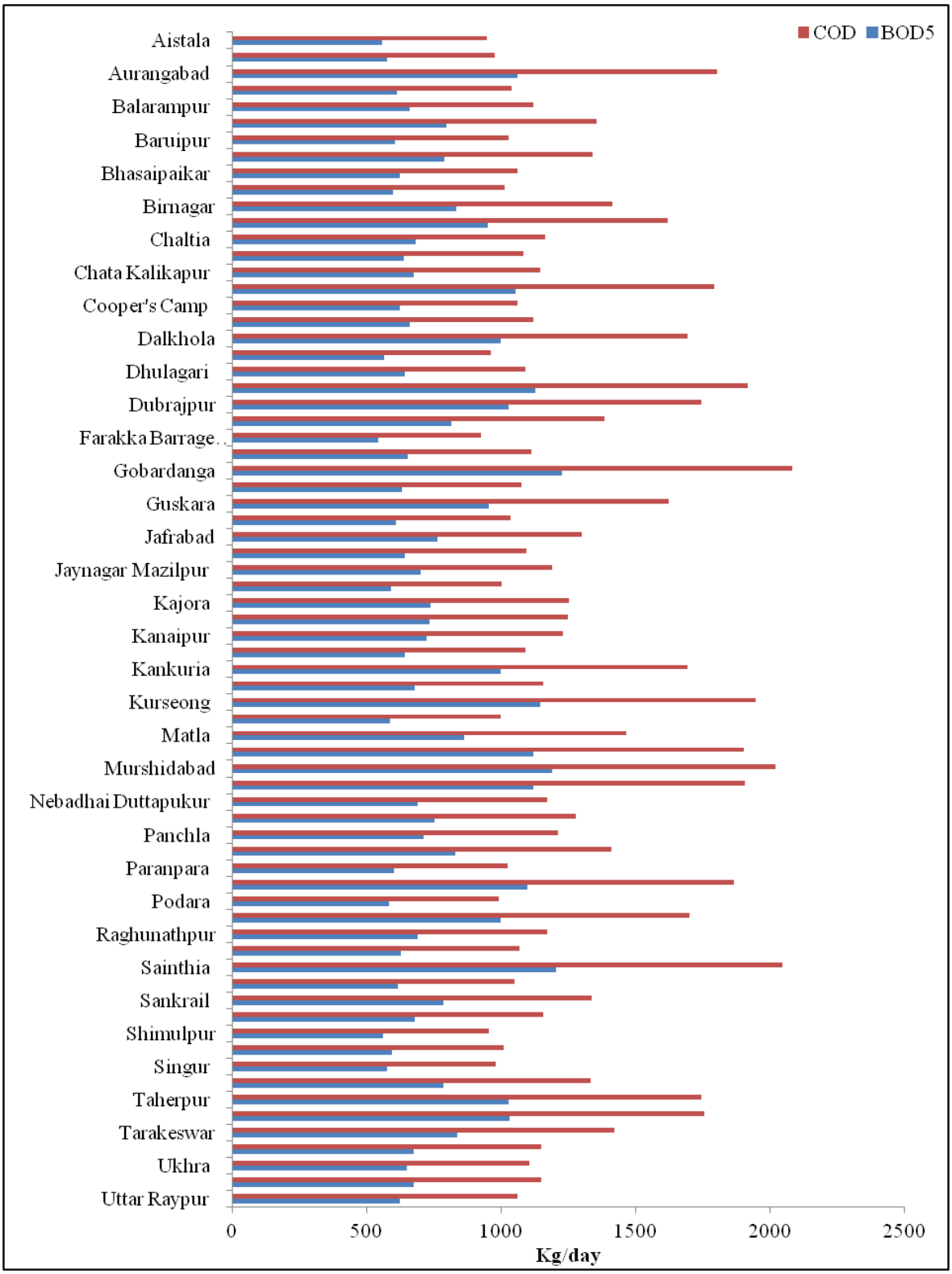


Figure 10c: Assessment of Organic Pollution Load (kg/day) from Class III Towns in the Ganga River Basin Lying in West Bengal

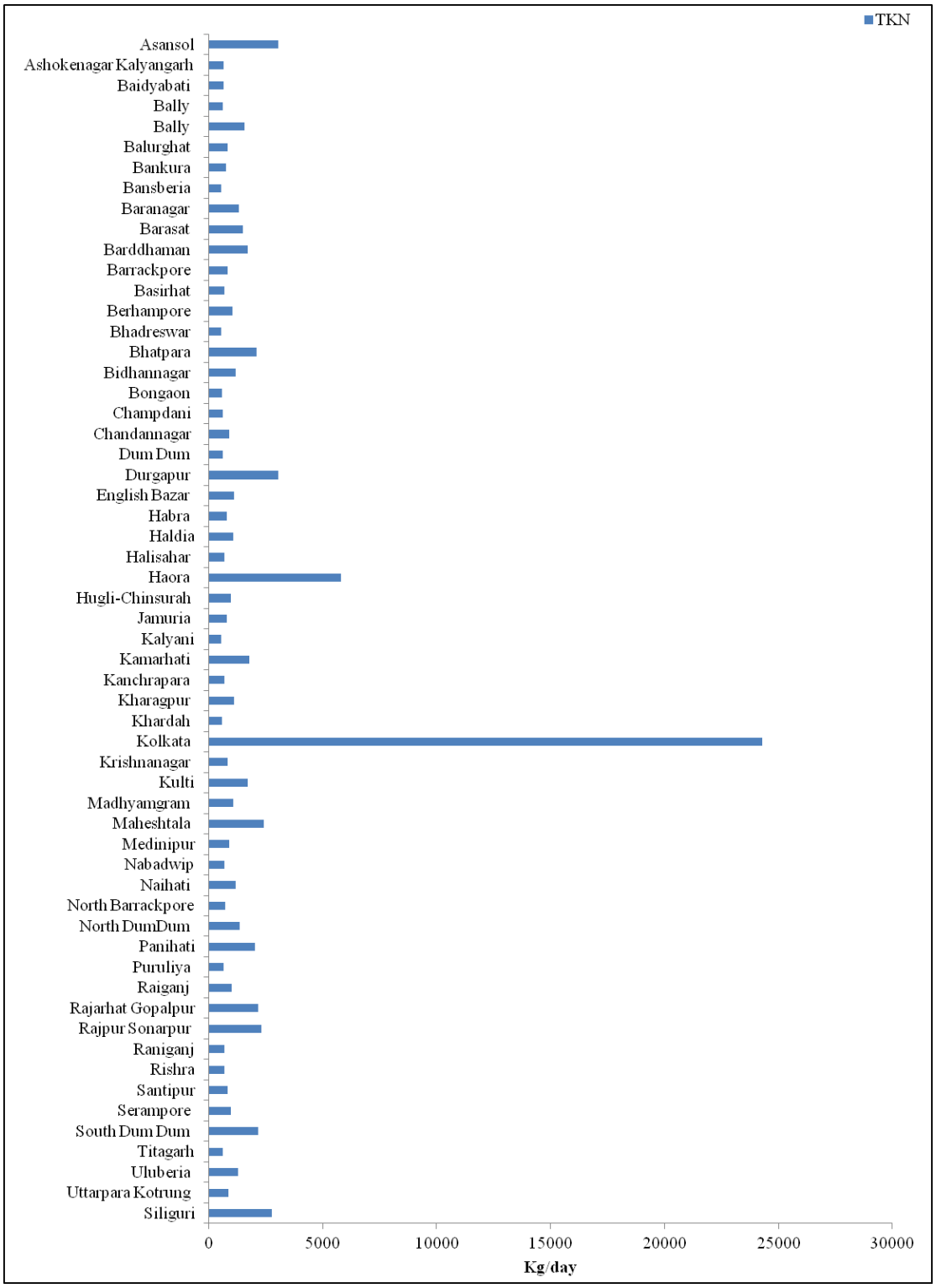


Figure 11a: Assessment of TKN Load (kg/day) from Class I Cities in the Ganga River Basin Lying in the State of West Bengal

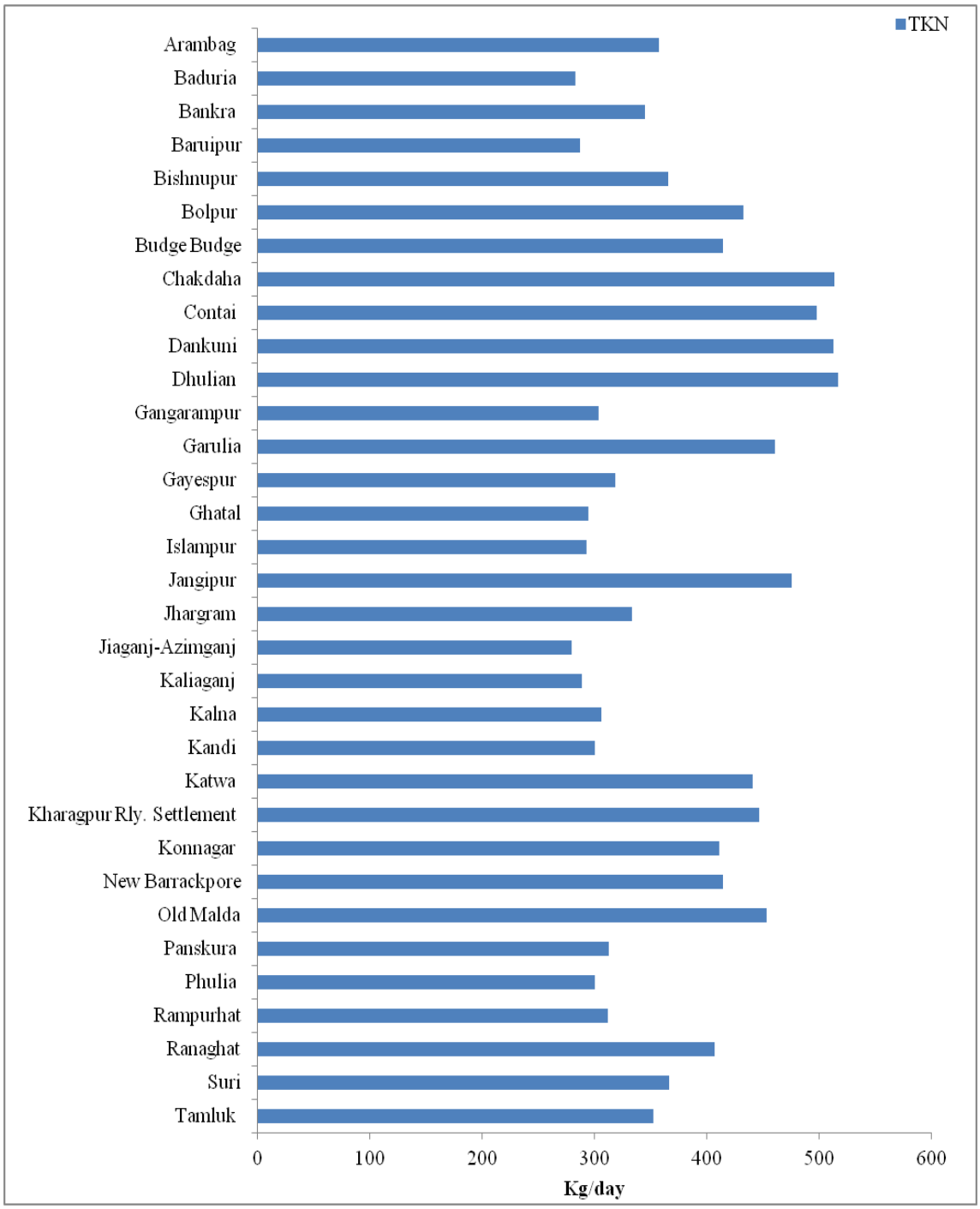


Figure11b: Assessment of TKN Load (kg/day) from Class II Towns in the Ganga River Basin Lying in the State of West Bengal

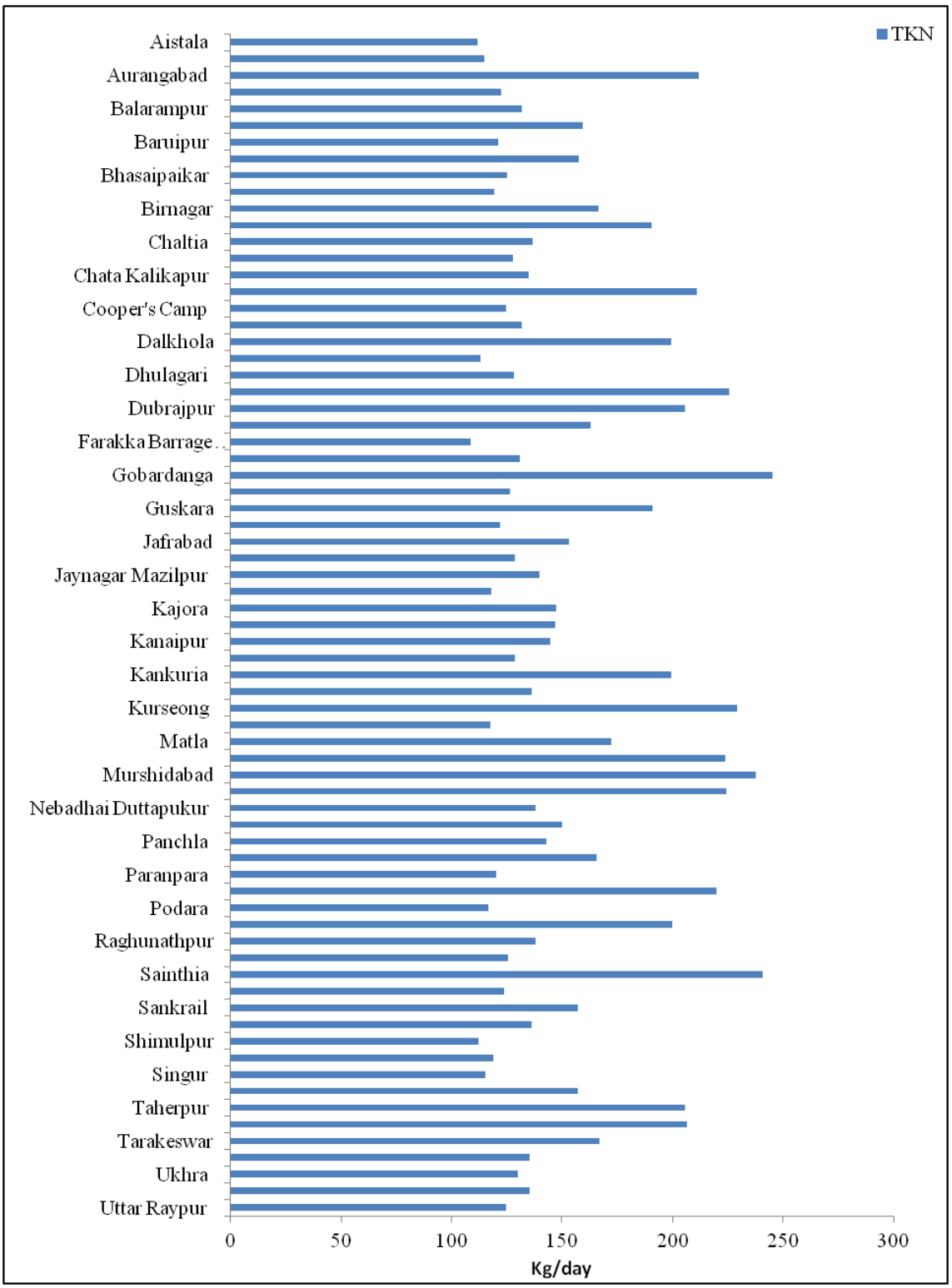


Figure11c: Assessment of TKN Load (kg/day) from Class III Towns in the Ganga River Basin Lying in the State of West Bengal

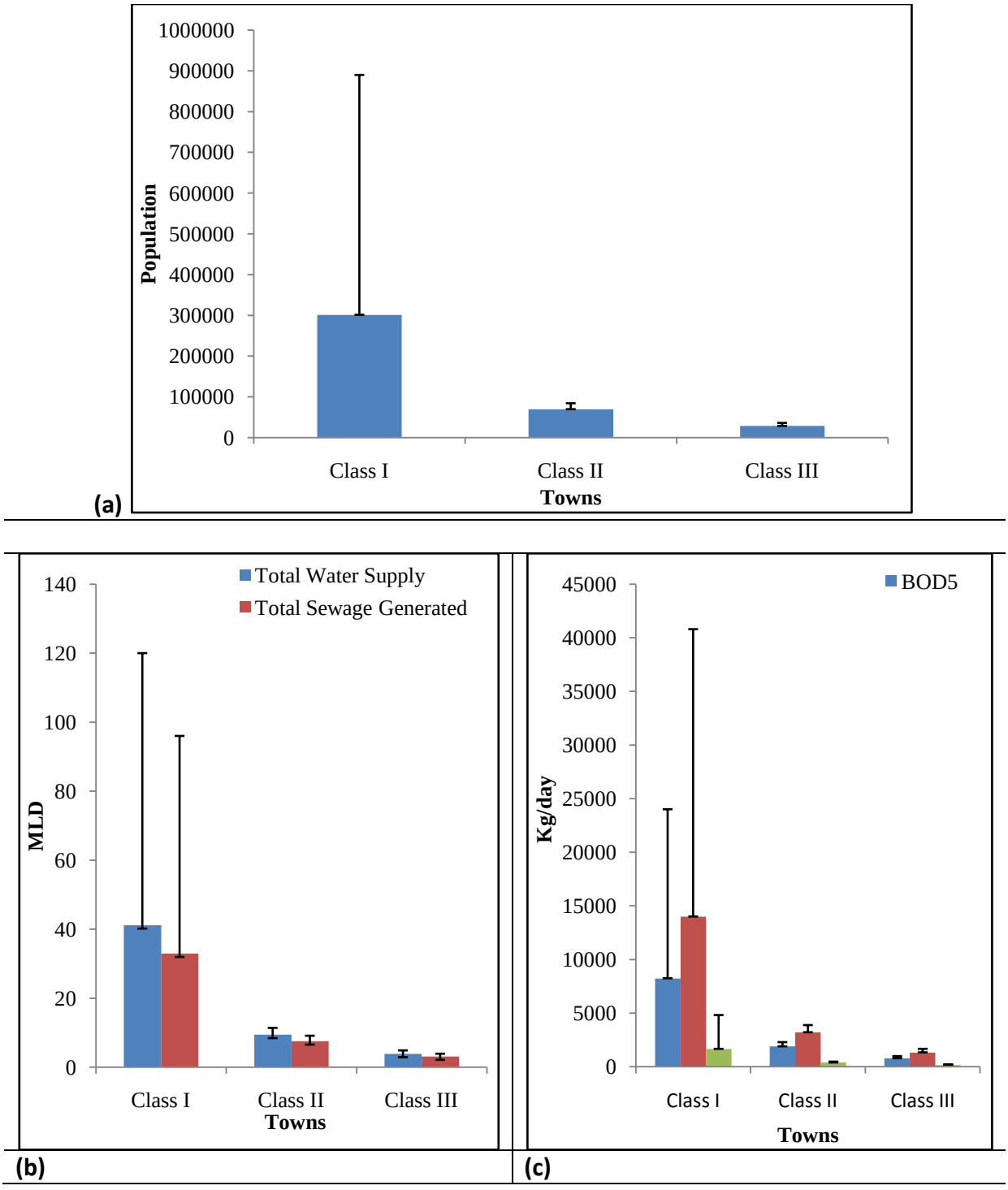


Figure 12: **Comparative Analysis of Class I, Class II and Class III Cities/Towns Lying Under the State: (a) Population (b) Total Water Supply and Sewage Generation (c) Pollution Load**

6. Conclusions

River Ganga in the state of West Bengal from Farakka barrage splits into Bhagirathi/ Hooghly stream on the right and Padma stream on the left. Construction of Farakka barrage in the state not only changes the hydrology of the river, it heavily impacted the riverine biodiversity. Water quality of river Bhagirathi-Hooghly was studied number of times by WBPCB in between 2004 and 2007 at the major centres like Berhampur, Garden Reach and Diamond Harbour (WBPCB, 2009 and Bandyopadhyay et. al., 2014). CPCB also tested some critical water quality parameters in Bhagirathi-Hooghly for certain sampling stations between 2006-2011 and reported in 2013 (CPCB, 2013).

The catchment of the river bears the load of 58 Class I cities, 33 Class II towns and 71 Class III towns, directly or indirectly. The main Class I cities of the state are Asansol, Barddhaman, Barrackpore, Durgapur, Haldia, Dumdum, Howrah, Kharagpur, Kolkata, Medinipur, North Dumdum and South Dumdum.

The multitudinous problems also arise during lean season due to the continuous discharge of untreated and/or partially treated sewage and industrial wastewater. The Ayay, Konsaboti, Rupnarayan, Saraswati, Mahananda and Damodar tributaries discharge their partially treated and untreated effluent into river Ganga/ Hooghly. As per our estimation the pollution load in terms of BOD and COD in the state is nearly 477 and 811 tons/day, respectively from Class I cities. For Class II and Class III towns, pollution load (BOD and COD) is approximately BOD: 62 tons/day and COD: 105 tons/day and BOD: 54 tons /day and COD: 93 tons/ day, respectively.

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Assessment of Domestic Pollution Load from Urban Agglomeration in Ganga Basin: NCT Delhi

GRBMP: Ganga River Basin Management Plan

by

Consortium of 7 "Indian Institute of Technology"s (IITs)

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.

Dr. Vinod Tare
Professor and Coordinator
Development of GRBMP
IIT Kanpur

The Team

1. AAKazmi, IIT Roorkee *kazmifce@iitr.ernet.in*
2. A K Gupta, IIT Kharagpur *akgupta18@rediffmail.com,akgupta@iitkgp.ac.in*
3. A K Mittal, IIT Delhi *akmittal@civil.iitd.ernet.in*
4. A K Nema, IIT Delhi *aknema@gmail.com*
5. Ajay Kalmhad, IIT Guwahati *kajay@iitg.ernet.in*
6. Anirban Gupta, BESU Shibpur *guptaanirban@hotmail.com*
7. Arun Kumar, IIT Delhi *arunku@civil.iitd.ac.in*
8. G J Chakrapani, IIT Roorkkee *gjcurfes@iitr.ernet.in*
9. GazalaHabib, IIT Delhi *gazalahabib@gmail.com*
10. Himanshu Joshi, IIT Roorkee *himanshujoshi58@gmail.com*
11. InduMehrotra, IIT Roorkee *indumfce@iitr.ernet.in*
12. I M Mishra, IIT Roorkee *imishfch@iitr.ernet.in*
13. Ligy Philip, IIT Madras *ligy@iitm.ac.in*
14. M MGhangrekar, IIT Kharagpur *ghangrekar@civil.iitkgp.ernet.in*
15. MukeshDoble, IIT Bombay *mukeshd@iitm.ac.in*
16. P K Singh, IT BHU *dr_pksingh1@rediffmail.com*
17. Purnendu Bose, IIT Kanpur *pbose@iitk.ac.in*
18. R Ravi Krishna, IIT Madras *rrk@iitm.ac.in*
19. Rakesh Kumar, NEERI Nagpur *r_kumar@neeri.res.in*
20. S M Shivnagendra, IIT Madras *snagendra@iitm.ac.in*
21. SaumyenGuha, IIT Kanpur *sguha@iitk.ac.in*
22. Shyam RAsolekar, IIT Bombay *asolekar@iitb.ac.in*
23. SudhaGoel, IIT Kharagpur *sudhagoel@civil.iitkgp.ernet.in*
24. Suparna Mukherjee, IIT Bombay *mitras@iitb.ac.in*
25. T R Sreekrishanan, IIT Delhi *sree@dbeb.iitd.ac.in*
26. Vinod Tare, IIT Kanpur *vinod@iitk.ac.in*
27. Vivek Kumar, IIT Roorkee *vivekfpt@iitr.ernet.in*

Lead Authors

1. Vinod Tare, IIT Kanpur
2. Purnendu Bose, IIT Kanpur
3. Abhishek Gaur, IIT Kanpur
4. Suresh Gurjar, IIT Kanpur
5. Vishal Kapoor, IIT Kanpur
6. Swatanta Pratap Singh, IIT Kanpur
7. Shashikant Patel, IIT Kanpur

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1. Introduction:

Delhi, officially the National Capital Territory (NCT) of Delhi, is the capital territory of India. It has a population of approximately 16.8 million (Census2011), second most populous city and urban agglomeration in India. Urban expansion in NCT Delhi incorporated towns in adjacent states and at its largest extent can count a population of approximately 25 million residents as of 2014.Delhi has been continuously inhabited since the 6th century BC. Most of the time, Delhi has served as a capital of various kingdoms and empires. Due to this, Delhi has been captured, ransacked and restored several times, particularly during the medieval period. NCT Delhi is a cluster of a number of cities spread across the metropolitan region.

The Ganga River Basin (GRB) has a total catchment area of 1,086,000 sq. kmacross India, Tibet (China), Nepal and Bangladesh. The river basin in India, nearly covers 26% (861,404 sq. km; about 80% of total catchment area of Ganga river basin) of the total geographical area. The sprawling Ganga basin, spread across 11 states, is the world's most populous river basin and home to more than 492 million Indians. Uttar Pradesh is one of the 11 states (Uttarakhand, Uttar Pradesh, Bihar, Chhattisgarh, Delhi, Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh, Jharkhand and West Bengal) of the GRB in India through which the Ganga River and her tributaries flowapproximately in the direction of North West to South East. The entire geographical area of the Union Territory lies in GRB where Yamuna River which is major tributary of River Ganga, traverses (Figures 1 and 2). A comparison of state-wise distribution of GRB area within the geographical areas of different states is presented in Table 1.

Table 1: State and Union Territory wise Distribution of the Ganga River Basin Area

State/ Union Territory	*Total Geographical Area (sq. km)	#Area contributing to Ganga Basin (sq. km)	Percentage of the Basin Area (%)
Uttarakhand	53,483	53,436	6.2
Uttar Pradesh	240,928	240,928	28.0
Bihar	94,163	94,163	10.9
Jharkhand	79,716	49,798	5.8
Madhya Pradesh	308,252	198,962	23.1
Chhattisgarh	135,192		
Delhi	**1,484**	**1,484**	**0.17**
Haryana	44,212	34,341	4.0
Himachal Pradesh	55,673	4,317	0.5
Rajasthan	342,239	112,490	13.1
West Bengal	88,752	71,485	8.3

Source: *Census 2011; #https://nmcg.nic.in/location.aspx

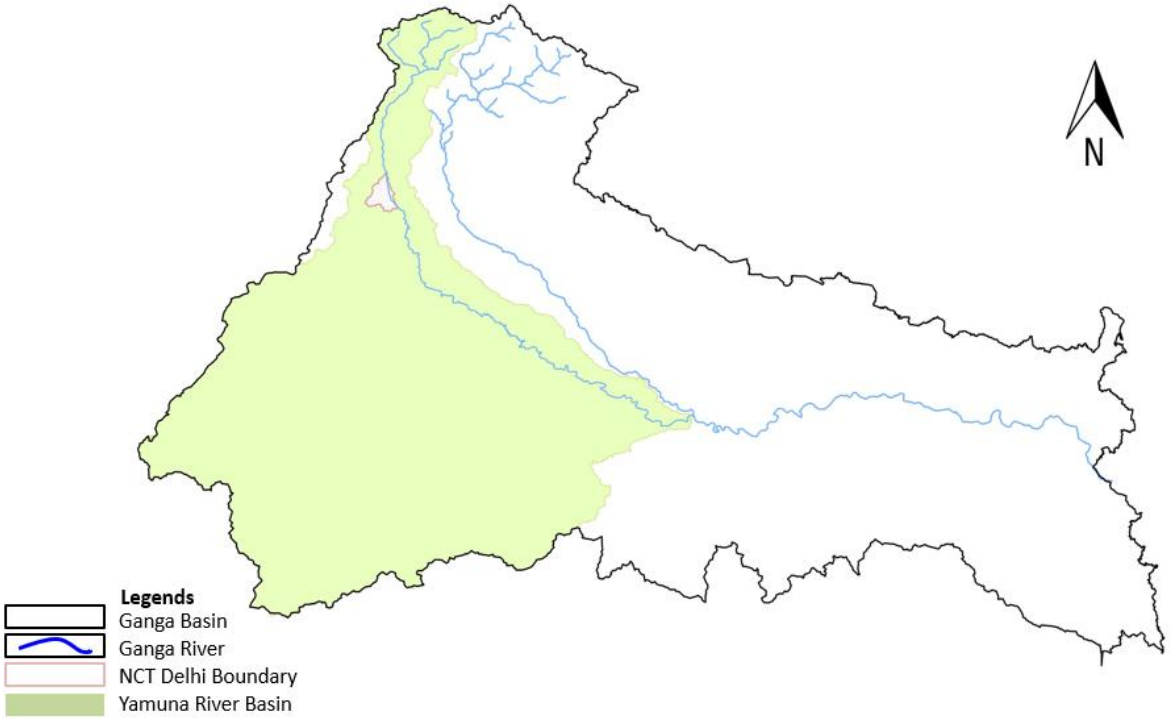

Figure 1: Ganga River Basin in the Indian Boundarieswith Yamuna River Basin and NCTDelhi

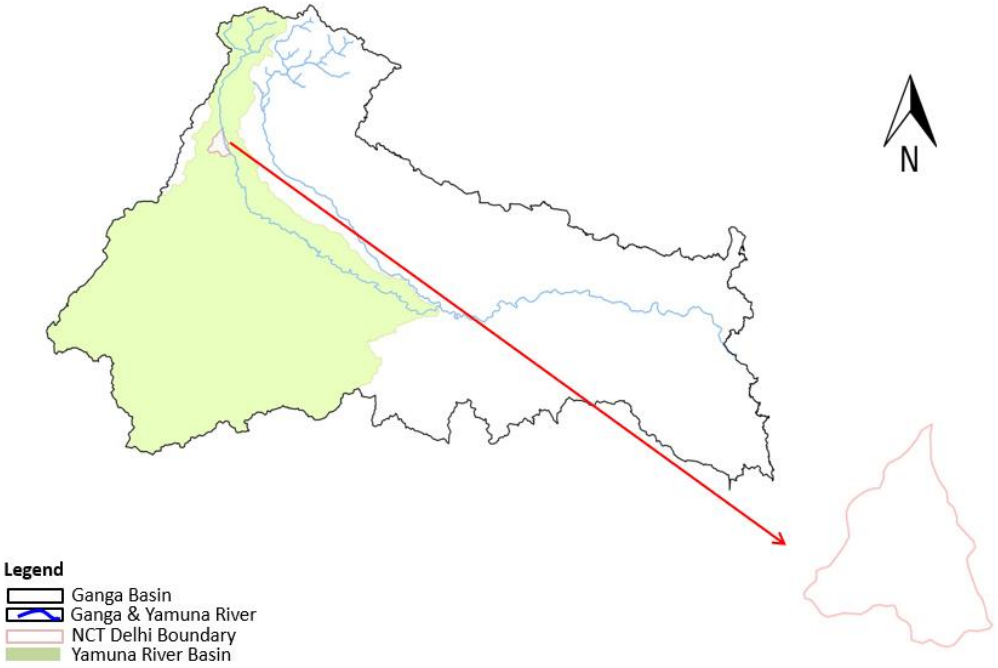

Figure 2: Yamuna River Basin and NCT Delhi Boundaries in the Ganga River Basin

River Yamuna enters Delhi at Palla village 15 km upstream of Wazirabad barrage and shares eastern boundary with Uttar Pradesh. The total annual average rainfall of NCT Delhi is in the order of 617 mm. The salient features of River Yamuna contributing directly or indirectly to the Ganga basin in NCT Delhi are presented in Table 2.

Table 2: The Salient Features of Yamuna River Contributing to the River Ganga in NCT Delhi

Characteristics	Yamuna
Position	Right bank
Region of origin	Yamunotri glacier at Bandar Punch
Mouth	Ganga
Total length (km)	1376
Total catchment area (sq. km)	366,223
Catchment area in NCT Delhi (sq. km)	1,484
River bed/ Soil texture	Alluvial about 42% of the basin area, followed by medium black soil 25.5% and mixed red and black soil 15%

2. Major Obstruction and Abstraction Projectson the Tributaries of the River GangaExecutedin the State

The natural flow regime in the river Yamuna has been altered due to construction of two barrages in the NCT Delhi. These barrages are essentially for domestic water supplies. The list of the major barrages on Yamuna River in NCT Delhi are mentioned underneath.

Table 3: Details of the Major Barrages on the River Yamuna in the NCT Delhi

Projects	River	Year of Completion	Remark
Wazirabad Barrage	Yamuna	1959	Major Irrigation Project
Okhla Barrage	Yamuna	1874	Major Irrigation Project

3. Demographic Profile of Ganga Basin in the NCT Delhi

Delhi has 14 Class I cities, 21 Class II and 24 Class III towns under Ganga basin (Figure 4-6). The total population of the Delhi according to the Census 2011 is 16.78 million. The density in the state is about 11,297 people per square kilometer (Census, 2011). Some of the Class I cities are Bhalswa Jahangir Pur, Burari, Dallo Pura, Deoli, DMC(U), Gopalpur, Hastsal, Karawal Nagar, and Mandoli. The details of the area, population and the major river systems of all the Class I, II and III cities/towns are presented in Table 3-5, respectively.

Figure 3 shows the population distribution of Class I cities, Class II and III towns along the main stream of the river Yamuna as well as rest of the area under NCT Delhi. Map in the Figure 4, 5 and 6 showing the distribution of Class I cities, Class II, and Class III towns respectively in the NCT Delhi. The average population of class I cities in the union territory is 0.95 million, approximately 14 times and 29 times higher than the population of class II and class III towns, respectively. DMC (U) is the highly populated class I city having the population of 11.03 million, while Mandoli is the least populated (0.12 million) class I city. Sadat Pur Gujran and Nithari are the towns having maximum and minimum population under class II towns, contains 0.097 and 0.05 million, respectively. In class III towns where the population is less than 0.05 million, the maximum population is in the Tigri town (0.047 million), while minimum is in the Ali Pur (0.02 million).Approximately 86 % population of class I cites lives on the main stream of the Yamuna River, and 7.87% of class II cities population lives on the main steam (Figure 3).

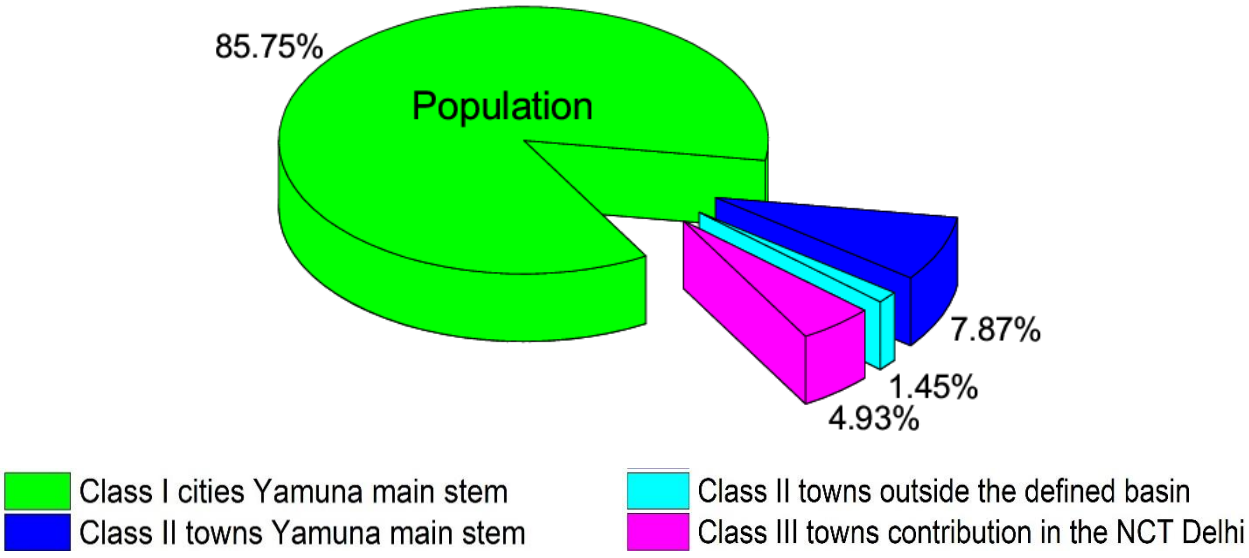

Figure 3:Population Distribution of Class I Cities and Class II, Class III Towns in the NCT Delhi

Table 4: Demographic details of Major urban centers (Class I) in NCT Delhi.

S No.	Town Name	River System	Area (sq. km)	Town Population (Census 2011)
1	Bhalswa Jahangir Pur	Yamuna River	6.70	197148
2	Burari	Yamuna River	11.20	146190
3	Dallo Pura	Yamuna River	2.29	154791
4	Deoli	Yamuna River	10.10	169122
5	DMC (U)	Yamuna River	561.27	11034555
6	Gokal Pur	Yamuna River	2.30	121870
7	Hastsal	Yamuna River	6.80	176877
8	Karawal Nagar	Yamuna River	4.80	224281
9	Kirari Suleman Nagar	Yamuna River	4.70	283211
10	Mandoli	Yamuna River	5.87	120417
11	Mustafabad	Yamuna River	1.30	127167
12	N.D.M.C.	Yamuna River	42.74	257803
13	Nangloi Jat	Yamuna River	6.70	205596
14	Sultan Pur Majra	Yamuna River	2.80	181554

Table 5: Demographic details of class II towns in NCT Delhi.

S No.	Town Name	River System	Area (sq. km)	Town Population (Census 2011)
1	Bapraula	Yamuna River	5.62	52744
2	Bawana	Yamuna River	17.00	73680
3	Begum Pur	Yamuna River	1.90	53682
4	Chilla Saroda Bangar	Yamuna River	2.58	83217
5	Gharoli	Yamuna River	3.56	92540
6	Jaffrabad	Yamuna River	0.90	54601
7	Jait Pur	Yamuna River	3.60	59330
8	Kapas Hera	Yamuna River	3.40	74073
9	Khajoori Khas	Yamuna River	0.90	76640
10	Mithe Pur	Yamuna River	1.80	69837
11	Molar Band	Yamuna River	4.10	91402
12	Mukand Pur	Yamuna River	2.50	57135
13	Mundka	Yamuna River	11.90	54541
14	Nithari	Yamuna River	2.29	50464
15	Pooth Kalan	Yamuna River	7.00	96002
16	Pul Pehlad	Yamuna River	2.20	69657
17	Roshan Pura alias Dichaon Khurd	Yamuna River	2.80	57217
18	Sadat Pur Gujran	Yamuna River	1.10	97641
19	Sahibabad Daulat Pur	Yamuna River	5.70	54773
20	Taj Pul	Yamuna River	1.20	68796
21	Ziauddin Pur	Yamuna River	1.80	68993

Table 6: Demographic details of class III towns in NCT Delhi.

S No.	Town Name	River System	Area (sq. km)	Town Population (Census 2011)
1	Aali	Yamuna River	4.00	27169
2	Ali Pur	Yamuna River	8.60	20332
3	Aya Nagar	Yamuna River	8.18	33123
4	Babar Pur	Yamuna River	0.80	37058
5	Chattar Pur	Yamuna River	7.39	46776
6	Dayal Pur	Yamuna River	NA	20589
7	Dindar Pur	Yamuna River	3.94	35856
8	Gharonda Neemka Bangar alias Patpar Ganj	Yamuna River	1.49	37876
9	Jharoda Majra Burari	Yamuna River	2.60	22878
10	Jiwan Pur alias Johri Pur	Yamuna River	1.00	43054
11	Kamal Pur Majra Burari	Yamuna River	1.30	43086
12	Karala	Yamuna River	8.78	35730
13	Kondli	Yamuna River	1.88	38207
14	Libas Pur	Yamuna River	2.30	44375
15	Malik Pur Kohi alias Rang Puri	Yamuna River	7.50	23726
16	Moradabad Pahari	Yamuna River	1.19	21502
16	Nangli Sakrawati	Yamuna River	3.07	37706
17	Nilothi	Yamuna River	3.88	43371
18	Pehlad Pur Bangar	Yamuna River	4.70	22968
19	Quammruddin Nagar	Yamuna River	2.40	25126
20	Shafi Pur Ranhola	Yamuna River	4.33	31944
21	Siras Pur	Yamuna River	4.30	30445
22	Tigri	Yamuna River	1.10	46974

Figure 4: Class I Cities in the NCT Delhi under Yamuna River Basin

Figure 5: Class II Towns in the NCT Delhi under Yamuna River Basin

Figure 6: Class III Towns in the NCT Delhi under Yamuna River Basin

4. Pollution Load

The major pollution load in the NCT Delhi is due to point and nonpoint sources. Discharges of untreated/partially treated sewage from urban centers, from open drains, and industrial discharge are the major point sources that contribute to the pollution load. NCT Delhi contributing the wastewater of approximately 3800 MLD and have 2330 MLD treatment capacity (CPCB, 2013). According to CPCB, 2013 approximately 39% (1470 MLD) of untreated wastewater was going in the river Yamuna. 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%) i.e. 4886.28 MLD of the total sewage generation. The situation getting more critical in the class II towns as the difference between the sewage generation (1,083.85 MLD) and available treatment capacity (91.82 MLD; less than 10%) increased.

There is no water supply and sewage generation data available for the class I, II, and class III cities/towns of NCT Delhi, so all calculation has been done by assuming average water consumption (**135 liters per capita per day**). The trends of the data NCT Delhi 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 85.75, 9.3 and 4.9%, 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 DMC (U) 1197.7 MLD, approximately 80.0% of the water supply. In case of the class II towns the sewage generation in Sadat Pur Gujran is maximum 10.5 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 25.8 and 43.9 tons/day, respectively. The average BOD and COD load from the Class II towns is 1.8 and 3.8 tons/day, respectively whereas Class III towns contribute approximately 0.9 tons/day and 1.5 tons/day of BOD and COD, respectively. The maximum and minimum BOD and COD contributing cities in Class I towns are DMC (U) and Mandoli, respectively. In Class II towns maximum BOD and COD is from Sadat Pur Gujran, whereas minimum BOD and COD are from Nithari. In class III towns maximum and minimum BOD and COD is from Tigri and Alipur respectively.

The total TKN in metric tons/day contributed by Class I, Class II and Class III towns are approximately 5.1, 0.37 and 0.18 tons/day, respectively. The maximum and minimum contribution of TKN from class I towns are from DMC (U) and Mandoli, respectively. The maximum and minimum contribution of TKN from class II towns is from Sadat Pur Gujran and Nithari, respectively while the maximum and minimum contribution of TKN from class III towns is from Tigri and Alipur, 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.

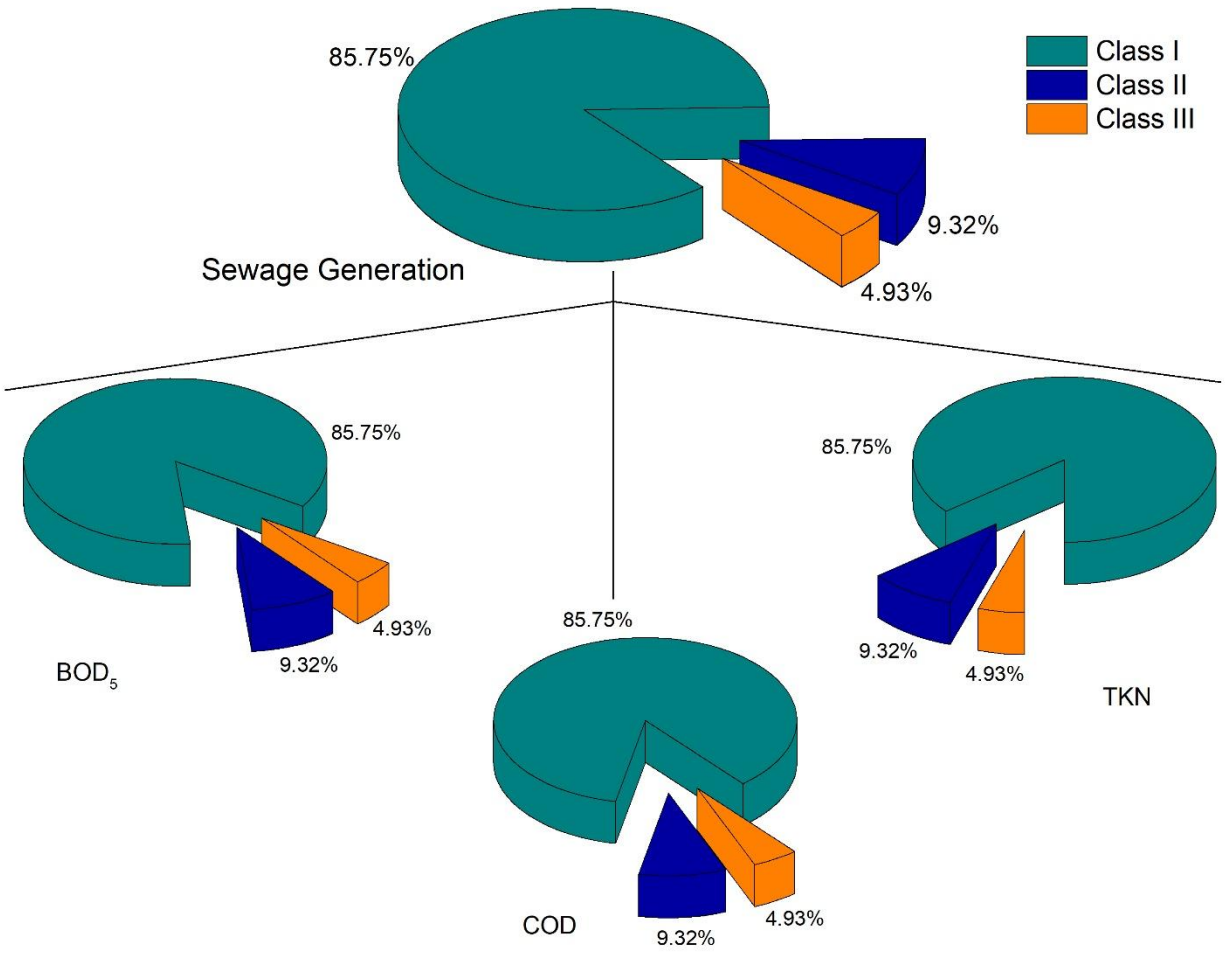

Figure 7: Distribution of Pollution Load of Class I Cities and Class II, Class III Towns in NCT Delhi

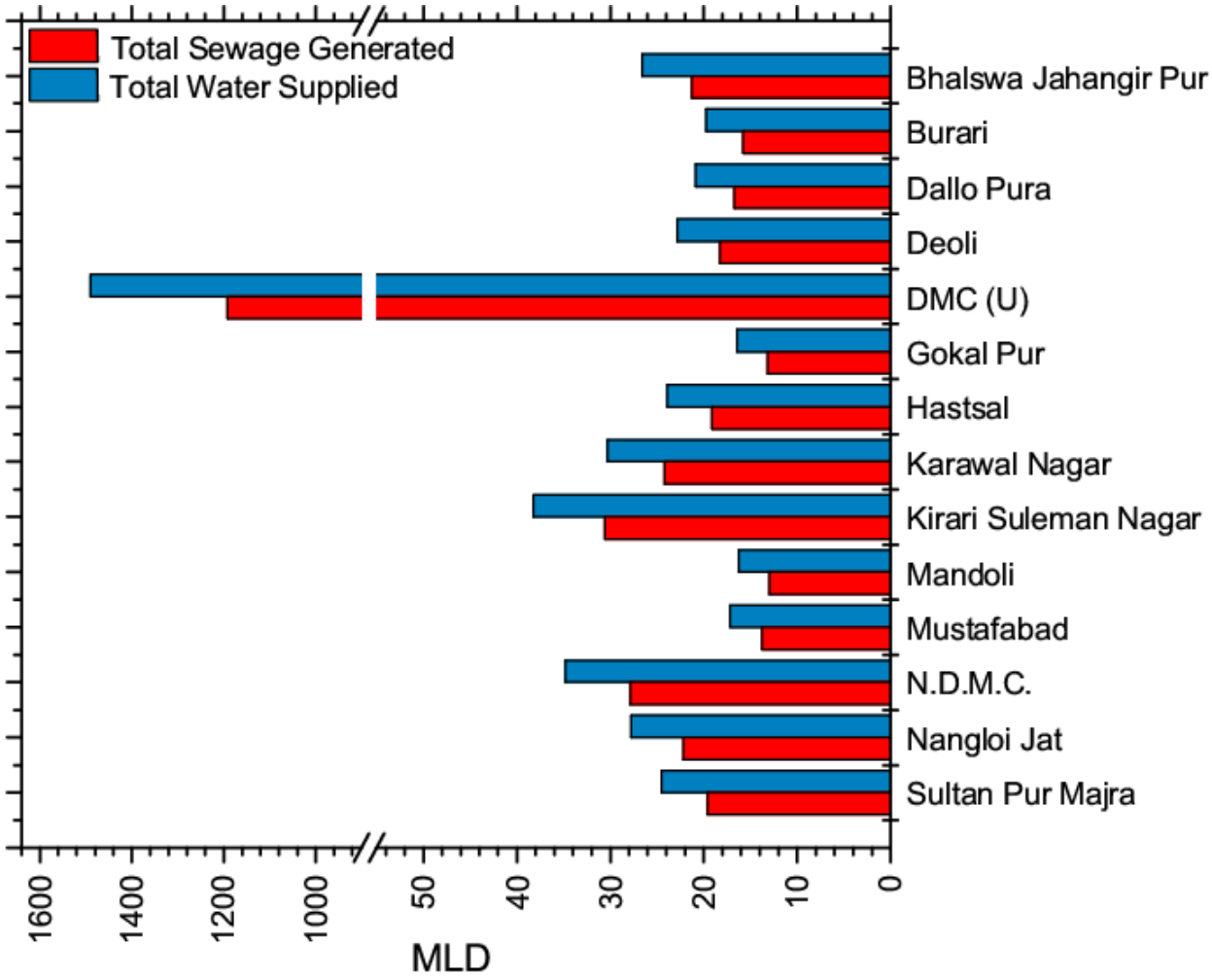

Figure 8a: Assessment of Water Supply and Sewage Generation (MLD) in Class I Cities in NCT Delhi

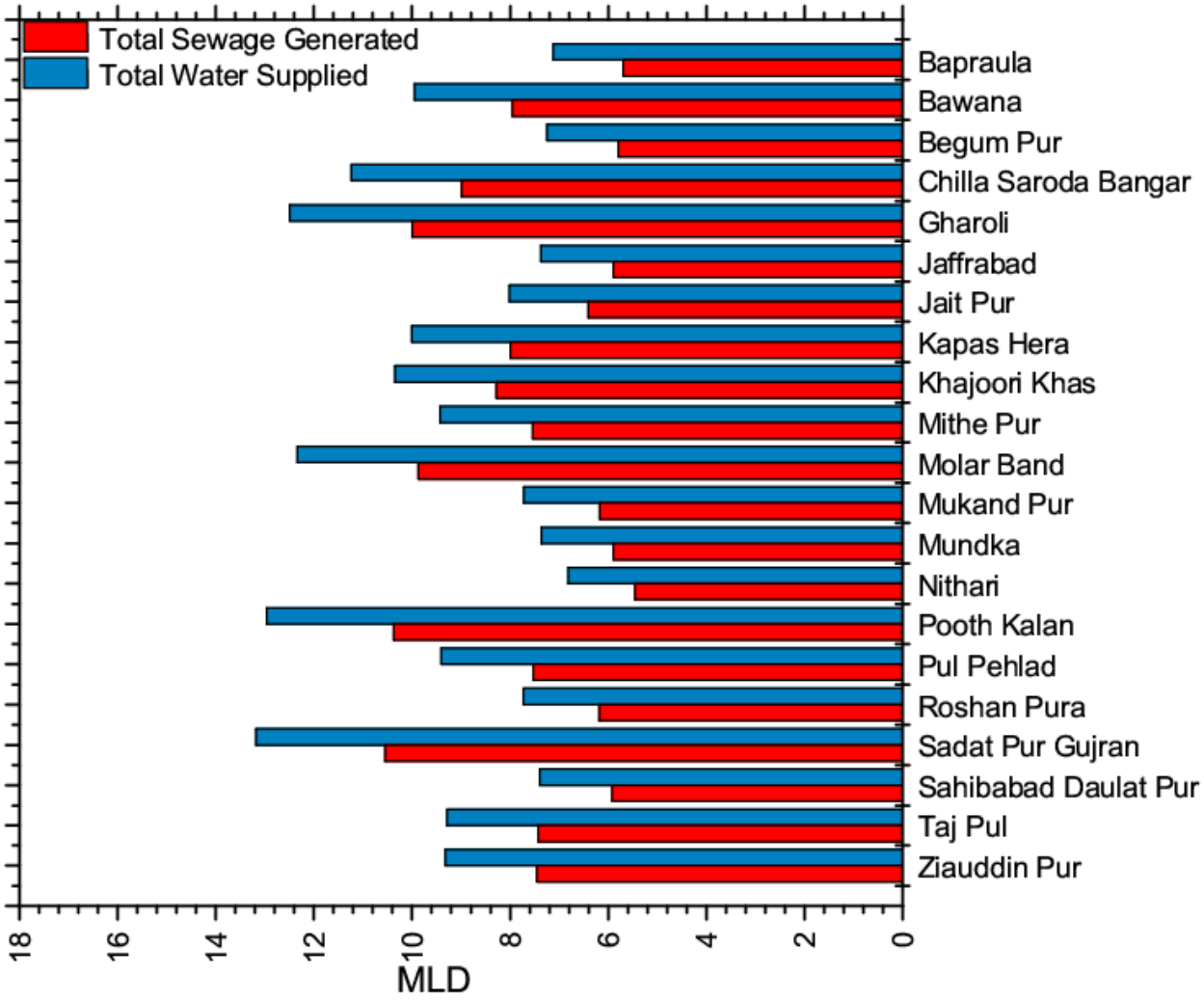

Figure 8b: Assessment of Water Supply and Sewage Generation (MLD) in Class II Towns in NCT Delhi

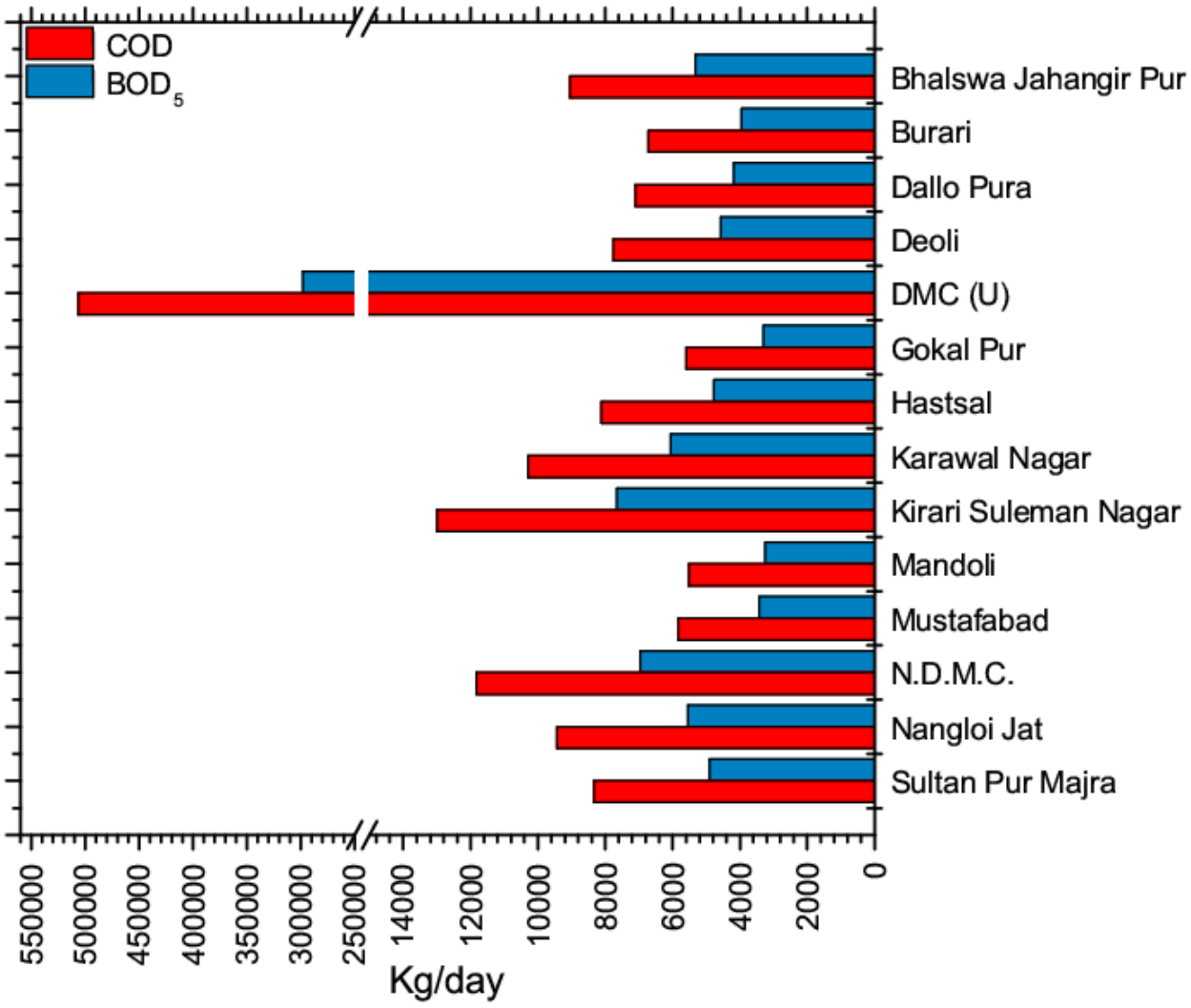

Figure 9a: Assessment of Pollution Load (kg/day) from Class I Cities in NCT Delhi

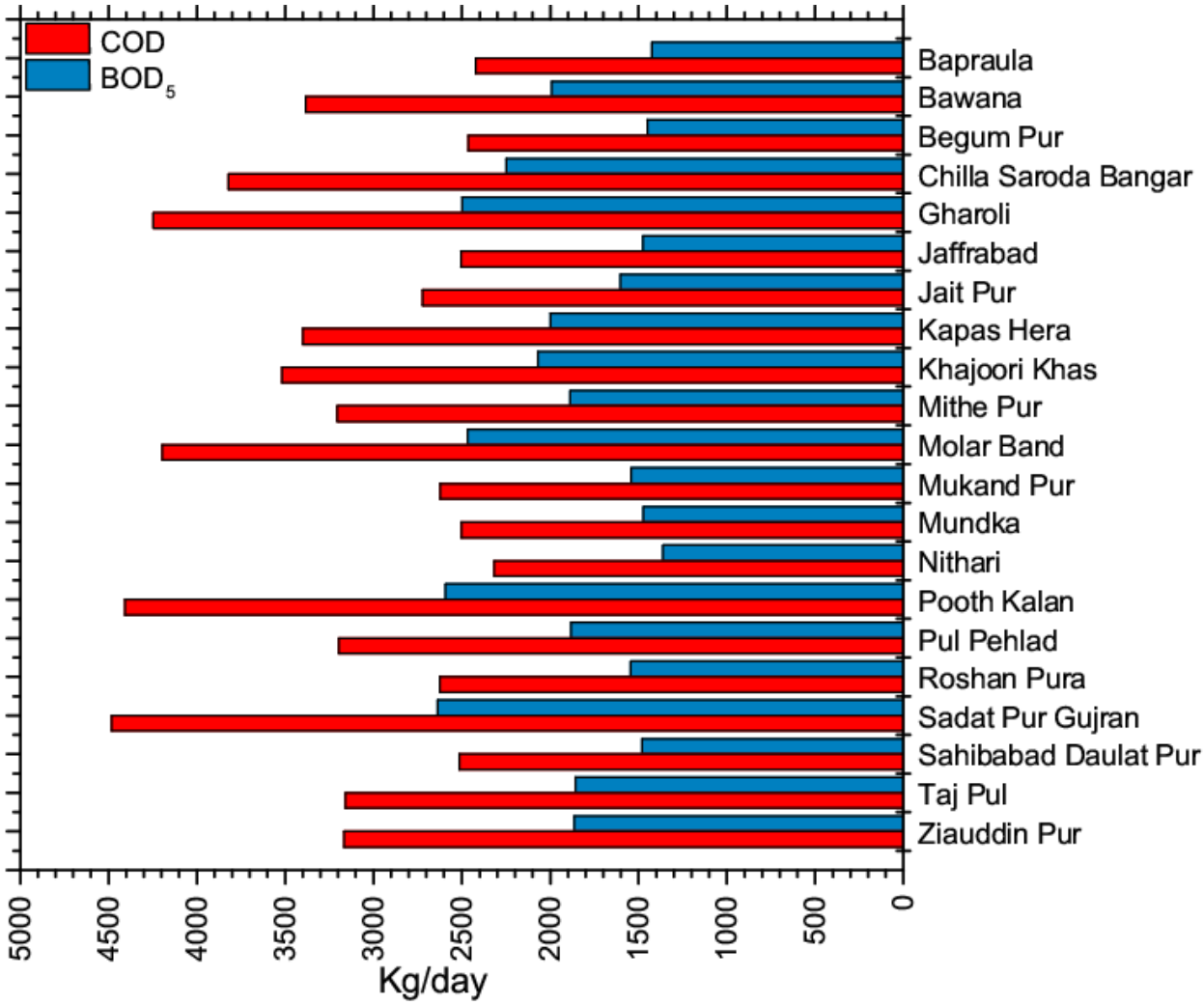

Figure 9b: Assessment of Pollution Load (kg/day) from Class II Towns in NCT Delhi

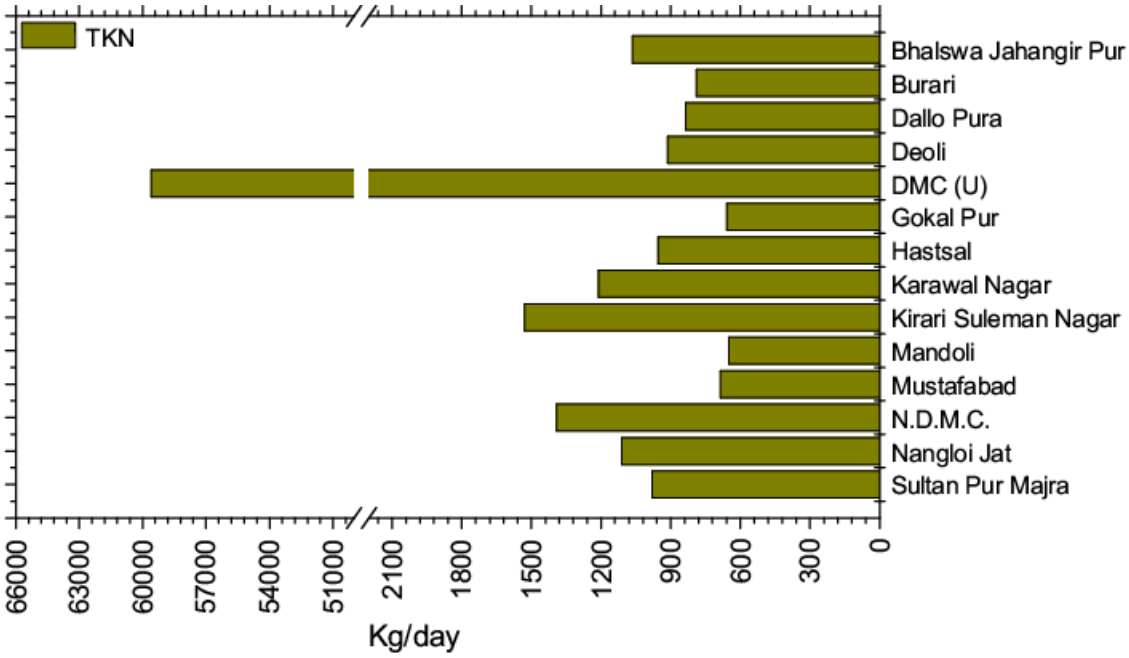

Figure 10a: Assessment of TKN Load (kg/day) from Class I Cities in NCT Delhi

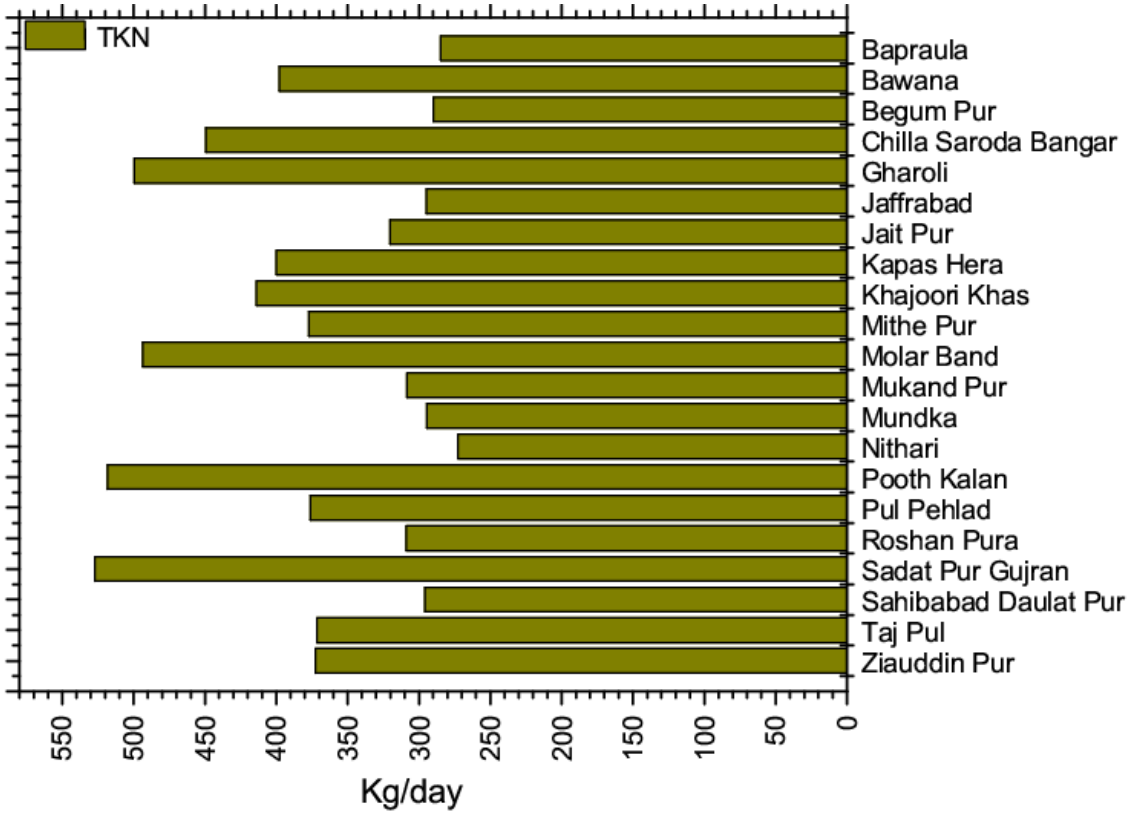

Figure 10a: Assessment of TKN Load (kg/day) from Class II Towns in NCT Delhi

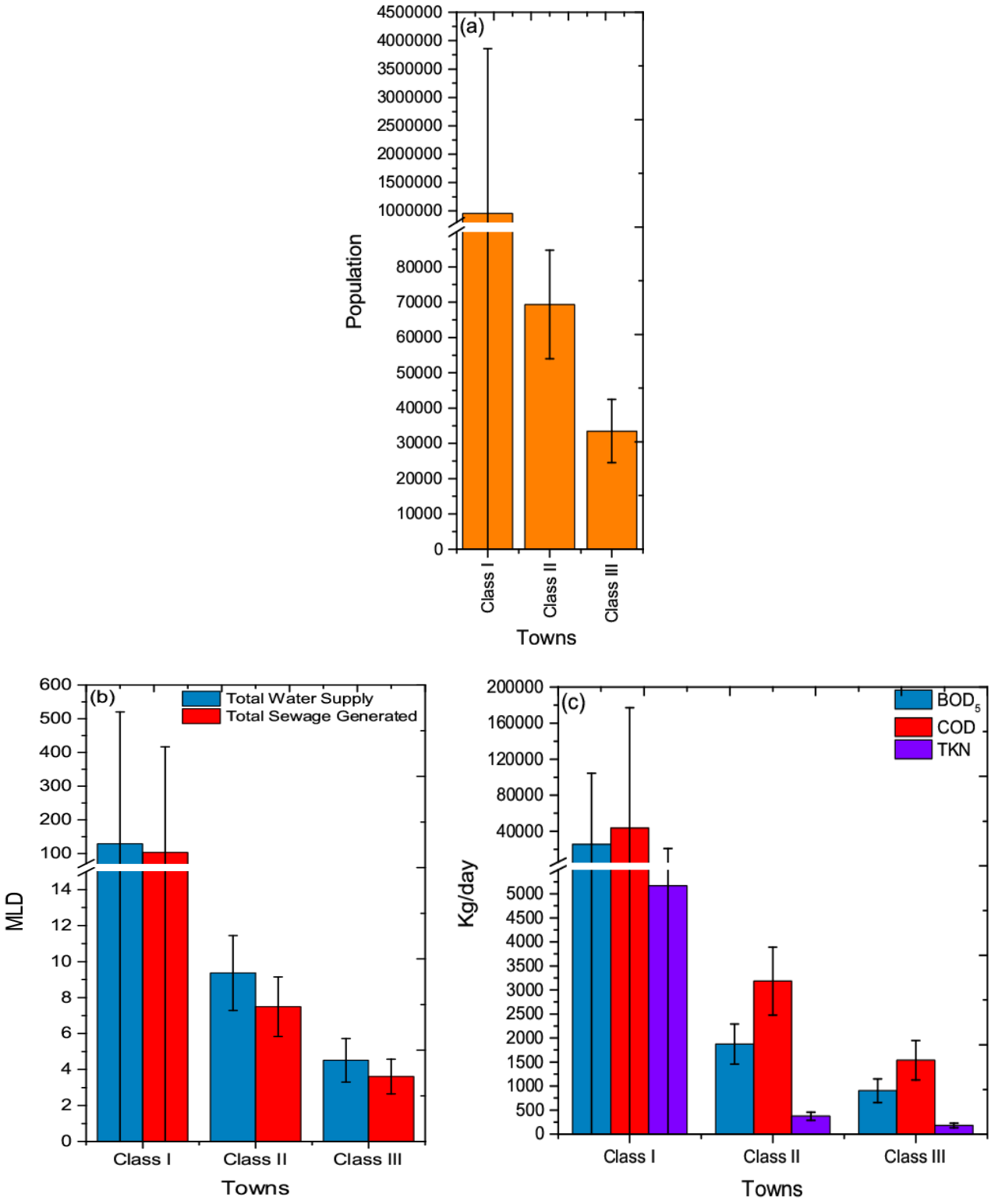

Figure 11: Comparative Analysis of Class I, Class II and Class III Cities/Towns Lying Under NCT Delhi: (a) Population (b) Total Water Supply and Sewage Generation (c) Pollution Load

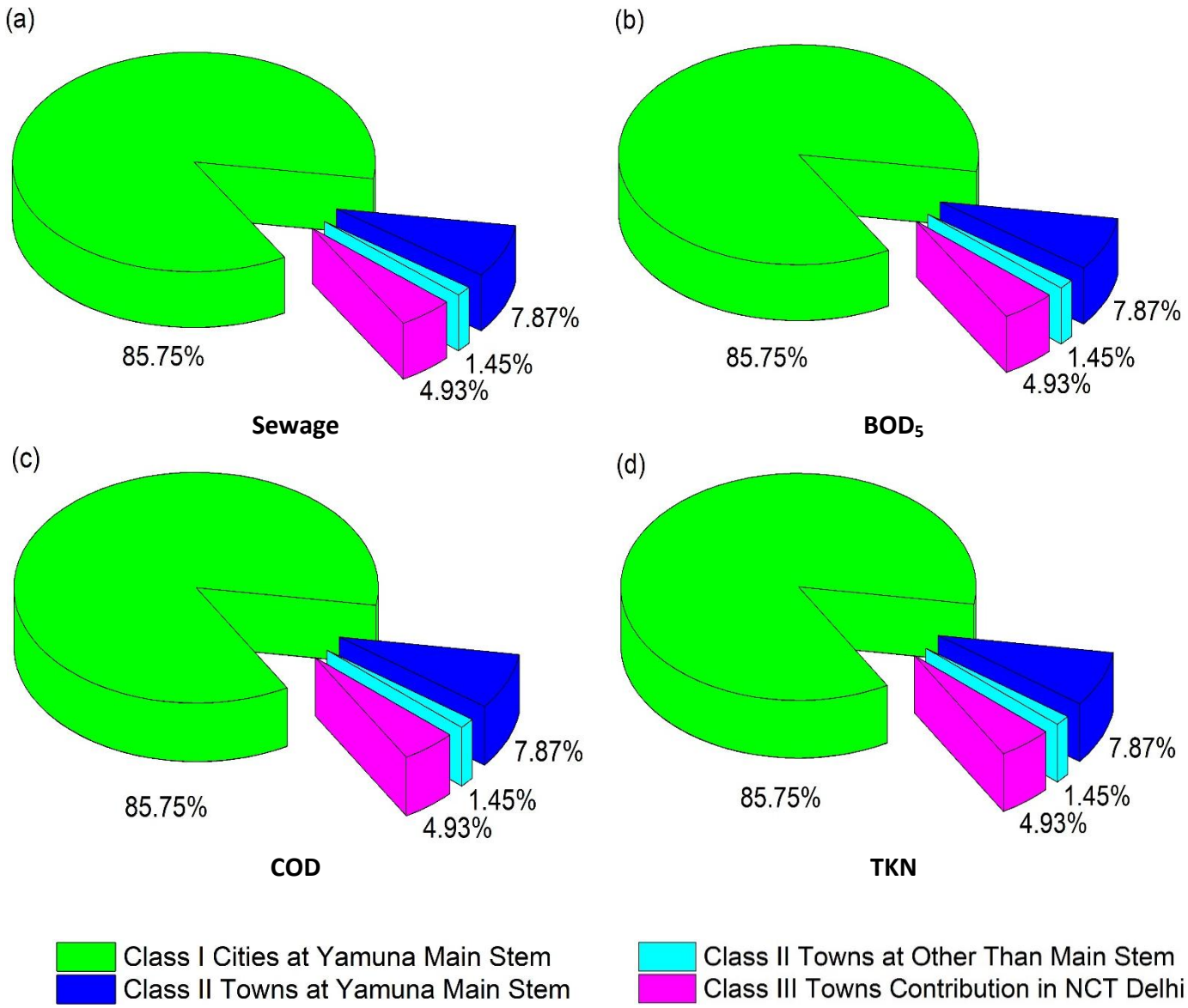

Figure 12 (a-d): Pollution load of Class I Cities, Class II, and Class III Towns in NCT Delhi: (a) Sewage Generation; (b) BOD_5; (c) COD; (d) TKN

The results of the pollution load of Class I cities, Class II and Class III towns under NCT Delhi 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 along the main stem of Yamuna river (85.75%). The Class II towns located away from the main stem combinedly release 1.45% of waste water. The percentage sewage generation by Class III towns of the entire NCT Delhi is 4.93% of the total sewage generated by the state.

The BOD, COD and TKN load contributed by Class I cities of the main stem of Yamuna river is 85.75%.The Class II and Class III towns of NCT Delhi imparted around 9.32% and 4.93% respectively of the total BOD, COD, and TKN load. The details of the BOD and COD load in the NCT Delhi 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 14 Class I cities, 21 Class II towns and 23 Class III towns, directly or indirectly in NCT Delhi. According to CPCB, 2013 report Delhi has highest treatment capacity of ~61% of total sewage generation, but still 39% of untreated sewage discharge in to Yamuna River.The scenario of water quality in the system is varies from bad to worse based 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 (85.75%) followed by Class II (9.3%) and Class III towns (4.9%). Pollution load (BOD, COD and TKN load) also follows the same trend with maximum values for Class I cities. DMC (U) and Sadat Pur Gujran 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 DMC (U), Sadat Pur Gujranand Tigri 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 Data Sheets of Water Balance & Pollution Load (Domestic) ofMajor Class I Cities in NCT Delhi

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bhalswa Jahangir Pur				State: NCT Delhi
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.70
2	Population as in 2011		:	197148
3	Population Growth Rate as in 2011 (%)		:	29.41
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	65716
6	Total Number of Household as in 2011		:	38157
7	Number of Household per Ward		:	12719
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)		:	26.60
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	21.30
20	Per Capita Sewage Generation (lpcd)*		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	5323.00
		COD	:	9049.10
		TKN	:	1064.60
30	Wastewater Disposal Means		:	River 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		:	4
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Burari		State: NCT Delhi		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	11.20
2	Population as in 2011		:	146190
3	Population Growth Rate as in 2011 (%)		:	110.85
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	48730
6	Total Number of Household as in 2011		:	28610
7	Number of Household per Ward		:	9537
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)		:	NA
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	19.70
19	Total Sewage Generation (MLD)*		:	135.00
20	Per Capita Sewage Generation (lpcd)		:	15.80
21	Sewage Collection (MLD)		:	108.00
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3947.10
		COD	:	6710.10
		TKN	:	789.40
30	Wastewater Disposal Means		:	River 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		:	2
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Dallo Pura		State: NCT Delhi		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.29
2	Population as in 2011/2001		:	154791
3	Population Growth Rate as in 2011 (%)		:	16.72
4	Total Number of Wards		:	4
5	Population per Ward (Thousands)		:	38698
6	Total Number of Household as in 2011		:	31009
7	Number of Household per Ward		:	7752
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)		:	20.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	16.70
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	4179.40
		COD	:	7104.90
		TKN	:	835.90
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Deoli		State: NCT Delhi		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	10.10
2	Population as in 2011/2001		:	169122
3	Population Growth Rate as in 2011 (%)		:	41.56
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	56374
6	Total Number of Household as in 2011		:	32344
7	Number of Household per Ward		:	10781
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)		:	NA
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	22.80
19	Total Sewage Generation (MLD)*		:	135.00
20	Per Capita Sewage Generation (lpcd)		:	18.30
21	Sewage Collection (MLD)		:	108.00
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	4566.30
		COD	:	7762.70
		TKN	:	913.30
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		:	1
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: DMC (U)		State: NCT Delhi		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	561.27
2	Population as in 2011/2001		:	11034555
3	Population Growth Rate as in 2011 (%)		:	11.70
4	Total Number of Wards		:	217
5	Population per Ward (Thousands)		:	50850
6	Total Number of Household as in 2011		:	2306675
7	Number of Household per Ward		:	10630
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)		:	NA
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	1489.70
19	Total Sewage Generation (MLD)*		:	135.00
20	Per Capita Sewage Generation (lpcd)		:	1191.70
21	Sewage Collection (MLD)		:	108.00
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	297933.00
		COD	:	506486.10
		TKN	:	59586.60
30	Wastewater Disposal Means		:	River & Land Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna, Hindan
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) Data Sheet

City: Gokal Pur		State: NCT Delhi		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.30
2	Population as in 2011		:	121870
3	Population Growth Rate as in 2011 (%)		:	33.69
4	Total Number of Wards		:	5
5	Population per Ward (Thousands)		:	24374
6	Total Number of Household as in 2011		:	22592
7	Number of Household per Ward		:	4518
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)		:	16.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	13.20
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under 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	:	3290.50
		COD	:	5593.80
		TKN	:	658.10
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Hastsal			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	6.80
2	Population as in 2011		:	176877
3	Population Growth Rate as in 2011 (%)		:	104.35
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	58959
6	Total Number of Household as in 2011		:	33977
7	Number of Household per Ward		:	11326
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)		:	23.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	19.10
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	4775.70
		COD	:	8118.70
		TKN	:	955.10
30	Wastewater Disposal Means		:	River 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		:	1
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Karawal Nagar		State: NCT Delhi		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.80
2	Population as in 2011		:	224281
3	Population Growth Rate as in 2011 (%)		:	50.90
4	Total Number of Wards		:	4
5	Population per Ward (Thousands)		:	56070
6	Total Number of Household as in 2011		:	41116
7	Number of Household per Ward		:	10279
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)		:	30.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	24.20
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	6055.60
		COD	:	10294.50
		TKN	:	1211.10
30	Wastewater Disposal Means		:	River 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		:	2
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Kirari Suleman Nagar		State: NCT Delhi		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.70
2	Population as in 2011		:	283211
3	Population Growth Rate as in 2011 (%)		:	83.15
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	94404
6	Total Number of Household as in 2011		:	53072
7	Number of Household per Ward		:	17691
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)		:	38.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	30.60
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	7646.70
		COD	:	12999.40
		TKN	:	1529.30
30	Wastewater Disposal Means		:	River 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		:	5
34	Gross Area of Water Bodies (sq km)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Mandoli				State: NCT Delhi
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.87
2	Population as in 2011		:	120417
3	Population Growth Rate as in 2011 (%)		:	16.72
4	Total Number of Wards		:	4
5	Population per Ward (Thousands)		:	30104
6	Total Number of Household as in 2011		:	21916
7	Number of Household per Ward		:	5479
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)		:	16.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	13.00
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3251.30
		COD	:	5527.10
		TKN	:	650.30
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna, Hindon
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) Data Sheet

City: Mustafabad		State: NCT Delhi		
S.No.	**Items**			**Value**
1	Total Area (sq km)		:	1.30
2	Population as in 2011		:	127167
3	Population Growth Rate as in 2011 (%)		:	41.03
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	42389
6	Total Number of Household as in 2011		:	20348
7	Number of Household per Ward		:	6783
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)		:	17.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	13.70
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	3433.50
		COD	:	5837.00
		TKN	:	686.70
30	Wastewater Disposal Means		:	River 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		:	1
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Nangloi Jat			State: NCT Delhi	
S.No.	**Items**			**Value**
1	Total Area (sq km)		:	6.70
2	Population as in 2011		:	205596
3	Population Growth Rate as in 2011 (%)		:	36.20
4	Total Number of Wards		:	4
5	Population per Ward (Thousands)		:	51399
6	Total Number of Household as in 2011		:	39410
7	Number of Household per Ward		:	9853
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)		:	27.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	22.20
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	5551.10
		COD	:	9436.90
		TKN	:	1110.20
30	Wastewater Disposal Means		:	River 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		:	3
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: NDMC			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	42.74
2	Population as in 2011		:	257803
3	Population Growth Rate as in 2011 (%)		:	-
4	Total Number of Wards		:	9
5	Population per Ward (Thousands)		:	28645
6	Total Number of Household as in 2011		:	59500
7	Number of Household per Ward		:	6611
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)		:	34.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)		:	27.80
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	6960.70
		COD	:	11833.20
		TKN	:	1392.10
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Sultan Pur Majra		State: NCT Delhi		
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.80
2	Population as in 2011		:	181554
3	Population Growth Rate as in 2011 (%)		:	10.42
4	Total Number of Wards		:	5
5	Population per Ward (Thousands)		:	36311
6	Total Number of Household as in 2011		:	33029
7	Number of Household per Ward		:	6606
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)		:	24.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	19.60
20	Per Capita Sewage Generation (lpcd)		:	108.00
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	:	4902.00
		COD	:	8333.30
		TKN	:	980.40
30	Wastewater Disposal Means		:	River 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

Appendix-2

Compilation of Data Sheets of Water Balance & Pollution Load (Domestic) of Major Class II Towns in NCT Delhi

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bapraula			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.62
2	Population as in 2011		:	52744
3	Population Growth Rate as in 2011 (%)		:	291.51
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	52744
6	Total Number of Household as in 2011		:	10069
7	Number of Household per Ward		:	10069
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)		:	7.10
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.70
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1424.10
		COD	:	2420.90
		TKN	:	284.80
30	Wastewater Disposal Means		:	River 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		:	2
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Bawana			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	17.00
2	Population as in 2011		:	73680
3	Population Growth Rate as in 2011 (%)		:	219.04
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	73680
6	Total Number of Household as in 2011		:	12961
7	Number of Household per Ward		:	12961
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)		:	9.90
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	8.00
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1989.40
		COD	:	3381.90
		TKN	:	397.90
30	Wastewater Disposal Means		:	River 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		:	1
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Begum Pur			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	1.90
2	Population as in 2011		:	53682
3	Population Growth Rate as in 2011 (%)		:	-
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	53682
6	Total Number of Household as in 2011		:	10446
7	Number of Household per Ward		:	10446
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)		:	7.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.80
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1449.40
		COD	:	2464.00
		TKN	:	289.90
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Chilla Saroda Bangar			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.58
2	Population as in 2011		:	83217
3	Population Growth Rate as in 2011 (%)		:	24.76
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	27739
6	Total Number of Household as in 2011		:	18124
7	Number of Household per Ward		:	6041
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)		:	11.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	9.00
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2246.90
		COD	:	3819.70
		TKN	:	449.40
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Gharoli			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.56
2	Population as in 2011		:	92540
3	Population Growth Rate as in 2011 (%)		:	33.26
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	30847
6	Total Number of Household as in 2011		:	19819
7	Number of Household per Ward		:	6606
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)		:	12.50
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	10.00
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2498.60
		COD	:	4247.60
		TKN	:	499.70
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna, Hindan
32	Number of Drains/Nallah for Wastewater Disposal		:	NA
33	Number of Water Bodies		:	1
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Jaffrabad			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	0.90
2	Population as in 2011		:	54601
3	Population Growth Rate as in 2011 (%)		:	-
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	18200
6	Total Number of Household as in 2011		:	8815
7	Number of Household per Ward		:	2938
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)		:	7.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.90
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1474.20
		COD	:	2506.20
		TKN	:	294.80
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Jait Pur			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.60
2	Population as in 2011		:	59330
3	Population Growth Rate as in 2011 (%)		:	140.10
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	59330
6	Total Number of Household as in 2011		:	11070
7	Number of Household per Ward		:	11070
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)		:	8.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	6.40
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1601.90
		COD	:	2723.20
		TKN	:	320.40
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Kapas Hera			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	3.40
2	Population as in 2011		:	74073
3	Population Growth Rate as in 2011 (%)		:	242.66
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	74073
6	Total Number of Household as in 2011		:	21370
7	Number of Household per Ward		:	21370
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)		:	10.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	8.00
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2000.00
		COD	:	3400.00
		TKN	:	400.00
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Khanjoori Khas			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	0.90
2	Population as in 2011		:	76640
3	Population Growth Rate as in 2011 (%)		:	69.98
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	76640
6	Total Number of Household as in 2011		:	13186
7	Number of Household per Ward		:	13186
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)		:	10.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	8.30
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2069.30
		COD	:	3517.80
		TKN	:	413.90
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Mithe Pur			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	1.80
2	Population as in 2011		:	69837
3	Population Growth Rate as in 2011 (%)		:	71.83
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	69837
6	Total Number of Household as in 2011		:	14160
7	Number of Household per Ward		:	14160
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)		:	9.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	7.50
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1885.60
		COD	:	3205.50
		TKN	:	377.10
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Molar Band			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	4.10
2	Population as in 2011		:	91402
3	Population Growth Rate as in 2011 (%)		:	125.55
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	30467
6	Total Number of Household as in 2011		:	18159
7	Number of Household per Ward		:	6053
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)		:	12.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	9.90
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2467.90
		COD	:	4195.40
		TKN	:	493.60
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Mukand Pur			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.50
2	Population as in 2011		:	57135
3	Population Growth Rate as in 2011 (%)		:	167.62
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	57135
6	Total Number of Household as in 2011		:	10975
7	Number of Household per Ward		:	10975
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)		:	7.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	6.20
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1542.60
		COD	:	2622.50
		TKN	:	308.50
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Mundka			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	11.90
2	Population as in 2011		:	54541
3	Population Growth Rate as in 2011 (%)		:	24.32
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	18180
6	Total Number of Household as in 2011		:	10615
7	Number of Household per Ward		:	3538
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)		:	7.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.90
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1472.60
		COD	:	2503.40
		TKN	:	294.50
30	Wastewater Disposal Means		:	River 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		:	2
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Nithari			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.29
2	Population as in 2011		:	50464
3	Population Growth Rate as in 2011 (%)		:	44.08
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	50464
6	Total Number of Household as in 2011		:	9460
7	Number of Household per Ward		:	9460
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)		:	6.80
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.50
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1362.50
		COD	:	2316.30
		TKN	:	272.50
30	Wastewater Disposal Means		:	River 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		:	1
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Pooth Kalan			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	7.00
2	Population as in 2011		:	96002
3	Population Growth Rate as in 2011 (%)		:	89.74
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	96002
6	Total Number of Household as in 2011		:	19516
7	Number of Household per Ward		:	19516
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)		:	13.00
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	10.40
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2592.10
		COD	:	4406.50
		TKN	:	518.40
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Pul Pehlad			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.20
2	Population as in 2011		:	69657
3	Population Growth Rate as in 2011 (%)		:	31.79
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	69657
6	Total Number of Household as in 2011		:	14734
7	Number of Household per Ward		:	14734
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)		:	9.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	7.50
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1880.70
		COD	:	3197.30
		TKN	:	376.10
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Roshan Pura alias Dichaon Khurd			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	2.80
2	Population as in 2011		:	57217
3	Population Growth Rate as in 2011 (%)		:	48.30
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	57217
6	Total Number of Household as in 2011		:	10956
7	Number of Household per Ward		:	10956
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)		:	7.70
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	6.20
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1544.90
		COD	:	2626.30
		TKN	:	309.00
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Sadat Pur Gujran			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	1.10
2	Population as in 2011		:	97641
3	Population Growth Rate as in 2011 (%)		:	125.91
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	97641
6	Total Number of Household as in 2011		:	18679
7	Number of Household per Ward		:	18679
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)		:	13.20
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	10.50
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	2636.30
		COD	:	4481.70
		TKN	:	527.30
30	Wastewater Disposal Means		:	River 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		:	1
34	Gross Area of Water Bodies (Hectare)		:	NA
35	Area of Water Bodies as % of Total Area		:	<<< 1

Water Balance & Pollution Load (Domestic) Data Sheet

City: Sahibabad Daulat Pur			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	5.70
2	Population as in 2011		:	54773
3	Population Growth Rate as in 2011 (%)		:	52.23
4	Total Number of Wards		:	1
5	Population per Ward (Thousands)		:	54773
6	Total Number of Household as in 2011		:	11720
7	Number of Household per Ward		:	11720
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)		:	7.40
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	5.90
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1478.90
		COD	:	2514.10
		TKN	:	295.80
30	Wastewater Disposal Means		:	River Disposal
31	Name of River/Streams for Wastewater Disposal		:	Yamuna, Hindan
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) Data Sheet

City: Taj Pul			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	1.20
2	Population as in 2011		:	68796
3	Population Growth Rate as in 2011 (%)		:	15.35
4	Total Number of Wards		:	2
5	Population per Ward (Thousands)		:	34398
6	Total Number of Household as in 2011		:	13825
7	Number of Household per Ward		:	6913
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)		:	9.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.00
19	Total Sewage Generation (MLD)*		:	7.40
20	Per Capita Sewage Generation (lpcd)		:	108.00
21	Sewage Collection (MLD)		:	NA
22	Percentage of Sewage Collection (%)		:	NA
23	Number of STPs		:	NA
24	Total Installed Capacity of STPs under GAP 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	:	1857.50
		COD	:	3157.70
		TKN	:	371.50
30	Wastewater Disposal Means		:	River 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) Data Sheet

City: Ziauddin Pur			State: NCT Delhi	
S. No.	**Items**			**Value**
1	Total Area (sq km)		:	1.80
2	Population as in 2011		:	68993
3	Population Growth Rate as in 2011 (%)		:	43.61
4	Total Number of Wards		:	3
5	Population per Ward (Thousands)		:	22998
6	Total Number of Household as in 2011		:	12057
7	Number of Household per Ward		:	4019
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)		:	9.30
18	Average Water Supply Rate from ULB & Non-ULB Sources (lpcd)		:	135.0
19	Total Sewage Generation (MLD)*		:	7.50
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 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	:	1862.80
		COD	:	3166.80
		TKN	:	372.60
30	Wastewater Disposal Means		:	River 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

PROJECT MANAGEMENT BOARD [PMB]

Expert Members:

- Sri Swami Avimukteshwaranand Saraswati
- Dr Madhav AChitale
- Dr Bharat Jhunjhunwala

PROJECT IMPLEMENTATION AND COORDINATION COMMITTEE [PICC]

Representatives from IIT Consortium:

- Dr ShyamAsolekar, IIT Bombay
- Dr A K Mittal, IIT Delhi
- Dr Mohammad Jawed, IIT Guwahati
- Dr Vinod Tare, IIT Kanpur
- Dr D J Sen, IIT Kharagpur
- Dr Ligy Philip, IIT Madras
- Dr I M Mishra, IIT Roorkee

Thematic Group Leads:

- Dr Purnendu Bose, Environmental Quality and Pollution (EQP)
- Dr A K Gosain, Water Resources Management (WRM)
- Dr R P Mathur, Ecology and Biodiversity (ENB)
- Dr Rajiv Sinha, Fluvial Geomorphology (FGM)
- Dr Vinod Tare, Environmental Flows (EFL)
- Dr S P Singh, Socio Economic and Cultural (SEC)
- Dr N C Narayanan and Dr Indrajit Dube, Policy Law and Governance (PLG)
- Dr Harish Karnick, Geospatial Database Management (GDM)
- Dr T V Prabhakar, Communication (COM)

COMPOSITION OF

1. Environmental Quality and Pollution (EQP)
Lead: Purnendu Bose, IIT Kanpur

Members: Shyam R Asolekar, Suparna Mukherjee (IIT Bombay); A K Mittal, A K Nema, Arun Kumar, T R Sreekrishanan (IIT Delhi); Ajay Kalmhad (IIT Guwahati); Saumyen Guha, Vinod Tare (IIT Kanpur); A K Gupta, M MGhangrekar, Sudha Goel (IIT Kharagpur); Ligy Philip, Mukesh Doble, R Ravi Krishna, S M Shivnagendra (IIT Madras); A A Kazmi, B R Gurjar, Himanshu Joshi, Indu Mehrotra, I M Mishra, Vivek Kumar (IIT Roorkee); Anirban Gupta (BESU Shibpur); P K Singh (IIT BHU); Rakesh Kumar (NEERI Nagpur); S K Patidar (NIT Kurukshetra); Sanmit Ahuja (ETI Dynamics, New Delhi)

2. Water Resources Management (WRM)
Lead: A K Gosain, IIT Delhi

Members: Rakesh Khosa, R Maheswaran, B R Chahar, C T Dhanya, D R Kaushal (IIT Delhi); Subashisa Dutta, Suresh Kartha (IIT Guwahati); Shivam Tripathi, Gautam Rai, Vinod Tare (IIT Kanpur); Anirban Dhar, D J Sen (IIT Kharagpur); B S Murty, Balaji Narasimhan (IIT Mdras); C S P Ojha, P Perumal (IIT Roorkee); S K Jain (NIH, Roorkee); Pranab Mohapatra (IIT Gandhi Nagar); Sandhya Rao (INRM, New Delhi)

3. Fluvial Geomorphology (FGM)
Lead: Rajiv Sinha, IIT Kanpur

Members: Vinod Tare (IIT Kanpur); Vikrant Jain (IIT Gandhi Nagar); J K Pati (Allahabad University); Kirteshwar Prasad, Ramesh Shukla (Patna University); Parthasarthi Ghosh, Soumendra Nath Sarkar, TapanChakarborty (ISI Kolkata); Kalyan Rudra (WBPCB); S K Tandon, Shashank Shekhar (University of Delhi); Saumitra Mukherjee (JNU Delhi)

4. Ecology and Biodiversity (ENB)
Lead: R P Mathur, IIT Kanpur

Members: A K Thakur, Vinod Tare (IIT Kanpur); Utpal Bora (IIT Guwahati); M D Behera (IIT Kharagpur); Naveen Navania, Partha Roy, Pruthi Vikas, R P Singh, Ramasre Prasad, Ranjana Pathania (IIT Roorkee); Sandeep Behera (WWF-India)

THEMATIC GROUPS

5. Socio Economic and Cultural (SEC)
Lead: S P Singh, IIT Roorkee

Members: Pushpa L Trivedi (IIT Bombay); Seema Sharma, V B Upadhyay (IIT Delhi); P M Prasad, Vinod Tare (IIT Kanpur); Bhagirath Behera, N C Nayak, Pulak Mishra, T N Mazumder (IIT Kharagpur); C Kumar, D K Nauriyal, Rajat Agrawal, Vinay Sharma (IIT Roorkee)

6. Policy Law and Governance (PLG)
Lead: N C Narayanan, IIT Bombay and Indrajit Dube, IIT Kharagpur

Members: ShyamAsolekar, Subodh Wagle (IIT Bombay); Mukesh Khare (IIT Delhi); Vinod Tare (IIT Kanpur); Deepa Dube, Uday Shankar (IIT Kharagpur); G N Kathpalia, Paritosh Tyagi (IDC, New Delhi)

7. Geo-Spatial Database Management (GDM)
Lead: Harish Karnick, IIT Kanpur

Members: N L Sharda, Smriti Sengupta (IIT Bombay); A K Gosain (IIT Delhi); Arnab Bhattacharya, Kritika Venkatramani, Rajiv Sinha, T V Prabhakar, Vinod Tare (IIT Kanpur)

8. Communication (COM)
Lead: T V Prabhakar, IIT Kanpur

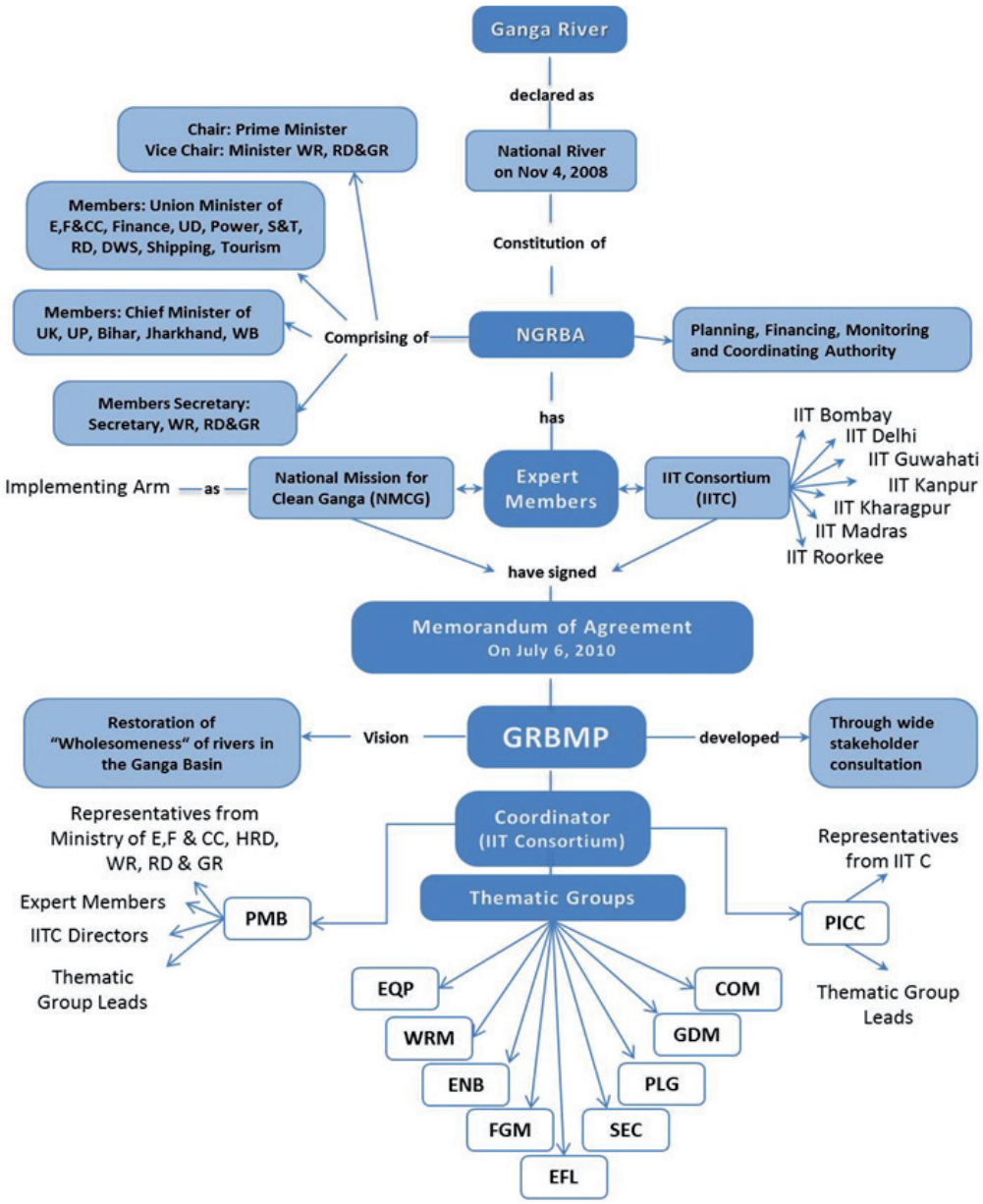
Members: Purnendu Bose, Rajiv Sinha, Vinod Tare (IIT Kanpur)

9. Environmental Flows (EFL)
Lead: Vinod Tare, IIT Kanpur

Members: ShyamAsolekar (IIT Bombay); A K Gosain (IIT Delhi); P M Prasad, R P Mathur, Rajiv Sinha, Shivam Tripathi (IIT Kanpur); M D Behara (IIT Kharagpur); B S Murthy, N Balaji (IIT Madras); Pranab Mohaparta, Vikrant Jain (IIT Gandhinagar); S K Jain (NIH Roorkee); Nitin Kaushal (WWF-India, New Delhi); Sandeep Behera (NMCG, MoWR, RD & GR, New Delhi); A P Sharma K D Joshi (CIFRI, Barrackpore); Ravindra Kumar (SWaRA-UP); Ravi Chopra (PSI, Dehradoon); Paritosh Tyagi, (IDC, New Delhi)

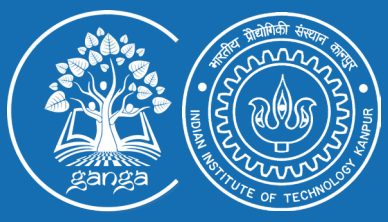
GRBMP WORK STRUCTURE

ORGANIZATIONAL STRUCTURE FOR PREPARING GRBMP



NGRBA: National Ganga River Basin Authority
NMCG: National Mission for Clean Ganga
MoEF: Ministry of Environment and Forests
MHRD: Ministry of Human Resource and Development
MoWR, RD&GR: Ministry of Water Resources, River Development and Ganga Rejuvenation
GRBMP: Ganga River Basin Management Plan
IITC: IIT Consortium
PMB: Project Management Board
PICC: Project Implementation and Coordination Committee

EQP: Environmental Quality and Pollution
WRM: Water Resources Management
ENB: Ecology and Biodiversity
FGM: Fluvial Geomorphology
EFL: Environmental Flows
SEC: Socio Economic and Cultural
PLG: Policy Law and Governance
GDM: Geospatial Database Management
COM: Communication



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