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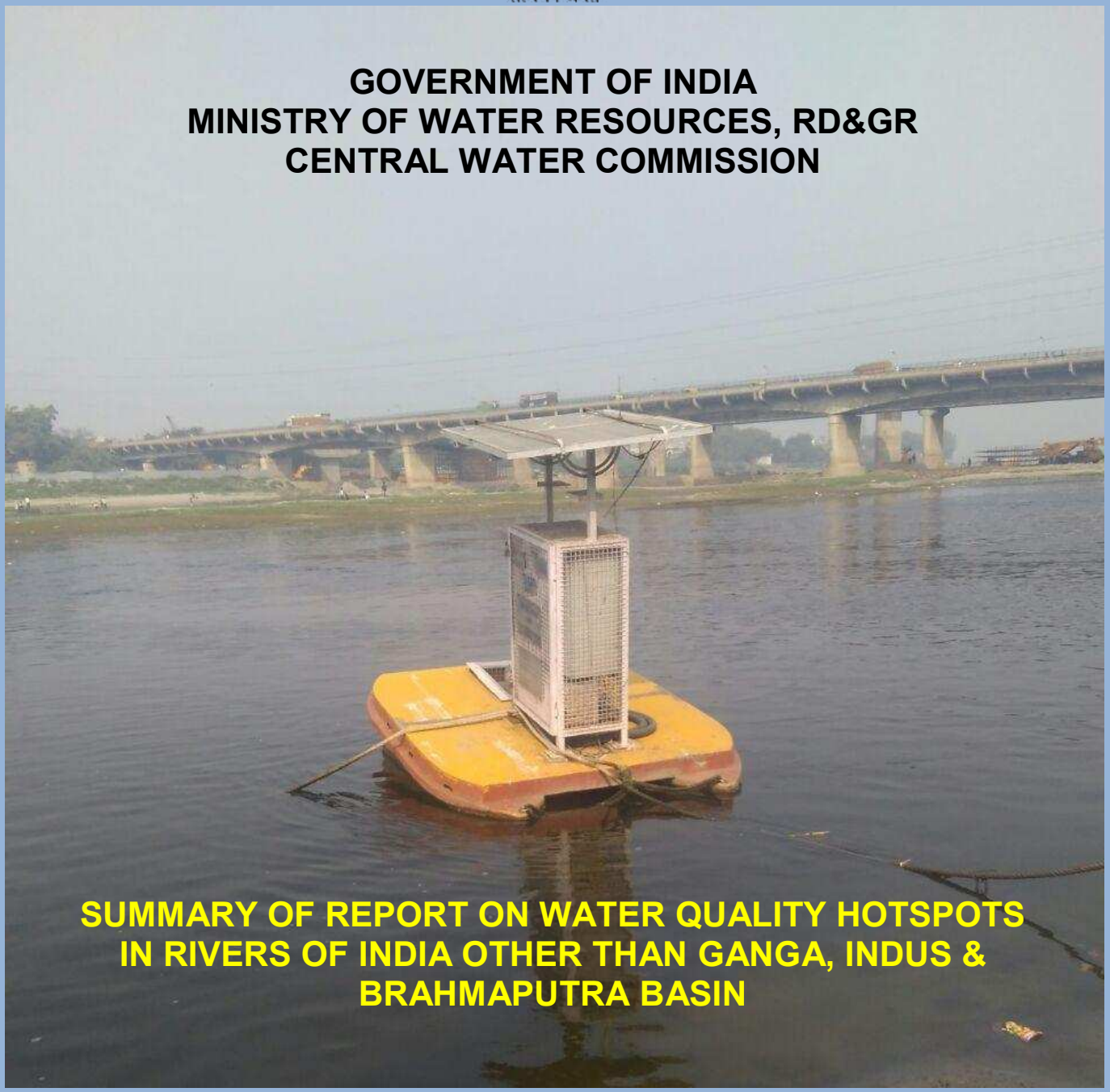
GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES, RD&GR
CENTRAL WATER COMMISSION



SUMMARY OF REPORT ON WATER QUALITY HOTSPOTS IN RIVERS OF INDIA OTHER THAN GANGA, INDUS & BRAHMAPUTRA BASIN

November, 2017

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ACKNOWLEDGMENTS

Water is the most precious gifts of the nature to the mankind; the terrestrial ecosystem cannot function without it. The availability of water in a quantity as well as quality is important for better health and for sustainable development. Water also plays an important role in food and energy production, determining the quality of life, and in sustainability of natural environments as well. Growing pressure on water resources due to increase in population and economic growth, climate change, pollution and other challenges has major impact on our social, economic has major impact on our social, economic, and environmental well-being. It is very important to understand the facts that lead to its contamination, regular monitoring of the quality of water is necessary to conserve this natural resource which plays crurcial role in the economic and social development process of the nation.

Central Water Commission has been monitoring river water quality in all major river basins since a very long and has lot of data of considerable period. Beside many parameters, Biochemical Oxygen Demand (BOD) is one of the most common measures of pollutant organic material in water which defines health of the river. Therefore, this report is prepared based on BOD data for Indian river basins except Ganga, Brahmaputra and Indus basins by taking data from 2012-2017.

Concept of preparation of such a report was given by Dr. Amrjit Sing (IAS), Secretary, Ministry of WR, RD & GR. We are very thankful for his continuous support and guidance to prepare this report "**WATER QUALITY HOTSPOTS IN RIVERS OF INDIA OTHER THAN GANGA, INDUS & BRAHMAPUTRA BASIN**". I appreciate the commendable efforts of Shri. Ravi Shankar, Chief Engineer, P&D, CWC in bringing out this publication in such a short span of time. Efforts put in by Shri. Ram Jeet Varma, Director, RDC-2 Dte, Shri. Rajesh Kumar, RDC-1 Dte, Shri. Manoj Kumar, Dy. Director, Mr. Rakesh Kumar Gupta, Asst.Director, Mr. Prabhakarrao N, SRA, Dr. Sakshi Sharma, SRA, from River Data Compilation-2 Directorate are commendable. For preparation of Maps we are thankful to Sh. Yogesh Paithankar, Director, Remote Sensing Directorate who left no stone unturned. I also express sincere thanks to all field Chief Engineers of CWC specially Shri. M.P.Singh, CE, NTBO, Shri. Krishnanunni N.M, CE, CSRO, Shri. Shiv Nandan, CE, MCO, Shri. A.K. Nayak, CE, MERO and Shri. G. Ranga Reddy, CE, KGBO for providing required data and updated information from state government.

PRADEEP KUMAR
Member (RM)

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Executive Summary

CWC is monitoring water quality at 429 stations spread all over India covering major river basins. The water quality data collected by CWC from the year 2012-13 to 2016-17 was analysed to find out the organic pollution in the rivers of India at various places. The water quality parameter that is BOD is the main indicator for indicating the pollution in the rivers due to discharge of untreated sewage in rivers. However, many industries also pollute rivers with their untreated effluents.

The main stem of river Ganga and its tributaries are being monitored by NMCG and they are taking remedial measures to improve the water quality of river Ganga and its tributaries. Therefore, water quality aspect of Ganga River and its tributaries has not been taken into account in this report and Brahmaputra & Barak basin has got abundance of water and population is sparse. Therefore, it is considered that pollution in the river water in Brahmaputra & Barak basin is mainly due to geo-genic reason. In the NE region, there are hardly any large cities and big industries near the river bank. In Indus basin, CWC does not have adequate water quality sites representing the basin, therefore, water quality analysis of Indus Basin has also not been considered.

Considering the above, water quality data of other river basins has been examined. In order to prioritize the level of pollution, priority has been given in the scale of I-V, where category I is considered as severely polluted (BOD greater than 30 mg/l) and category V as least polluted (BOD less than 2 mg/l). This data has been utilized for preparing this report.

Central Pollution Control Board (CPCB) is the main agency of Government of India under M/o Environment, Forest & CC for monitoring water pollution all over the country. Report of CPCB has also been obtained in which CPCB has identified river stretches which are polluted based on the BOD data observed during year from 2009 to 2012.

All the above information has been put in the GIS Environment in order to find out the probable source of pollution which is coming into river. Based on the information available at CWC Hqrs and the information provided by the field offices of CWC, the towns and industries have been identified which could be sources of polluting the rivers. If the STPs of required capacity are installed on the source of pollution, the river water is likely to be improved substantially. National River Conservation Program Directorate (NRCP) under MOEF&FF has also prepared an EFC in which they have proposed to install STPs at 75 cities to control pollution directly entering into the river system. These locations has also been identified and marked on the GIS maps. The information of existing STP capacity at different cities available in inventorization of sewage treatment plants report of CPCB prepared in 2015 and information collected by field offices from States have also been marked on the GIS maps. As per the present laws, industries are bound to install effluent treatment plants in their premises and are not allowed to discharge any untreated effluents

to the river system. There is a possibility that industries may not be following the law strictly and discharging some untreated effluent to the rivers. Identification of such industries especially Micro, Small and Medium Enterprises (MSME) can be found out only through the intensive field survey.

Taking into the account all the available information, the locations for proposed STP has been identified which are mainly cities/towns. BOD load coming from agriculture fields and forests cannot be controlled through STP and, therefore, that has not been considered in this report. For working out capacity of the proposed STP, the population of the cities as available of 2011 census has been taken. This population has been further projected at 2021 level and considering the domestic water supply of 135 litre per capita per day, the sewage generation has been taken as 80% of water supply and accordingly required capacity of the STP has been assessed.

Data of total 222 CWC water quality cites has been analysed and it is found that water quality at the 67 locations is beyond the permissible limit for Class – B: Outdoor bathing (Organized). Out of 67 sites, 14 sites fall in category I, i.e. severely polluted, has been observed in the river. 12 sites fall under Category II also includes substantial pollution in the river water. Complete details of all sites have been given in tabular form in this report and they have been indicated on the maps also for easy comprehension.

The report is prepared from the available information in CWC and information provided from field offices of CWC for assessing the capacity of the proposed STP. The tentative location of the proposed STP has also been marked on the map. However, exact location of STP will depend upon the availability of land, source of power, running and maintenance cost etc and the same has to be finalized by the municipal authorities, state pollution control boards and other concerned organizations responsible for installation/maintenance of the STP. The report gives only indicative results for further survey and micro level studies.

1. Water Quality Standards in India

A river is defined as a large natural stream of water emptying into an ocean, lake or other body of water and usually fed along its course by converging tributaries. Rivers and streams drain water that falls in upland areas.

Water Quality Management is for a great deal controlled by authorization of discharges of dangerous substances for which monitoring of discharges, effluents and influenced surface water is essential. Water Quality monitoring is one of the first steps required in the rational development and restoring the river water quality. One of the main objectives of the river water quality monitoring is to assess the suitability of river water for various utilisations such as drinking purposes, irrigation, out-door bathing and propagation of wildlife, fisheries. The physical and chemical quality of river water is important in deciding its suitability for drinking purposes. As such the suitability of river water for potable uses with regard to its chemical quality has to be deciphered and defined on the basis of the some vital characteristics of the water.

Bureau of Indian Standards (BIS) formally known as Indian Standard Institute (ISI) vide its document IS 2296:1992 has recommended the quality standards for designated best uses and these have been used for finding the suitability of river water. On this basis of classification, the natural river water of India has been categorized as Class – A: Drinking Water Source without conventional treatment but after disinfection; Class – B: Outdoor bathing (Organised); Class – C: Drinking water source after conventional treatment and disinfection; Class – D: Propagation of Wild life and Fisheries; Class – E: Irrigation, Industrial Cooling, Controlled Waste disposal.

The physic-chemical parameters like pH, electrical conductance, Chloride, Fluoride, Nitrate, Sulphate, Boron, Total hardness, Dissolved Oxygen and Bio-chemical Oxygen demand are main constituents defining the quality of river water in surface water. Therefore, presence of these parameters in river water beyond the permissible limit has been considered as river water quality hotspots. The Water Quality Standards in India (Source IS: 2296; 1992) is as given in Table-3 below.

Biochemical Oxygen Demand (BOD)

BOD is most notorious water pollutant which is abundantly available in nature. High BOD allows aerobic bacteria to utilise available Dissolved Oxygen (DO) of water. In case of excessive BOD, there will be deficiency of DO and anaerobic bacteria will become active. This will result in mortality in living aquatic organisms and release of methane, ammonia, H_2S etc. This may also cause algal bloom. All these condition will make water unfit for any use. Therefore, it is necessary to control BOD in all water.

Table 1.1: Water Quality Standards in India (Source IS: 2296: 1992)

S. No	Characteristics	Designated best use				
		A	B	C	D	E
1	Dissolved Oxygen (DO) mg/l. min	6	5	4	4	-
2	Biochemical Oxygen demand (BOD) mg/l.max	2	3	3	-	-
3	Total coliform organisms MPN /100 ml.max	50	500	5	-	-
4	pH value	6.5-8.5	6.5-8.5	6.0-9.0	6.5-8.5	6.0-8.5
5	Colour. Hazen units. max	10	300	300	-	-
6	Odour	Un-objectionable			-	-
7	Taste	Tasteless	-	-	-	-
8	Total dissolved solids. mg/l. max.	500	-	1500	-	2100
9	Total hardness (as CaCO3),mg/l.max	200	-	-	-	-
10	Calcium hardness (as CaCO3), mg/l.max	200	-	-	-	-
11	Magnesium hardness (as CaCO3), mg/l.max.	200	-	-	-	-
12	Copper (as Cu).mg/l.max	1.5	-	1.5	-	-
13	Iron (as Fe). Mg/l max.	0.3	-	0.5	-	-
14	Manganese (as Mn).mg/l.max	0.5	-	-	-	-
15	Chloride (as Cl). mg/l.max	250	-	600	-	600
16	Sulphates (as SO4). mg/l. max	400	-	400	-	1
17	Nitrate (as NO3). mg/l. max	20	-	50	-	-
18	Fluorides (as F). mg/l. max	1.5	1.5	1.5	-	-
19	Phenolic compounds (as C2H5OH). mg/l. max	0.002	0.005	0.005	-	-
20	Mercury (as Hg). mg/l.max.	0.001	-	-	-	-
21	Cadmium (as Cd).mg/l.max	0.01	-	0.01	-	-
22	Selenium (as Se).mg/l.max	0.01	-	0.05	-	-
23	Arsenic (as As).mg/l.max	0.05	0.2	0.2	-	-
24	Cyanide (as Pb).mg/l.max	0.05	0.05	0.05	-	-
25	Lead (as Pb).mg/l.max	0.1	-	0.1	-	-
26	Zinc (as Zn).mg/l.max	15	-	15	-	-
27	Chromium (as Cr6+).mg/l.max	0.05	-	0.05	-	-
28	Anionic detergents (sa MBAS). mg/l.max	0.2	1	1	-	-
29	Barium (as Ba).mg/l.max	1	-	-	-	-
30	Free Ammonia (as N)). Mg/l.max	-	-	-	1.2	-
31	Electrical Conductivity. Micromhos/cm. max.	-	-	-	-	2250
32	Sodium absorption ratio. max	-	-	-	-	26
33	Boron. Mg/l. max	-	-	-	-	2

Class – A: Drinking Water Source without conventional treatment but after disinfection
Class – B: Outdoor bathing (Organized)
Class – C: Drinking water source after conventional treatment and disinfection
Class – D: Propagation of Wild life and Fisheries
Class – E: Irrigation, Industrial Cooling, Controlled Waste disposal

2. Water Quality in Rivers of India other than Ganga, Indus and Brahmaputra Basin

The CWC is monitoring water quality at 429 stations throughout the India covering all major river basins. The basin wise no of Water Quality Stations monitored by CWC is as given below.

S. No.	Name of Basin	No. of WQ Stations
1.	Brahmani-Baitarni Basin	9
2.	Cauvery Basin	34
3.	East Flowing rivers between Mahanadi and Pennar	5
4.	EFR between Pennar and Kanyakumari	17
5.	Godavari Basin	35
6.	Krishna Basin	32
7.	Mahanadi Basin	19
8.	Mahi Basin	4
9.	Narmada Basin	18
10.	Pennar Basin	8
11.	Sabarmati Basin	3
12.	Subernarekha Basin	6
13.	Tapi Basin	4
14.	WFR from Tadri to Kanyakumari	29
15.	West flowing rivers from Tapi to Tadri	7
16.	WFR of Kutchh and Saurashtra including Luni	5
	Total	235

S. No.	Name of Basin	No. of WQ Stations
1.	Ganga/Brahmaputra/Meghna/Barak Basin	185
2.	Indus Basin (Chenab)	6
3.	Indus Basin (Jhelum)	3
	Total	194

Based upon the water quality data observed by CWC from the year 2012-13 to 2016-17, attempts has been made to analyze the status of river water in all basin except Ganga, Indus & Brahmaputra basins on the basis of one of the important water quality parameter 'BOD' as most of the rivers are getting polluted mainly due to untreated domestic sewerage directly finding way to rivers. The maximum BOD (mg/l) value in river water during the period 2012-13 to 2016-17 has been taken for prioritizing the river for taking action to make the river pollution free. The criteria for priority are as given below.

S. No.	BOD range(mg/l)	Priority
1.	>30	I
2.	10 - 30	II
3.	3-10	III
4.	2-3	IV
5.	<2	V

3. Water Quality Hot Spots on Rivers, probable source of pollution and required capacity of STP to make the river clean upto its self cleaning capacity/level

The CPCB has identified the rivers stretches which are most polluted based upon the BOD data observed by them during the year 2009-2012, which are marked on the maps for all the rivers in States. The water quality hot spot stations based upon the maximum BOD(mg/l) data observed by CWC during the 2012-13 to 2016-17, probable city/town as source of polluting the river water at the hot spot locations, STPs installed/being installed under NRCP/NRCD etc are marked on the map of each States. Location of STP proposed by CWC has also been marked on maps.

The report has been prepared based on the data taken from following sources:

1. *Water Quality observed by CWC on its hydrological observation sites from June, 2012 to May, 2017.*
2. *Report of CPCB on River Stretches for Restrotaion of Water Qualit, February, 2015*
3. *EFC memo of National River Conservation Directorate for National River Conservation Plan*
4. *Inventorization of Sewage Treatment Plant, 2015 report by NRCD/CPCB, March, 2015*

The summay of the water quality hot spot report prepared is as given below.

- There are 67 water quality hot spot on the peninsular rivers in India where BOD is beyond the permissible limit for Class – B: Outdoor bathing (Organized) i.e. more than 3 mg/l. Out of 67 sites, 14 sites fall in category I (BOD>30 mg/l), i.e. severely polluted, has been observed in the river. 12 sites fall under Category II (30>BOD >10) also includes substantial pollution in the river water. 41 sites fall under Category III (10>BOD>3) includes mild pollution in the river water. Complete details of all sites have been given in table 3.1.
- Out of 67 sites, only STP at 18 locations has been installed. It is observed that existing STP at Ahmedabad near to Vautha station on Sabarmati River and at Jabalpur near to Patan site on Hiran river (tributary of Narmada) have adequate capacity. At rest site additional STP capacity is required to control the pollution in the rivers.

Table 3.1 Water Quality Hot Spot on Rivers, probable source of pollution and required capacity of STP

Sl. No.	Name of site	State	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Bawapuram	Andhra Pradesh	Kurnool	Krishna Basin	Krishna/Tungabhadra	3.7	III	Yemmiganur, Fertilizers Industry	430214		489842	55.0	3.4-3.6	V	55
2.	Keesara	Andhra Pradesh	Krishna	Krishna Basin	Krishna/Munneru	4.1	III	Nandigama, Centine Beer Factory	44359		51372	5.5			6
3.	Pathardihi	Chhattishgarh	Raipur	Mahanadi Basin	Mahanadi/Seonath/Kharun	4.1	III	Raipur, Oil and Paint Industries, Steel and Rubber Industries	1010087		1169782	126.3	3.4	V	126
4.	Bamnidhi	Chhattishgarh	Janjgir-champa	Mahanadi Basin	Mahanadi/Hasdeo	6.6	III	Champa, Mining Industries	211189		244578	26.4	3.2-3.6	V	26
5.	Andhiyar Khore	Chhattishgarh	Durg	Mahanadi Basin	Mahanadi/Seonath/Arpa	7.2	III	Kawardha, Tiles and Marble Industries	45451		52637	5.7			6
6.	Manendragarh	Chhattishgarh	Koriya	Mahanadi Basin	Mahanadi/Hasdeo	21.0	II	Manendragarh, Agro Industry	33071		38300	4.1	3.2-3.6	V	4
7.	Konta	Chhattishgarh	Dantewara	Godavari Basin	Godavari/Sabari	3.0	III	Malkangiri	31007		35909	3.9	3.7	V	4
8.	Rajim	Chhattishgarh	Raipur	Mahanadi Basin	Mahanadi	4.3	III	Gobra Nowapara, Cement Industry	29315		33950	3.7	3.2-3.8	V	4
9.	Rampur	Chhattishgarh	Raipur	Mahanadi Basin	Mahanadi/Jonk	3.5	III	Deori, Mining Industry	23812		27577	3.0			3
10.	Ghatora	Chhattishgarh	Bilaspur	Mahanadi Basin	Mahanadi/Seonath	24.8	II	Bilaspur, Ceramic and Marble Industries	331030		382704	55.0	3.9	V	55
11.	Simga	Chhattishgarh	Raipur	Mahanadi Basin	Mahanadi/Seonath	3.4	III	Simga, Durg, Fertilizers and Chemicals Industries	13137		15214	1.6	4	V	2

Sl. No.	Name of site	State	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
12.	Vautha	Gujarat	Kheda	Sabarmati Basin	Sabarmati	63.0	I	Ahmedabad, Chemical Industries, Gandhinagar	6965418	1163.00	9055043	977.9	4.0-46	I	Adequate
13.	Pingalwada	Gujarat	Vadodara	West flowing rivers from Tapi to Tadri	Dhadhar	10.0	II	Vadodra, Chemical, Agro-Chemical and Biochemical Industries	4157568	276.50	4814880	520.0	9	IV	244
14.	Khanpur	Gujarat	Anand	Mahi Basin	Mahi	5.0	III	Anand	633793	18.00	733996	79.3			61
15.	Kamalpur	Gujarat	Banaskantha	West flowing rivers of Kutchh and Saurashtra including Luni	Banas	7.4	III	Deesa, Palanpur, Agro and Pharmaceutical Industries	271493		314416	34.0			34
16.	Derol Bridge	Gujarat	Sabarkantha	Sabarmati Basin	Sabarmati	3.8	III	Himatnagar, Chemical and Agro Industry, Oil Mills	81137		93965	10.1	4.0-46	I	10
17.	Ganod	Gujarat	Rajkot	West flowing rivers of Kutchh and Saurashtra including Luni	Bhadar	17.4	II	Upleta, Agro and Minechemical Industries	80105		92770	10.0	11	III	10
18.	Lowara	Gujarat	Bhavnagar	West flowing rivers of Kutchh and Saurashtra including Luni	shetruni	4.4	III	Palitana, Steel and Plastic Industries	64101	4.50	74235	8.0	<3		4
19.	Motinaroli	Gujarat	Surat	Tapi Basin	Kim (Indepent River)	4.9	III	Kosamba, Steel and Rubber Industry	50568		58563	6.3	3.4	V	6

Sl. No.	Name of site	State	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
20.	Jamshedpur	Jharkhand	Purba Singhbhum	Subernarekha Basin	Subernarekha	59.0	I	Jamshedpur, Steel Industry, Chemical Industry	631364	73.15	731183	137.5	3.2-8	IV	64
21.	Muri	Jharkhand	Ranchi	Subernarekha Basin	Subernarekha	19.9	II	Ranchi, Muri, Pharmaceutical and Agro Industries	1120374		1297505	140.1	3.2-8	IV	140
22.	Adityapur	Jharkhand	Purba Singhbhum	Subernarekha Basin	Subernarekha/Kharkai	99.0	I	Adityapur, Adityapur Industrial Area	174355		201921	21.8	3.2-8	IV	22
23.	T.Bekuppe	Karnataka	Ramanagaram	Cauvery Basin	Cauvery/Arkavathi	21.5	II	Bangalore, Electronic Industries	8443675	721.00	9778620	1056.1	5-8	IV	335
24.	Malkhed	Karnataka	Pgulbarga	Krishna Basin	Krishna/Bhima/Kagna	8.0	III	Kalaburagi, Cement Factories	543000		628848	67.9	3.1-3.2	V	68
25.	T.K. Halli	Karnataka	Mandya	Cauvery Basin	Cauvery/Shimsha	4.0	III	Mandya, Agro and Bricks Industries,	137358	15.67	159074	17.2	4.5	V	2
26.	Huvinhedigi	Karnataka	Raichur	Krishna Basin	Krishna	3.4	III	Shahapur, Cotton Ginning Factory	53366		61803	6.7	3.2-4.8	V	7
27.	Kuniyil	Kerala	Malappuram	West Flowing rivers from Tadri to Kanyakumari	Chaliyar	4.2	III	Areekode, Soad and Paint Industry	31563		36553	3.9	<3		4
28.	Patan	Madhya Pradesh	Jabalpur	Narmada Basin	Narmada/Hiran	3.9	III	Jabalpur	1,081,677	150.00	1252690	135.3	3.3-7.9	IV	Adequate
29.	Burhanpur	Madhya Pradesh	Khandwa	Tapi Basin	Tapi	4.8	III	Burhanpur, Enzymes Industry	210891	6.00	244233	26.4	3.8-4	V	20

Sl. No.	Name of site	State	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
30.	Keolari	Madhya Pradesh	Seoni	Godavari Basin	Godavari/Pranhita/Wainganga	45.0	I	Chhapara, Keolari , Seoni, Mandla	201598	2.00	233471	25.2	3.8-40	I	23
31.	Kumhari	Madhya Pradesh	Balaghat	Godavari Basin	Godavari/Pranhita/Wainganga	45.0	I	Lalbarra City, Chemical Industry, Agro Industries,	170960		197989	21.4	3.8-40	I	21
32.	Gadarwara	Madhya Pradesh	Narsinghpur	Narmada Basin	Narmada/Sakkar	3.0	III	Gadarwara	150750		174584	18.9	<3		19
33.	Kogaon	Madhya Pradesh	Khargone	Narmada Basin	Narmada/Kundi	3.3	III	khargon	106,454		123284	13.3	4	V	13
34.	Mataji	Madhya Pradesh	Ratlam	Mahi Basin	Mahi	4.2	III	Banswara	100128		115958	12.5			13
35.	Chhidgaon	Madhya Pradesh	Harda	Narmada Basin	Narmada/Ganjal	3.4	III	Seoni Malwa	86195		99822	10.8	<3		11
36.	Rajegaon	Madhya Pradesh	Balaghat	Godavari Basin	Godavari/Pranhita/Bagh	15.0	II	Balaghat, Power Station, Paint Manufacturing Industries	84261		97583	10.5			11
37.	Bamni	Madhya Pradesh	Mandla	Narmada Basin	Narmada/Banjar	7.0	III	Mandla	49463		57283	6.2	3.60	V	6
38.	Ramakona	Madhya Pradesh	Chindawara	Godavari Basin	Godavari/Pranhita/Kanhan	25.0	II	Susar, Chindwara	27459		31800	3.4	9.6-22	II	3
39.	Dindori	Madhya Pradesh	Dindori	Narmada Basin	Narmada	3.5	III	Dindori	17413		20166	2.2	<3		2
40.	Satrapur	Maharashtra	Nagpur	Godavari Basin	Godavari/Pranhita/Kanhan	45.0	I	Nagpur city, Kanhan, Yerkheda, Kaperkheda Super Thermal Power Plant, Coal mines	2405665	100.00	2786001	300.9	9.6-22	II	201

Sl. No.	Name of site	State	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
41.	Ashti	Maharashtra	Gadchiroli	Godavari Basin	Godavari/Pranhita/Wainganga/Wainganga	40.0	I	Gadchiroli, Ballarpur Paper Mill, Asthi town	970294		1123697	121.4	8.8-20.6	II	121
42.	Wairagarh	Maharashtra	Gadchiroli	Godavari Basin	Godavari/Pranhita/Khobragarhi	25.0	II	Gadchiroli, Agro Industry	970294		1123697	121.4	8.8-20.6	II	121
43.	Sirpur	Maharashtra	Gadchiroli	Godavari Basin	Godavari/Pranhita/Wardha	55.0	I	Balharsha, Chandrapur, Oil Industry, Cement Plant, Chemical Industry	454758		526655	56.9	8.2-31	I	57
44.	Bamni	Maharashtra	Chandrapur	Godavari Basin	Godavari/Pranhita/Wardha	225.0	I	Chandrapur, Industrial Area, Western Coal Field Mines, Bilt Paper Mill	321036		371792	40.2	8.2-31	I	40
45.	Nandgaon	Maharashtra	Wardha	Godavari Basin	Godavari/Pranhita/Wunna	105.0	I	Hinganghat, RSR Mohata Textile Mill	130899		151594	16.4	8.2-31	I	16
46.	P.G.Bridge	Maharashtra	Yeotmal	Godavari Basin	Godavari/Pranhita/Penganga	50.0	I	Adilabad, Agro Industries, Cement and Pipes Industry,	117167		135691	14.7	8.7-12.6	III	15
47.	Pauni	Maharashtra	Yeotmal	Godavari Basin	Godavari/Pranhita/Wainganga/Wainganga	50.0	I	Pauni, Umred, Power Plants	76792		88933	9.6	3.8-40	I	10
48.	Tekra	Maharashtra	Gadchiroli	Godavari Basin	Godavari/Pranhita/Pranhita	45.0	I	Bellampalli, Coal Mines,	66789		77348	8.4	3.6-26	II	8

Sl. No.	Name of site	State	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
49.	Hivra	Maharashtra	Wardha	Godavari Basin	Godavari/Pranhita/Wardha	25.0	II	Pulgaon, Pulp & Paper industry and sewage from Municipal Councils.	33925		39289	4.2	8.2-31	I	4
50.	Panposh	Odisha	Sundergarh	Brahmani-Baitarni Basin	Brahmani	3.8	III	Rourkela	552970	21.24	640395	69.2	3.6-7	IV	48
51.	Talcher*	Odisha	Angual	Brahmani-Baitarni Basin	Brahmani	4.0	III	Talcher*	40841	2.00	47298	5.1	3.6-7	IV	3
52.	Anandapur	Odisha	Keonjhar	Brahmani-Baitarni Basin	Baitarni	5.6	III	Anandpur	35043		40583	4.4	3.2-3.4	V	4
53.	Kesinga	Odisha	Kalahandi	Mahanadi Basin	Mahanadi/Tel	4.9	III	Titlagarh, Tiles Factory, Agro Industry	31258		36200	3.9			4
54.	Rangeli	Rajasthan	Dungarpur	Mahi Basin	Mahi/som	4.7	III	Sarada	266775		308952	33.4			33
55.	Abu Road	Rajasthan	Sirohi	West flowing rivers of Kutchh and Saurashtra including Luni	Banas	17.4	II	Abu Road, Marble Industries	55599		64389	7.0	4.2-39.9	I	7
56.	Paderdibadi	Rajasthan	Dungarpur	Mahi Basin	Mahi	6.1	III	Pratapgarh	45000		52115	5.6			6
57.	Elunuthimanagalam	Tamilnadu	Erode	Cauvery Basin	Cauvery/Noyyal	6.1	III	Tiruppur, Textile Industries	877778	15.00	1016555	109.8			95
58.	Kodumudi	Tamilnadu	Erode	Cauvery Basin	Cauvery	8.0	III	Erode, Textile and Weaving Industries	498129	25.17	576883	62.3	3.8-9.3	IV	37
59.	Murappanadu	Tamilnadu	Tuticorin	East Flowing rivers between Pennar and Kanyakumari	Tambraparani	3.3	III	Tirunelveli, Metal, Plastic & Chemical Industries	473637	24.20	548519	59.2	126	I	35

Sl. No.	Name of site	State	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
60.	Musiri	Tamilnadu	Thiruchirapalli	Cauvery Basin	Cauvery	3.7	III	Erode, Karur, Textile and Weaving Industries	280531	15.00	324883	35.1	3.8-9.3	IV	20
61.	Nallammaranpatty	Tamilnadu	Karur	Cauvery Basin	Cauvery/Amaravathi	5.7	III	Dharapuram, Dyes & Chemicals Industries	126987		147064	15.9			16
62.	Gummanur	Tamilnadu	Dharmapuri	East Flowing rivers between Pennar and Kanyakumari	Ponnoiyar	18.3	II	Hosur, Steel Industries	116821	14.05	135290	14.6			1
63.	Savandapur	Tamilnadu	Erode	Cauvery Basin	Cauvery/Bhavani	4.3	III	Gobichettapalayam, Beverages, Textile, Weaving & Sugar Industries	59523		68934	7.4	3.9-115	I	7
64.	Urachikottai	Tamilnadu	Erode	Cauvery Basin	Cauvery	7.3	III	Mettur, CHEMICAL INDUSTRIES	52813		61163	6.6	3.8-9.3	IV	7
65.	Dameracherla	Telangana	Nalgonda	Krishna Basin	Krishna/Musi	3.7	III	Mirylaguda, Granite marble preparation	165328		183481	21.0	8.6-165	I	21
66.	Bhatpalli	Telangana	Adilabad	Godavari Basin	Godavari/Pranhita/Pedavagu	40.0	I	Sirpur-Kaghaznagar town, Sirpur Kagaznagar Paper Mill	57583		66687	7.2			7
67.	Madhira	Telangana	Khammam	Krishna Basin	Krishna/Munneru/Wyra	3.1	III	Madhira, Power Plant	30500		35322	3.8			4
	Note: At some station there is difference in BOD range observed by CWC and CPCB. This is due to different sampling location.														

4. Observations

The primary reason for major sources of pollution in rivers are agriculture and domestic wastes directly finding way to rivers. In some cases small industries are also discharging its untreated waste water into the river. Industries and cities have historically been located along rivers because the rivers provide transportation and have traditionally been a convenient place to discharge waste. Agricultural activities have tended to be concentrated near rivers, because river floodplains are exceptionally fertile due to the many nutrients that are deposited in the soil when the river overflows. Other Non-point sources of pollution are:

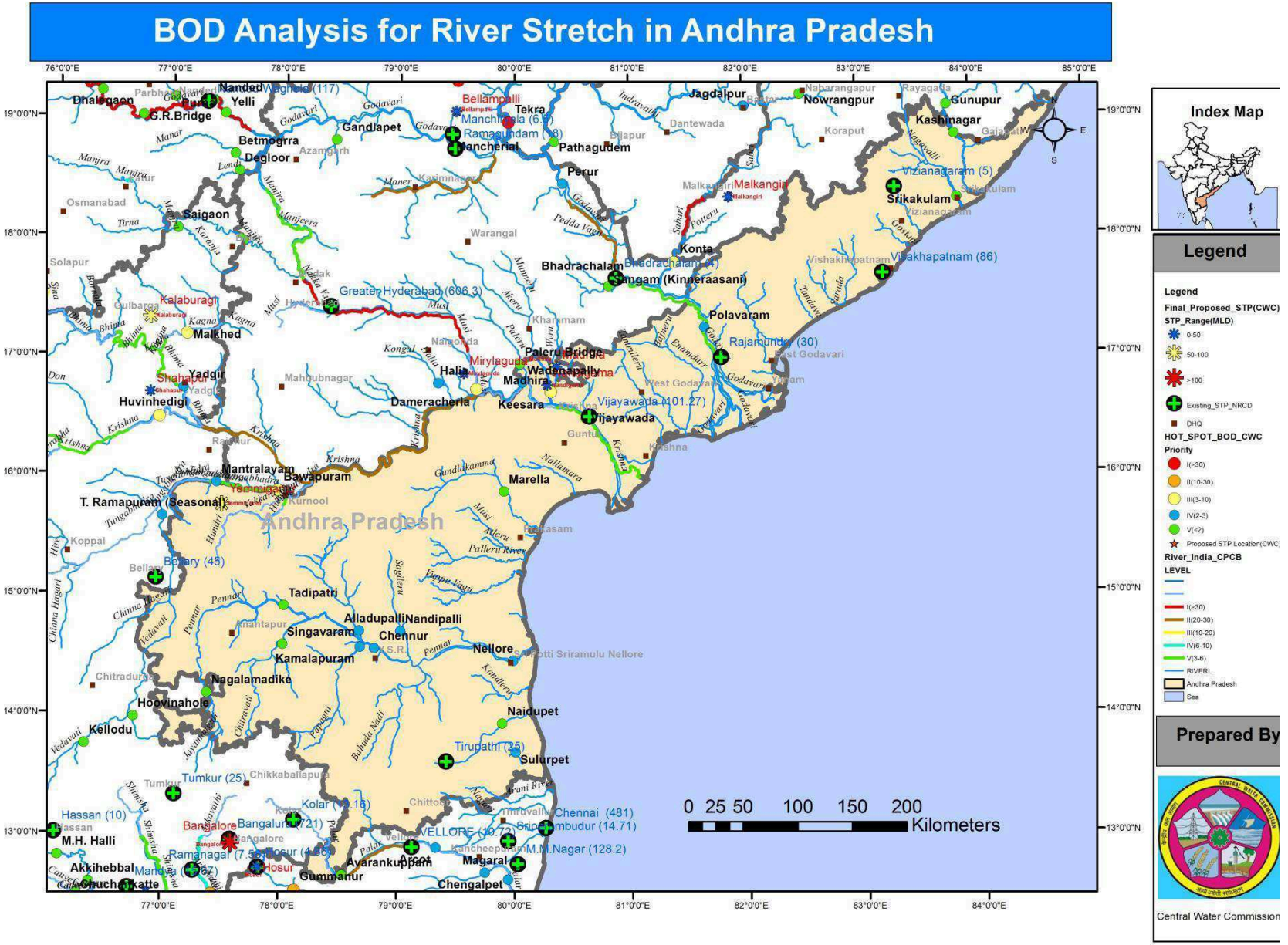
a. Natural contaminants such as dry leaves, dead insects and animals, bird droppings etc.
b. Agricultural contaminants such as agricultural runoff containing fertilizers, pesticides etc. The fertilizers and pesticides can be washed through the soil by rain, to end up in rivers.
c. Industrial contaminants such as industrial runoff containing industrial wastes.
d. Microbial contaminants such as faecal & Total Coliform, and
e. Human added contaminants such as organic matter through domestic discharges.

Based upon the analysis presented in the report, state wise water quality hot spots on rivers are as given below.

4.1. Andhra Pradesh

Sl. No.	Name of site	District	River basin	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Bawapuram	Kurnool	Krishna Basin	Krishna/Tungabhadra	3.7	III	Yemmiganur, Fertilizers Industry	430214		489842	55.0	3.4-3.6	V	55
2.	Keesara	Krishna	Krishna Basin	Krishna/Munneru	4.1	III	Nandigama, Centine Beer Factory	44359		51372	5.5			6

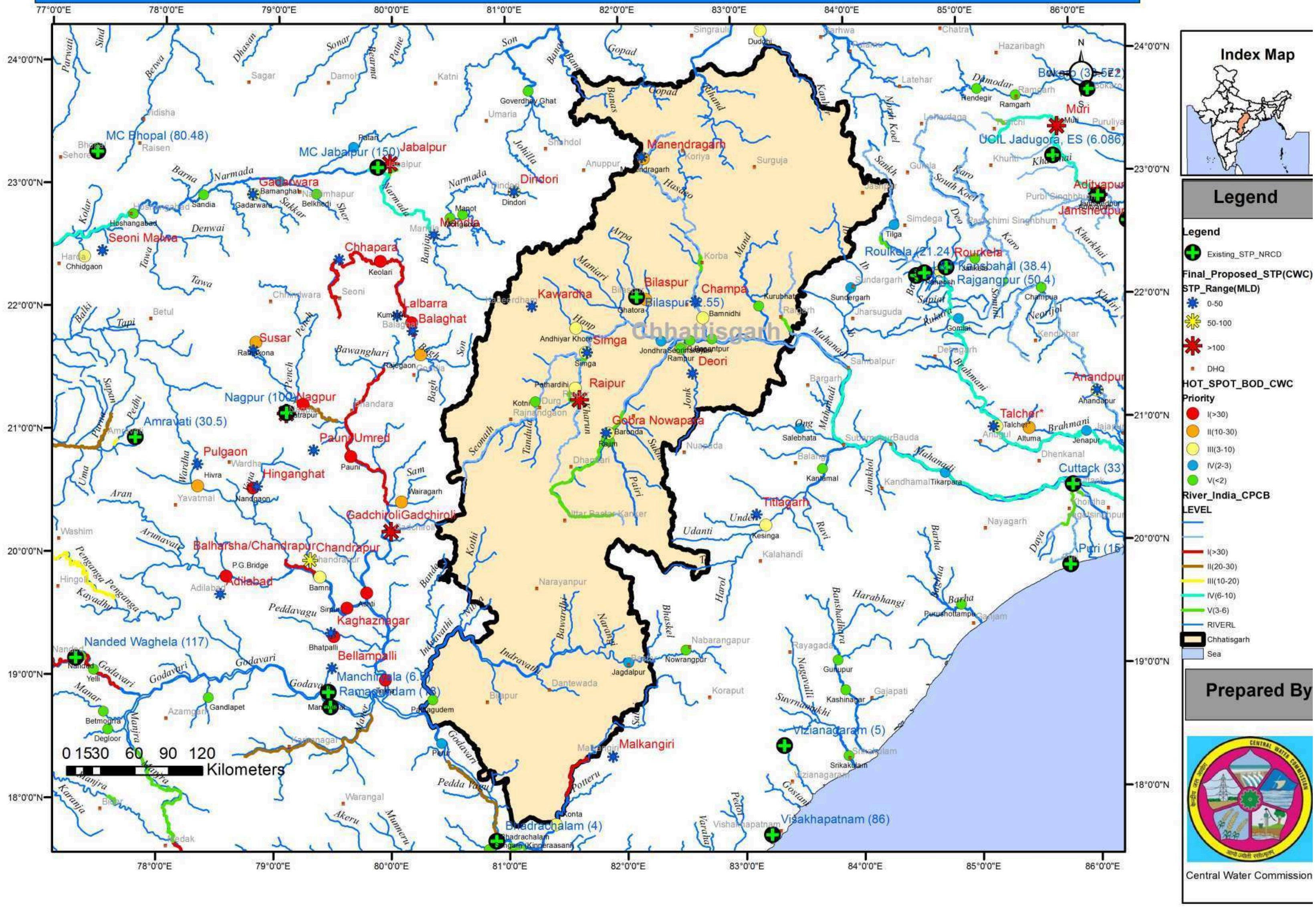
BOD Analysis for River Stretch in Andhra Pradesh



4.2. Chhattisgarh

Sl. No.	Name of site	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Pathardihi	Raipur	Mahanadi Basin	Mahanadi/Seonath/Kharun	4.1	III	Raipur, Oil and Paint Industries, Steel and Rubber Industries	1010087		1169782	126.3	3.4	V	126
2.	Bamnidhi	Janjgir-champa	Mahanadi Basin	Mahanadi/Hasdeo	6.6	III	Champa, Mining Industries	211189		244578	26.4	3.2-3.6	V	26
3.	Andhiyar Khore	Durg	Mahanadi Basin	Mahanadi/Seonath/Arpa	7.2	III	Kawardha, Tiles and Marble Industries	45451		52637	5.7			6
4.	Manendragarh	Koriya	Mahanadi Basin	Mahanadi/Hasdeo	21.0	II	Manendragarh, Agro Industry	33071		38300	4.1	3.2-3.6	V	4
5.	Konta	Dantewara	Godavari Basin	Godavari/Sabari	3.0	III	Malkangiri	31007		35909	3.9	3.7	V	4
6.	Rajim	Raipur	Mahanadi Basin	Mahanadi	4.3	III	Gobra Nowapara, Cement Industry	29315		33950	3.7	3.2-3.8	V	4
7.	Rampur	Raipur	Mahanadi Basin	Mahanadi/Jonk	3.5	III	Deori, Mining Industry	23812		27577	3.0			3
8.	Ghatora	Bilaspur	Mahanadi Basin	Mahanadi/Seonath	24.8	II	Bilaspur, Ceramic and Marble Industries	331030		382704	55.0	3.9	V	55
9.	Simga	Raipur	Mahanadi Basin	Mahanadi/Seonath	3.4	III	Simga, Durg, Fertilizers and Chemicals Industries	13137		15214	1.6	4	V	2

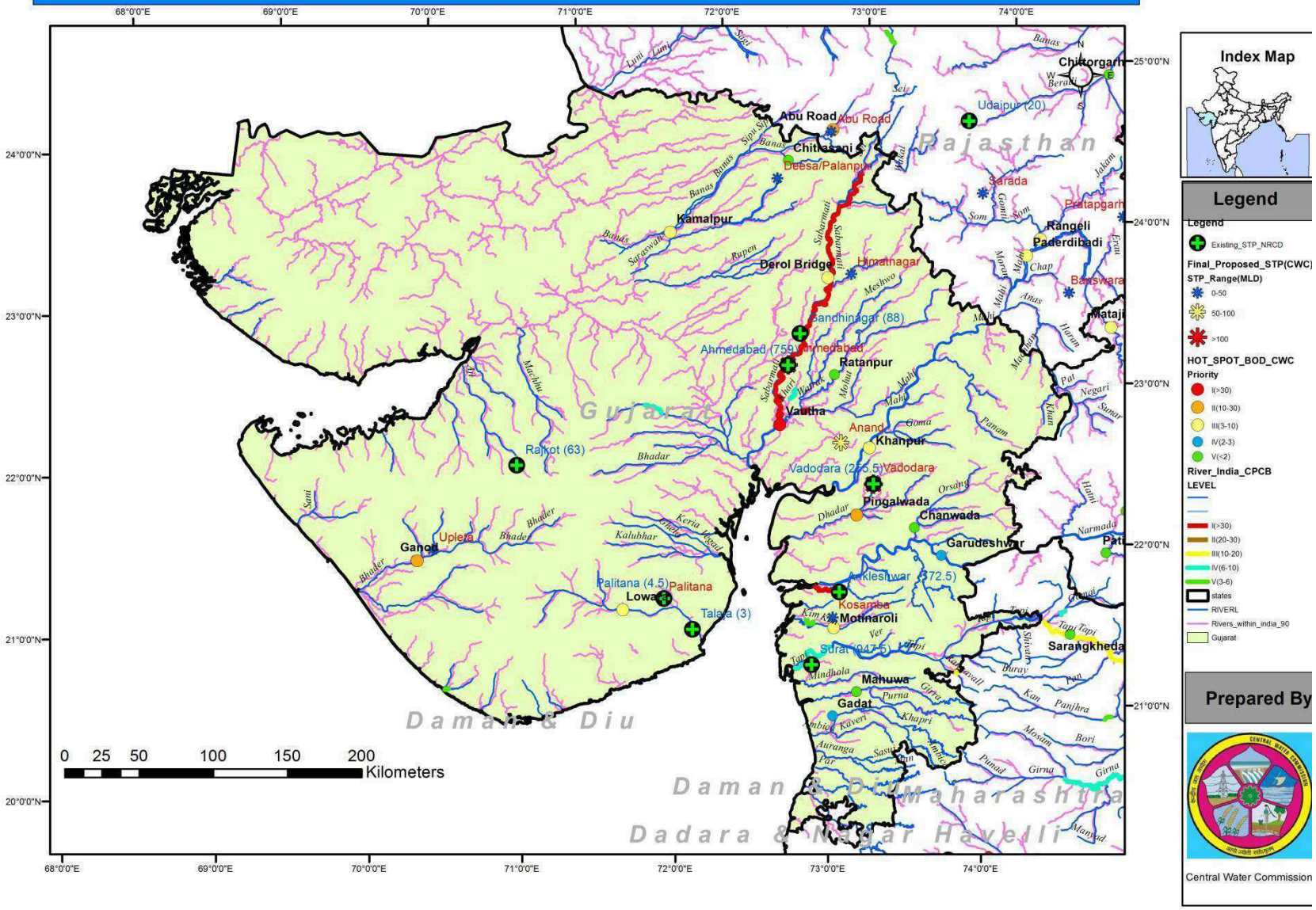
BOD Analysis for River Stretch in Chhatisgarh



4.3. Gujarat

Sl. No.	Name of site	District	River basin	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Vautha	Kheda	Sabarmati Basin	Sabarmati	63.0	I	Ahmedabad, Chemical Industries, Gandhinagar	6965418	1163.00	9055043	977.9	4.0-46	I	Adequate
2.	Pingalwada	Vadodara	West flowing rivers from Tapi to Tadri	Dhadhar	10.0	II	Vadodra, Chemical, Agro-Chemical and Biochemical Industries	4157568	276.50	4814880	520.0	9	IV	244
3.	Khanpur	Anand	Mahi Basin	Mahi	5.0	III	Anand	633793	18.00	733996	79.3			61
4.	Kamalpur	Banaskantha	West flowing rivers of Kutchh and Saurashtra including Luni	Banas	7.4	III	Deesa, Palanpur, Agro and Pharmaceutical Industries	271493		314416	34.0			34
5.	Derol Bridge	Sabarkantha	Sabarmati Basin	Sabarmati	3.8	III	Himatnagar, Chemical and Agro Industry, Oil Mills	81137		93965	10.1	4.0-46	I	10
6.	Ganod	Rajkot	West flowing rivers of Kutchh and Saurashtra including Luni	Bhadar	17.4	II	Upleta, Agro and Minechemical Industries	80105		92770	10.0	11	III	10
7.	Lowara	Bhavnagar	West flowing rivers of Kutchh and Saurashtra including Luni	shetruni	4.4	III	Palitana, Steel and Plastic Industries	64101	4.50	74235	8.0	<3		4
8.	Motinaroli	Surat	Tapi Basin	Kim (Indepent River)	4.9	III	Kosamba, Steel and Rubber Industry	50568		58563	6.3	3.4	V	6

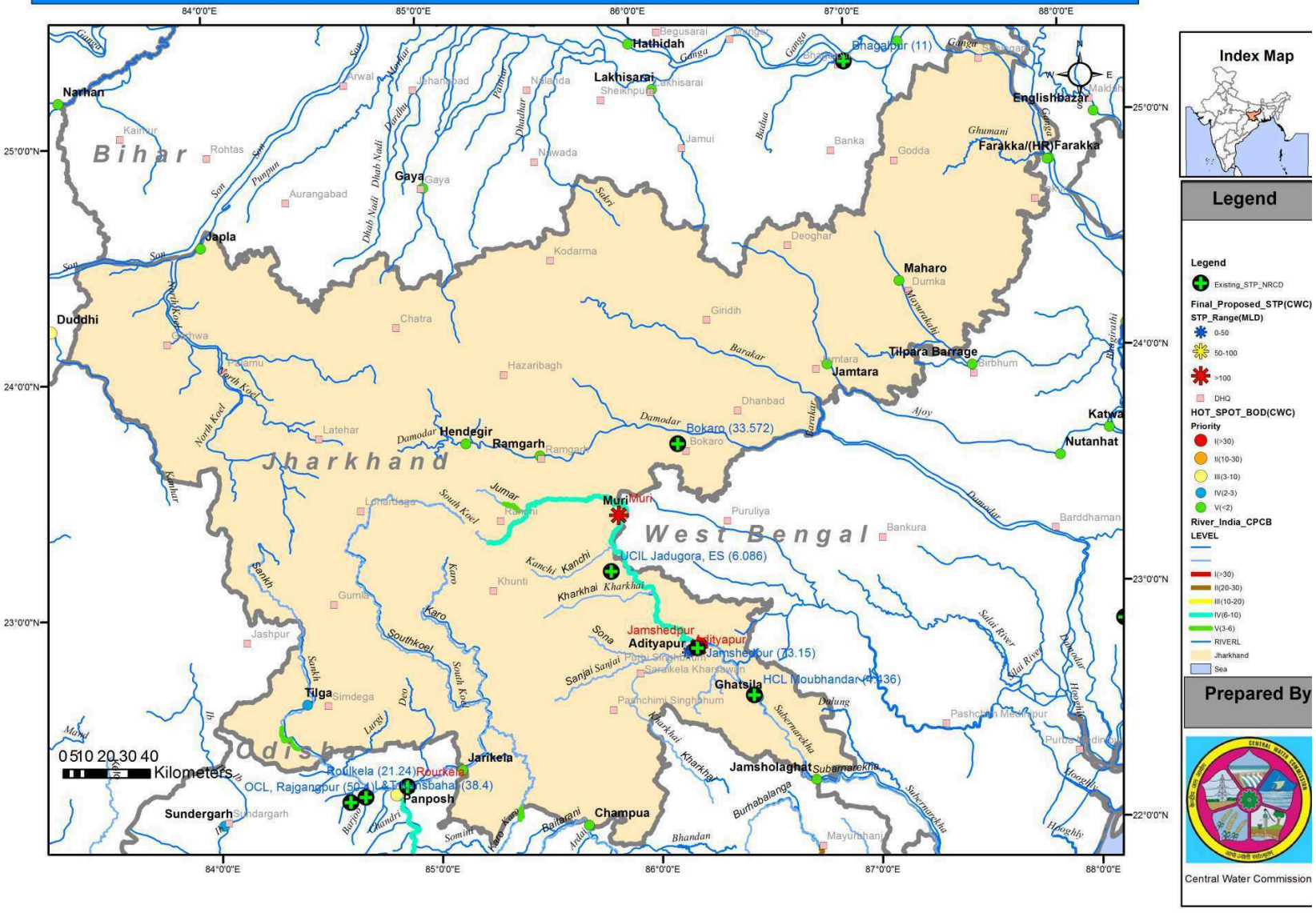
BOD Analysis for River Stretch in Gujarat



4.4. Jharkhand

Sl. No.	Name of site	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Jamshedpur	Purba Singhbhum	Subernarekha Basin	Subernarekha	59.0	I	Jamshedpur, Steel Industry, Chemical Industry	631364	73.15	731183	137.5	3.2-8	IV	64
2.	Muri	Ranchi	Subernarekha Basin	Subernarekha	19.9	II	Ranchi, Muri, Pharmaceutical and Agro Industries	1120374		1297505	140.1	3.2-8	IV	140
3.	Adityapur	Purba Singhbhum	Subernarekha Basin	Subernarekha /Kharkai	99.0	I	Adityapur, Adityapur Industrial Area	174355		201921	21.8	3.2-8	IV	22

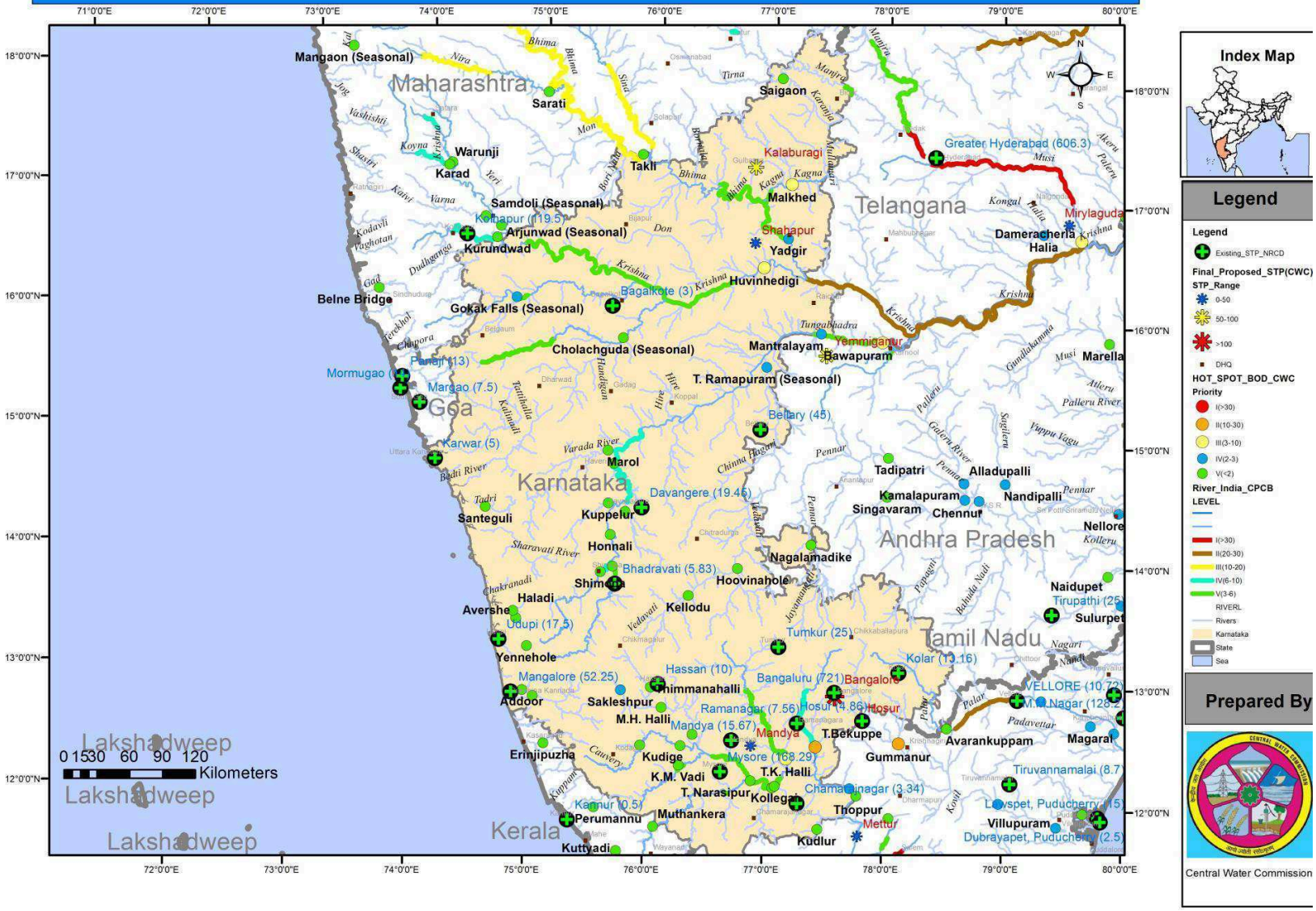
BOD Analysis for River Stretch in Jharkhand



4.5. Karnataka

Sl. No.	Name of site	District	River basin	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	T.Bekuppe	Ramanagaram	Cauvery Basin	Cauvery/Arkavathi	21.5	II	Bangalore, Electronic Industries	8443675	721.00	9778620	1056.1	5-8	IV	335
2.	Malkhed	Pgulbarga	Krishna Basin	Krishna/Bhima/Kagna	8.0	III	Kalaburagi, Cement Factories	543000		628848	67.9	3.1-3.2	V	68
3.	T.K. Halli	Mandya	Cauvery Basin	Cauvery/Shimsha	4.0	III	Mandya, Agro and Bricks Industries,	137358	15.67	159074	17.2	4.5	V	2
4.	Huvinhedigi	Raichur	Krishna Basin	Krishna	3.4	III	Shahapur, Cotton Ginning Factory	53366		61803	6.7	3.2-4.8	V	7

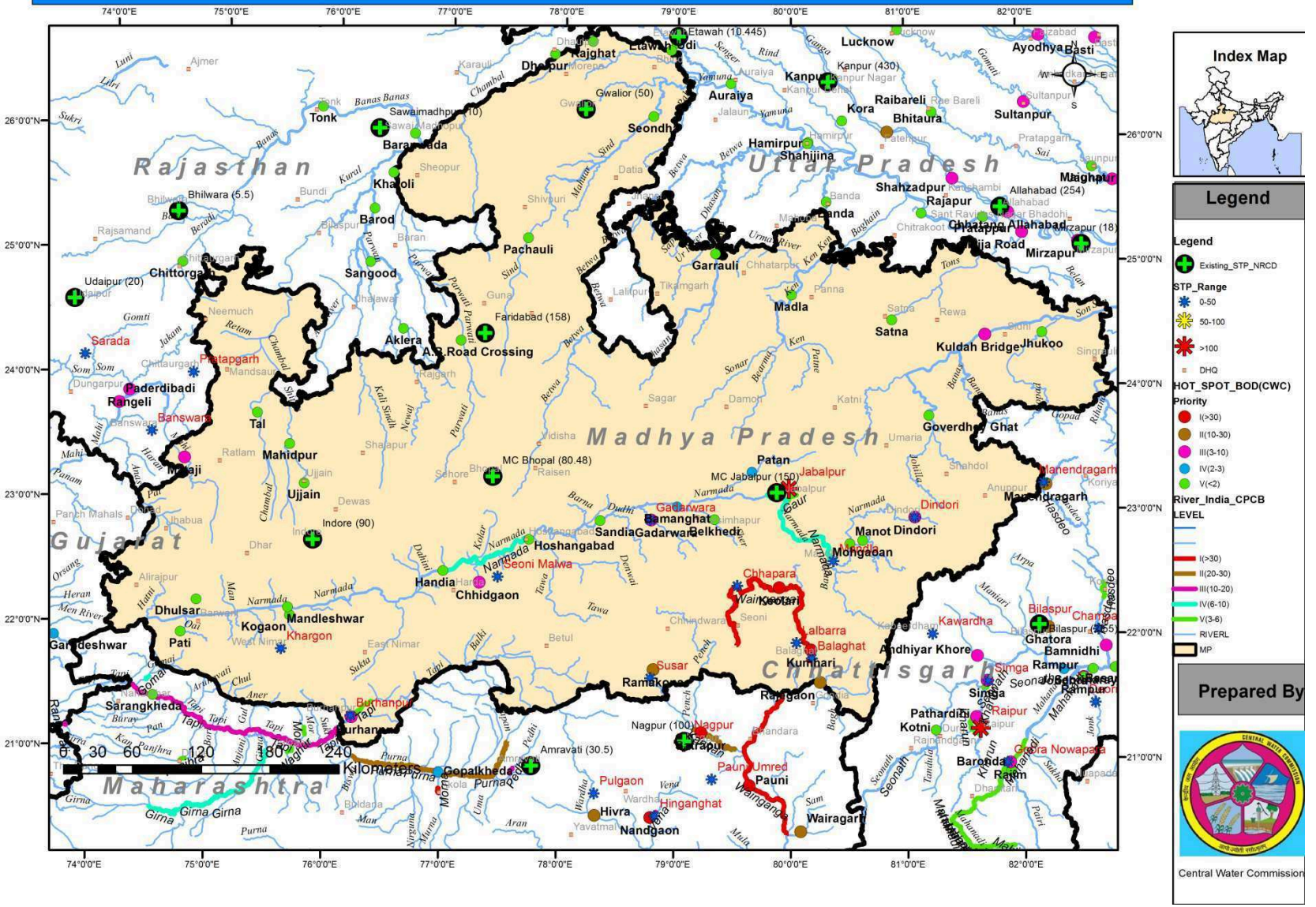
BOD Analysis for River Stretch in Karnataka



4.6. Madhya Pradesh

Sl. No.	Name of site	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Patan	Jabalpur	Narmada Basin	Narmada/Hiran	3.9	III	Jabalpur	1,081,677	150.00	1252690	135.3	3.3-7.9	IV	Adequate
2.	Burhanpur	Khandwa	Tapi Basin	Tapi	4.8	III	Burhanpur, Enzymes Industry	210891	6.00	244233	26.4	3.8-4	V	20
3.	Keolari	Seoni	Godavari Basin	Godavari/Pranhita/Wainganga	45.0	I	Chhapara, Keolari , Seoni, Mandla	201598	2.00	233471	25.2	3.8-40	I	23
4.	Kumhari	Balaghat	Godavari Basin	Godavari/Pranhita/Wainganga	45.0	I	Lalbarra City, Chemical Industry, Agro Industries,	170960		197989	21.4	3.8-40	I	21
5.	Gadarwara	Narsinghpur	Narmada Basin	Narmada/Sakkar	3.0	III	Gadarwara	150750		174584	18.9	<3		19
6.	Kogaon	Khargone	Narmada Basin	Narmada/Kundi	3.3	III	khargon	106,454		123284	13.3	4	V	13
7.	Mataji	Ratlam	Mahi Basin	Mahi	4.2	III	Banswara	100128		115958	12.5			13
8.	Chhidgaon	Harda	Narmada Basin	Narmada/Ganjal	3.4	III	Seoni Malwa	86195		99822	10.8	<3		11
9.	Rajegaon	Balaghat	Godavari Basin	Godavari/Pranhita/Bagh	15.0	II	Balaghat, Power Station, Paint Manufacturing Industries	84261		97583	10.5			11
10.	Bamni	Mandla	Narmada Basin	Narmada/Banjar	7.0	III	Mandla	49463		57283	6.2	3.60	V	6
11.	Ramakona	Chindawara	Godavari Basin	Godavari/Pranhita/Kanhan	25.0	II	Susar, Chindwara	27459		31800	3.4	9.6-22	II	3
12.	Dindori	Dindori	Narmada Basin	Narmada	3.5	III	Dindori	17413		20166	2.2	<3		2

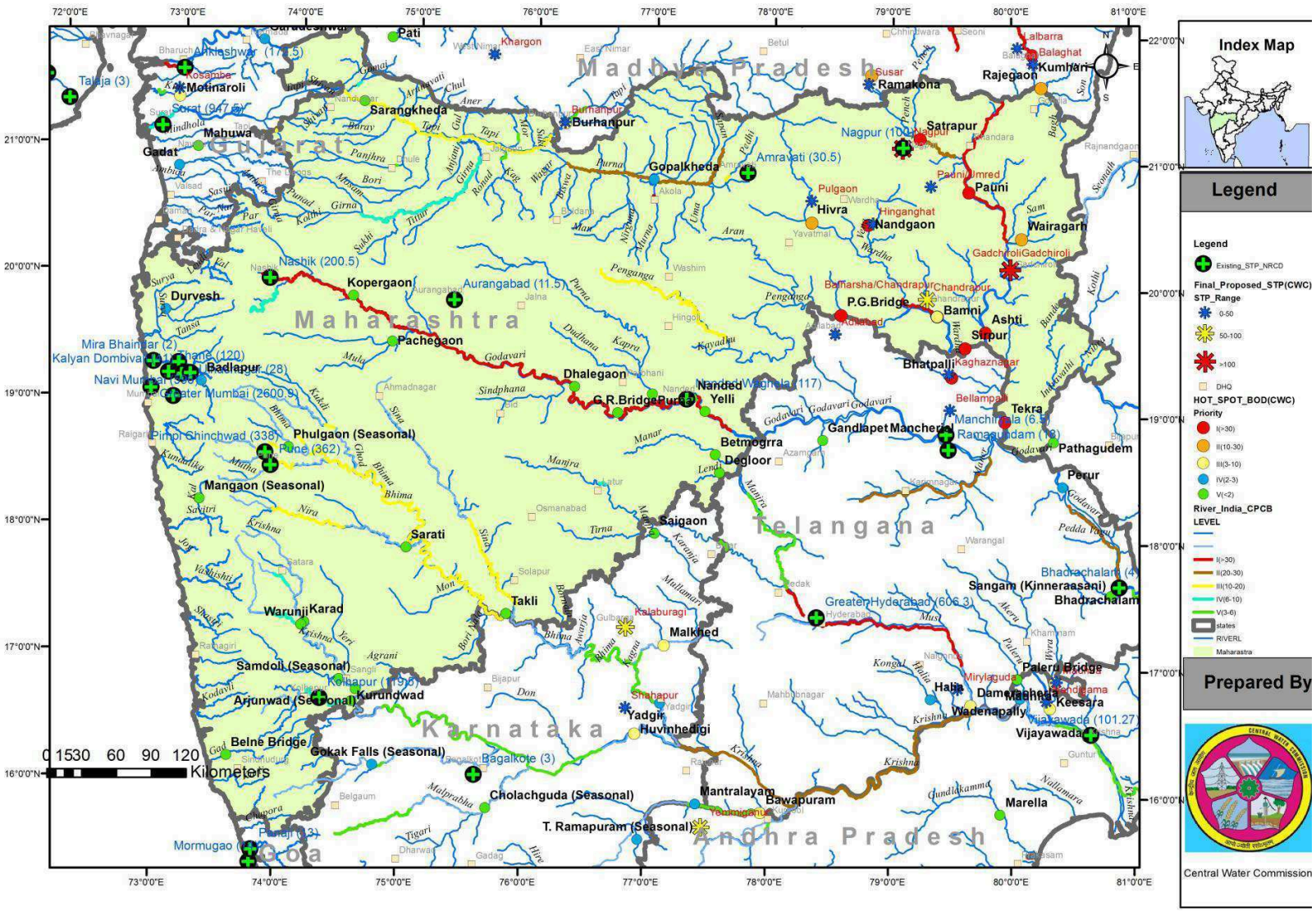
BOD Analysis for River Stretch in Madhya Pradesh



4.7. Maharashtra

Sl. No.	Name of site	District	River basin	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Satrapur	Nagpur	Godavari Basin	Godavari/Pranhita/Kanhan	45.0	I	Nagpur city, Kanhan, Yerkheda, Kaperkheda Super Thermal Power Plant, Coal mines	2405665	100.00	2786001	300.9	9.6-22	II	201
2.	Ashti	Gadchiroli	Godavari Basin	Godavari/Pranhita/Wainganga/Wainganga	40.0	I	Gadchiroli, Ballarpur Paper Mill, Asthi town	970294		1123697	121.4	8.8-20.6	II	121
3.	Wairagarh	Gadchiroli	Godavari Basin	Godavari/Pranhita/Khobragarhi	25.0	II	Gadchiroli, Agro Industry	970294		1123697	121.4	8.8-20.6	II	121
4.	Sirpur	Gadchiroli	Godavari Basin	Godavari/Pranhita/Wardha	55.0	I	Balharsha, Chandrapur, Oil Industry, Cement Plant, Chemical Industry	454758		526655	56.9	8.2-31	I	57
5.	Bamni	Chandrapur	Godavari Basin	Godavari/Pranhita/Wardha	225.0	I	Chandrapur, Industrial Area, Western Coal Field Mines, Bilt Paper Mill	321036		371792	40.2	8.2-31	I	40
6.	Nandgaon	Wardha	Godavari Basin	Godavari/Pranhita/Wunna	105.0	I	Hinganghat, RSR Mohata Textile Mill	130899		151594	16.4	8.2-31	I	16
7.	P.G.Bridge	Yeotmal	Godavari Basin	Godavari/Pranhita/Penganga	50.0	I	Adilabad, Agro Industries, Cement and Pipes Industry,	117167		135691	14.7	8.7-12.6	III	15
8.	Pauni	Yeotmal	Godavari Basin	Godavari/Pranhita/Wainganga/Wainganga	50.0	I	Pauni, Umred, Power Plants	76792		88933	9.6	3.8-40	I	10
9.	Tekra	Gadchiroli	Godavari Basin	Godavari/Pranhita/Pranhita	45.0	I	Bellampalli, Coal Mines,	66789		77348	8.4	3.6-26	II	8
10.	Hivra	Wardha	Godavari Basin	Godavari/Pranhita/Wardha	25.0	II	Pulgaon, Pulp & Paper industry and sewage from Municipal Councils.	33925		39289	4.2	8.2-31	I	4

BOD Analysis for River Stretch in Maharastra



4.8. Odisha

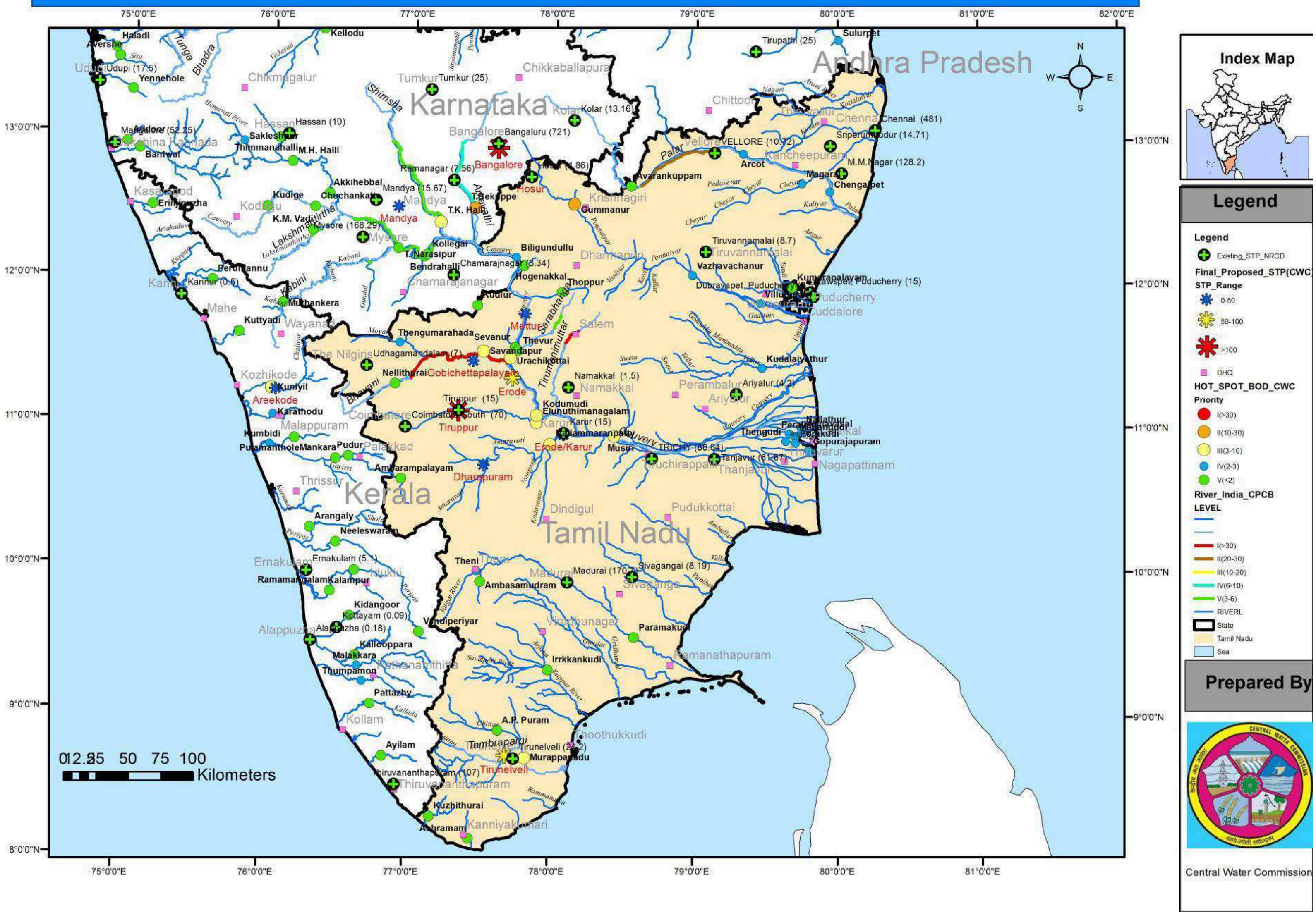
Sl. No.	Name of site	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Panposh	Sundergarh	Brahmani-Baitarni Basin	Brahmani	3.8	III	Rourkela	552970	21.24	640395	69.2	3.6-7	IV	48
2.	Talcher*	Angual	Brahmani-Baitarni Basin	Brahmani	4.0	III	Talcher*	40841	2.00	47298	5.1	3.6-7	IV	3
3.	Anandapur	Keonjhar	Brahmani-Baitarni Basin	Baitarni	5.6	III	Anandpur	35043		40583	4.4	3.2-3.4	V	4
4.	Kesinga	Kalahandi	Mahanadi Basin	Mahanadi/Tel	4.9	III	Titlagarh, Tiles Factory, Agro Industry	31258		36200	3.9			4

BOD Analysis for River Stretch in Odisha

4.9. Tamilnadu

Sl. No.	Name of site	District	River basin	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Elunuthimanagalam	Erode	Cauvery Basin	Cauvery/Noyyal	6.1	III	Tiruppur, Textile Industries	877778	15.00	1016555	109.8			95
2.	Kodumudi	Erode	Cauvery Basin	Cauvery	8.0	III	Erode, Textile and Weaving Industries	498129	25.17	576883	62.3	3.8-9.3	IV	37
3.	Murappanadu	Tuticorin	East Flowing rivers between Pennar and Kanyakumari	Tambraparani	3.3	III	Tirunelveli, Metal, Plastic & Chemical Industries	473637	24.20	548519	59.2	126	I	35
4.	Musiri	Thiruchirapalli	Cauvery Basin	Cauvery	3.7	III	Erode, Karur, Textile and Weaving Industries	280531	15.00	324883	35.1	3.8-9.3	IV	20
5.	Nallammaranpatty	Karur	Cauvery Basin	Cauvery/Amaravathi	5.7	III	Dharapuram, Dyes & Chemicals Industries	126987		147064	15.9			16
6.	Gummanur	Dharmapuri	East Flowing rivers between Pennar and Kanyakumari	Ponnoiyar	18.3	II	Hosur, Steel Industries	116821	14.05	135290	14.6			1
7.	Savandapur	Erode	Cauvery Basin	Cauvery/Bhavani	4.3	III	Gobichettapalayam, Beverages, Textile, Weaving & Sugar Industries	59523		68934	7.4	3.9-115	I	7
8.	Urachikottai	Erode	Cauvery Basin	Cauvery	7.3	III	Mettur, CHEMICAL INDUSTRIES	52813		61163	6.6	3.8-9.3	IV	7

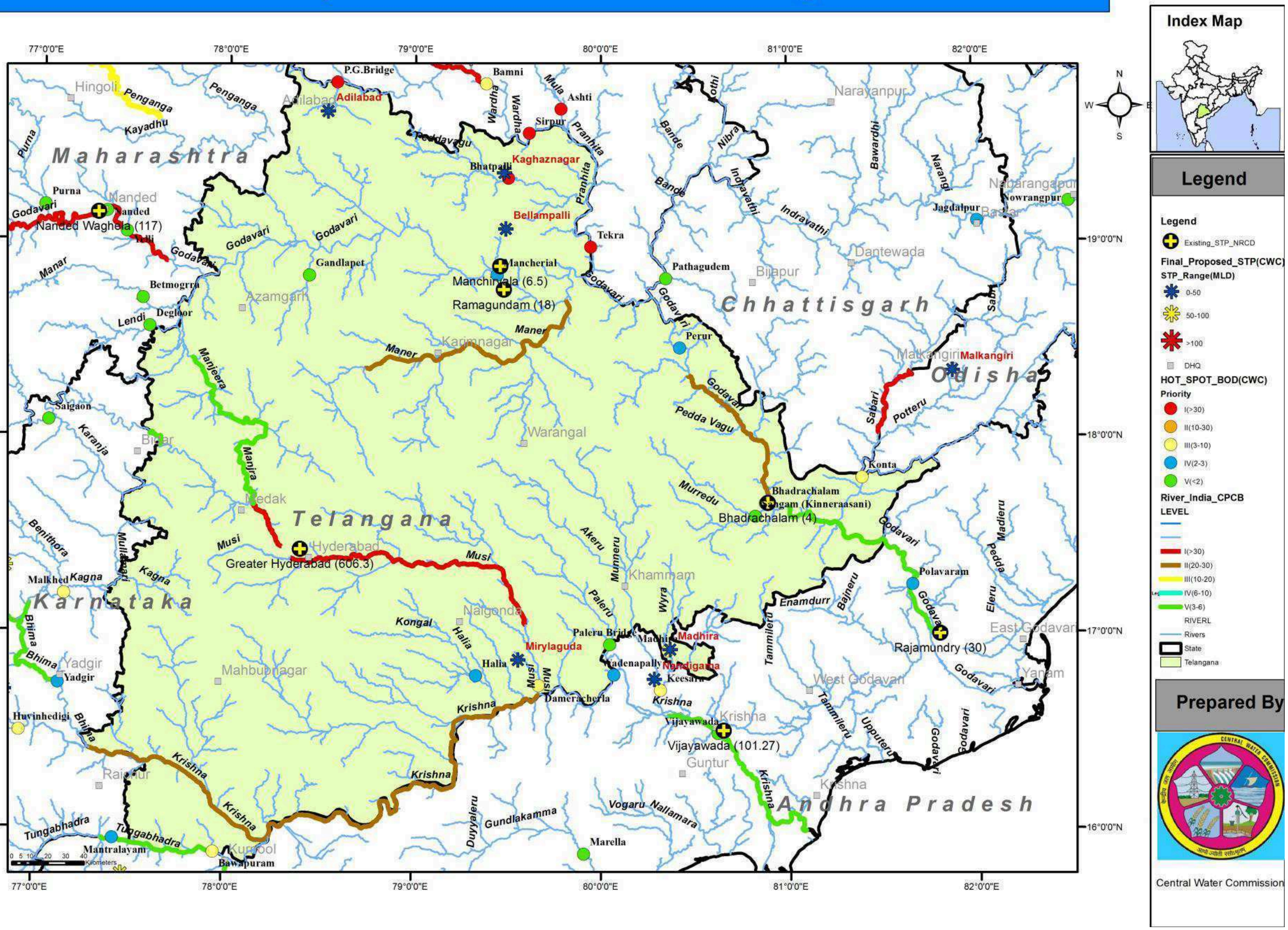
BOD Analysis for River Stretch in Tamil Nadu



4.10. Telangana

Sl. No.	Name of site	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Dameracherla	Nalgonda	Krishna Basin	Krishna/Musi	3.7	III	Mirylaguda, Granite marble preparation	165328		183481	21.0	8.6-165	I	21
2.	Bhatpalli	Adilabad	Godavari Basin	Godavari/Pranhita/Pedavagu	40.0	I	Sirpur-Kaghaznagar town, Sirpur Kagaznagar Paper Mill	57583		66687	7.2			7
3.	Madhira	Khammam	Krishna Basin	Krishna/Munneru/Wyra	3.1	III	Madhira, Power Plant	30500		35322	3.8			4

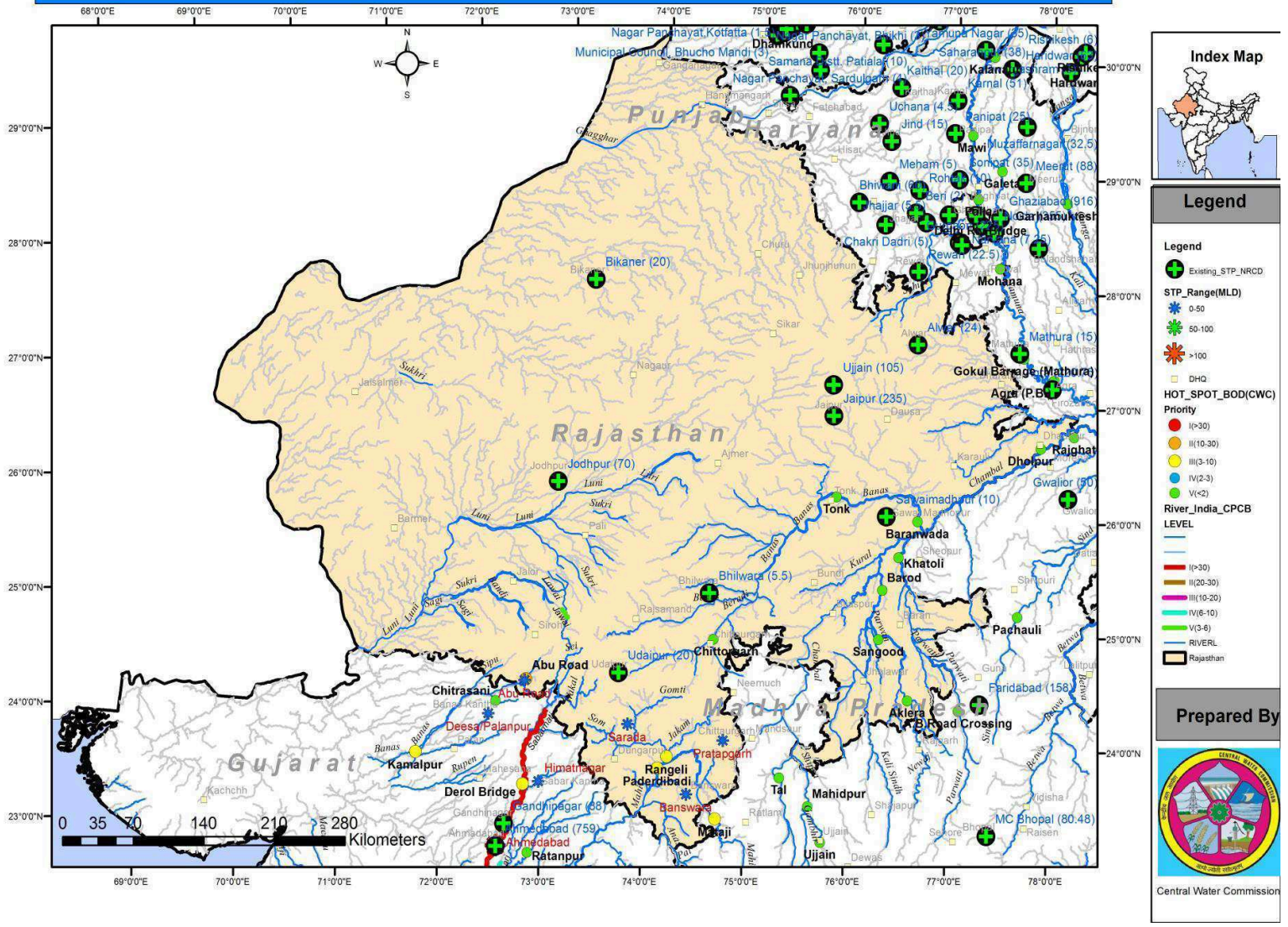
BOD Analysis for River Stretch in Telangana



4.11. Rajasthan

Sl. No.	Name of site	District	River_basi	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Rangeli	Dungarpur	Mahi Basin	Mahi/som	4.7	III	Sarada	266775		308952	33.4			33
2.	Abu Road	Sirohi	West flowing rivers of Kutchh and Saurashtra including Luni	Banas	17.4	II	Abu Road, Marble Industries	55599		64389	7.0	4.2-39.9	I	7
3.	Paderdibadi	Dungarpur	Mahi Basin	Mahi	6.1	III	Pratapgarh	45000		52115	5.6			6

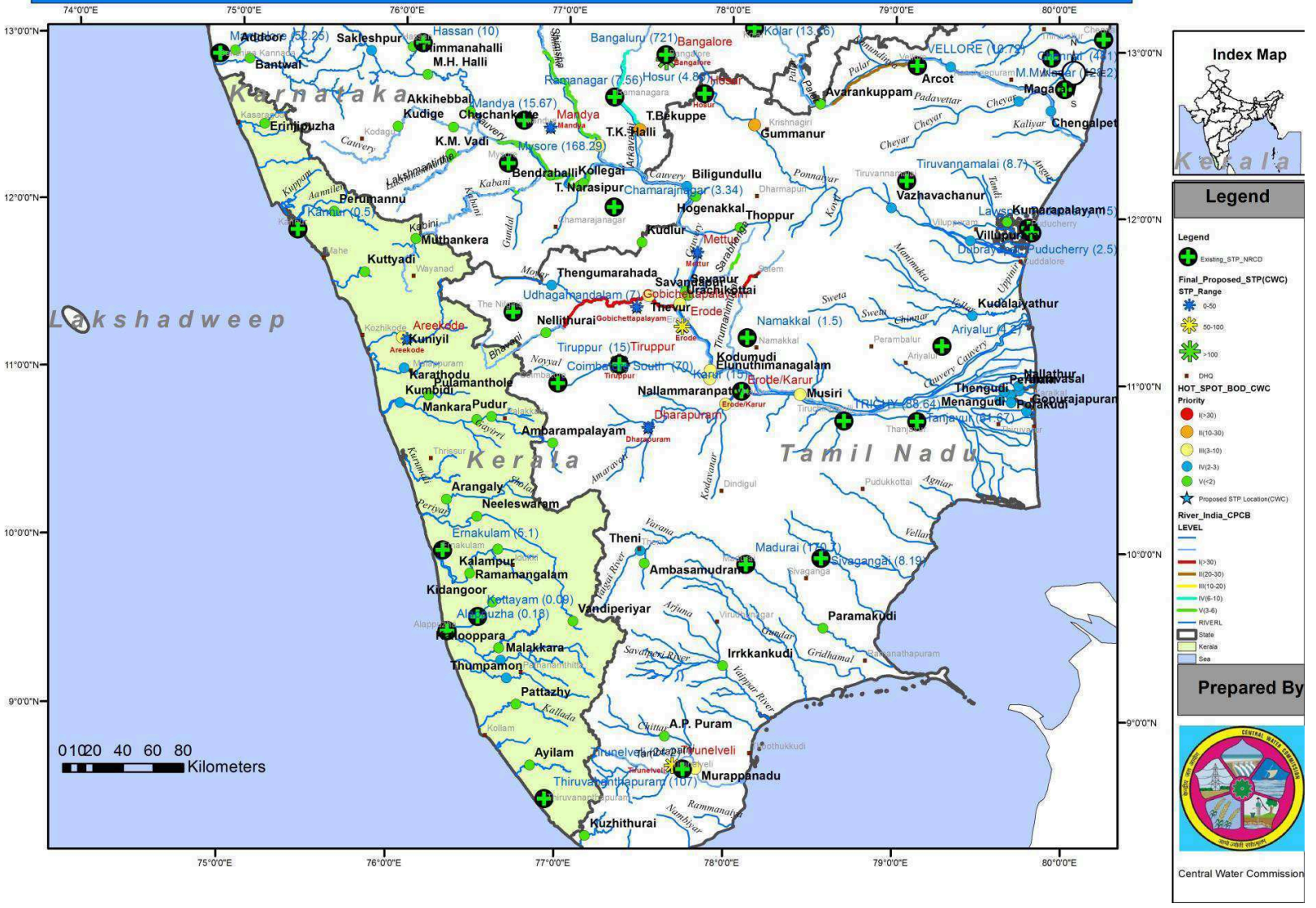
BOD Analysis for River Stretch in Rajasthan



4.12. Kerela

Sl. No.	Name of site	District	River basin	Tributary	Max BOD (mg/l) observed by CWC	Priority CWC	Probable Source of Pollution (City/ Industry/Town in vicinity to river)	Population as per 2011 Census	Existing STP Capacity (MLD)	Projected Population in 2021	Capacity of STP required (MLD)	CPCB BOD Range	CPCB Priority	Additional STP capacity require (MLD)
1.	Kuniyil	Malappuram	West Flowing rivers from Tadri to Kanyakumari	Chaliyar	4.2	III	Areekode, Soad and Paint Industry	31563		36553	3.9	<3		4

BOD Analysis for River Stretch in Kerala



5. Actionable Points for Making Rivers Clean:

- Concerned State authorities may ensure that existing STPs are functioning properly.

- The enforcement towards recycling and reuse of waste water after treatment should be strictly implemented for sugar factories, distilleries and proper sewage treatment plant should be made functional / constructed for sewage treatment from all urban centres, specially at **Hot Spot Locations as identified and marked in the maps of various rivers given in this report**.

- Close study of some important towns/cities has been done and on the basis of avialble information and information gathered from Google Maps suitable locations for STPs with required capacity has been worked out. Relevant maps alongwith iformation for following cities is placed at **Annexure-V.**
  1. Vadodra
  2. Anand
  3. Raipur
  4. Bilaspur
  5. Miryalguda
  6. Sirpur-Kagaznagar
  7. Aburoad
  8. Hosur
  9. Erode
  10. Rourkela
  11. Chandrapur
  12. Jamshedpur
  13. Ranchi
  14. Nagpur

  However, as locations of STPs have been worked out based on table study only, therefore, field survey is required to be conducted before implementation.

- The drains shall discharge sufficiently treated effluent in proportion to self cleaning capacity of rivers.

- Drains of the cities shall be cleaned before monsoon and sludge needs to be disposed in eco friendly manner.

- Plastics of all types (including thermocol) shall not find its way to river through drains.

- The existing and new township under-development should be segregated and for new township urban laws should take care of proper treatments of effluent discharge and its reuse should be considered.

- Solid waste management should also be clearly supported through policy initiatives and state of art technology for converting solid waste into useful resources.

- **Suitable bioremediation measures may be taken on drains of small towns and STPs may be installed at all big cities so that they shall not discharge untreated water directly to the river.**

- ***Industrial affluent should be strictly recycled and reused. Untreated effluent should not find its way to the riverine system or under-ground water. Strict enforcement is needed in this regard.***

- Provide sufficient water in the river for ecological flow and dilution. This can be made possible by:

    i. Constructing storage structures at the upstream which can continuously release discharge for meeting dilution requirements. This water can also meet other requirements.

    ii. Improving water use efficiency so that less diversion of water is needed for consumptive usage.

Annexure I

State wise list of Polluted River Stretches as per CPCB

As per CPCB, they are monitoring 445 rivers in 29 States and 6 Union Territories in the country. There are 302 polluted river stretches on 275 rivers.

PRIORITY WISE POLLUTED RIVER STRETCHES

Table: Priority

S. No.	BOD range(mg/l)	Priority
1.	>30	I
2.	20 - 30	II
3.	10-20	III
4.	6-10	IV
5.	3-6	V

Among the 302 polluted river stretches – 34 are in Priority Class – I, 17 in Priority Class – II, 36 in Priority Class – III, 57 in Priority Class – IV and 158 are in Priority Class – V.

The State-wise number of stretches in descending order are – Maharashtra (49), Assam (28), Madhya Pradesh (21), Gujarat (20), West Bengal (17), Karnataka (15), Kerala (13), Uttar Pradesh (13), Manipur (12), Odisha (12), Meghalaya (10), Jammu & Kashmir (9), Goa (8), Himachal Pradesh (8), Jharkhand (8), Rajasthan (8), Tamil Nadu (7), Telangana (7), Andhra Pradesh (6), Bihar (5), Chhattisgarh (5), Sikkim (5), Uttarakhand (5), Nagaland (3), Haryana (2), Punjab (2), Tripura (2), Daman & Diu (1) and Delhi (1).

STATE-WISE POLLUTED RIVER STRETCHES

The State-wise details of polluted rivers and category of priority classes are appended.

Andhra Pradesh - Godavari, Hundari, Krishna, Tungabhadra, Pennar and Kundu falling in priority class – V based on the level of BOD.
Assam - Mora Bharali, Barak, Beki, Bharalu, Bhogdoi, Boginadi, Brahmputra, Burhidihing, Deepar Bill, Dhansiri, Digboi, Disang, Jia Bharali, Jhanji, Kalong, Kapili, Kharsang, Kohora, Kundli, Kushiara, Manas, Pagadia, Panchnai, Ranga nadi, Sankosh, Sonai, Subansiri, Kathakal. These rivers are classified in three priority classes (Class I, IV and V).
Bihar - Ganga, Harbora, Manusmar, Ramrekha and Sirsia. The polluted rivers in Bihar are in 4 priority classes (Class-II, III, IV and V).
Chhattisgarh - Hasdeo, Kelo, Kharoon, Mahanadi and Seonath in priority class V.
Daman and Diu - Damanganga in Priority class – I

Delhi - Yamuna in Priority class – I

Goa - Mandovi, Assonora, Bicholim, Chapora, Khandepar, Mapusa, Sal and Valvant. These rivers are classified in Priority Class – III, IV and V based on the level of BOD.

Gujarat - Mahi, Narmada, Ambika, Amlakhadi, Anas, Baleshwar Khadi, Bhadar, Damanganga, Kaveri, Khari, Kim, Kolak, Mahi, Mindhola, Narmada, Panam, Bhogavo, Dhadar, Purna, Sabarmati, Shedi, Tapi and Triveni These rivers are classified in four priority classes (Class I, III, IV and V).

Haryana - Ghaggar and Yamuna. The polluted rivers in Haryana are in 2 priority classes (Class-II and IV).

Himachal Pradesh - Beas, Tons, Sirsa, Swan, Sukhana, Suketi khad, Markanda and Binwa falling in priority class I, IV and V based on the level of BOD.

Jammu and Kashmir - Banganga, Basanter, Chenab, Chunt Kol, Dewak, Gawkadal, Jhelam, Liddar Nalah and Tawi. These rivers are classified in two priority classes (Class IV and V).

Jharkhand - Bokaro, Damodar, Jumar, Karo, Koel, North Koel, Sankh and Subarnrekha. The polluted rivers in Jharkhand are in 2 priority classes (Class- IV and V).

Karnataka - Arkavathi, Bhadra, Bhima, Cauvery, Ghatprabha, Kabini, Kagina, Kali, Krishna, Lakshmantirtha, Malprabha, Manjira, Shimsha, Tungabhadra and Tunga. These rivers are classified in priority class IV and V based on the level of BOD.

Kerala - Chitrapuzha, Kadambayar, Kallai, Karamana, Keecheri, Kuppam, Manimala, Neeleswaram, Periyar, Pullur, Puzhckal, Thirur and Uppala. These rivers are classified in three priority classes (Class – I, IV and V).

Madhya Pradesh - Banjar, Betwa, Bichia, Chambal, Chillar, Denwa, Gohad, Gour, Jammer, Kalisot, Khan, Kolar, Kshipra, Kunda, Malei, Narmada, Parvati, Shivna, Tapi, Tons and Wainganga. The polluted rivers in Madhya Pradesh are in 5 priority classes (Class- I, II, III, IV and V).

Maharashtra - Wena, Wainganga, Godavari, Bhima, Krishna, Ulhas, Kundalika, Tapi, Girna, Panchganga, Nira, Bhatsa, Rangavali, Chandrabhaga, Vashishti, Mithi, Kanhan, Koyna, Amba, Amravati, Bindusara, Darna, Ghod, Gomai, Hiwara, Indrayani, Kan, Manjra, Mor, Morna, Mula, Mula- Mutha, Mutha, Panzara, Patalganga, Pawna, Pedhi, Pehlar, Penganga, Purna, Savitri, Sina, Surya, Urmodi, Vel, Vaitrana, Venna, Waghur and Wardha. These rivers are classified in priority class I, II, III, IV and V based on the level of BOD.

Manipur - Barak, imphal, Iril, Khuga, Khujairok, Lokchao, Maha, Manipur, Nambul, Sekmai, Thoubal and Wangjing. These rivers are classified in priority class II, III, IV and V based on the level of BOD.

Meghalaya- Bugi, Kynshi, Kyrhukhla, Lukha, Myndtu, Nonbah, Umkhrah, Umshyrpi, Umtrew and Wahbei. These rivers are classified in four priority classes (Class – I, III, IV and V).

Nagaland - Chathe, Dhansiri and Dzu. These rivers are classified in priority class II and IV based on the level of BOD.

Odisha - Brahmani, Budhalbhanga, Daya, Kathjodi, Koel, Kuakhai, Mahanadi, Nagavali, Rushikulya, Serua and Vanasdhara. The polluted rivers in Odisha are in 4 priority classes (Class- II, III, IV and V).

Punjab - Ghaggar and Satluj in two priority classes (Class – I and II).

Rajasthan - Banas, Chambal, Chappi, Ghaggar, kali sindh, Parvati, Jawai and Ujad. These rivers are classified in priority class I, II, III and V based on the level of BOD.

Sikkim - Dikchu, Maney Khola, Rangit, Ranichu, Teesta. The polluted rivers in Sikkim are in priority class V.

Tamil Nadu - Bhawani, Tambirapani, Palar, Sarabanga, Thirumanimuthar and Vasista. The polluted rivers in Tamil Nadu are in 3 priority classes (Class- I, II and V).

Telangana - Godavari, Krishna, Manjeera, Musi, Nakkavagu, Sabari and Maner. These rivers are classified in three priority classes (Class – I, II and V).

Tripura - Gumti and Haora in priority Class – V.

Uttar Pradesh - Gomti, Hindon, Kalinadi, Ramganga, Rapti, Rihand, Sai, Saryu, Ganga, Yamuna and Kosi. These rivers are classified in four priority classes (Class – I, III, IV and V).

Uttarakhand - Suswa, Ganga, Dhela, Bhella and Kosi. The polluted rivers in Uttarakhand are in 2 priority classes (Class- I and V).

West Bengal - Barakar, Churni, Damodar, Dwarkeshwar, Dwarka, Ganga, Jalangi, Kalijani, Kansi, Karola, Mahananda, Mathabhanga, Mayurkashi, Rupnarayan, Silababti, Teesta and Vindhyadhari. These rivers are classified in priority class III, IV and V based on the level of BOD.

Estimated polluted riverine length of all the priority classes putting together is 12,363 Km.

Annexure-II

Statewise details of STP capacity created/to be created in 75 towns under NRCP by MOEF&CC

Sl. No	Name of City	State	River	STP Capacity Created(MLD)
1	Rajamundry	Andhra Pradesh	Godavari	30.00
2	Bhadrachalam	Telangana	Godavari	4.00
3	Hyderabad	Telangana	Musi	593.00
4	Mancherial	Telangana	Godavari	6.46
5	Ramagudam	Telangana	Godavari	18.00
6	Pananji	Goa	Mandovi	12.50
7	Ahmedabad	Gujarat	Sabarmati	232.00
8	Surat	Gujarat	Mindola	53.00
9	Ghatshila	Jharkhand	Subarnarekha	0.00
10	Jamshedpur	Jharkhand	Subarnarekha	0.00
11	Ranchi	Jharkhand	Subarnarekha	0.00
12	Bangalore	Karnataka	Pennar	0.00
13	Bhadravati	Karnataka	Bhadra	5.83
14	Devangere	Karnataka	Tungabhadra	19.45
15	Harihara	Karnataka	Tungabhadra	8.84
16	K.R. Nagar	Karnataka	Cauvery	1.45
17	Kollegal	Karnataka	Cauvery	3.34
18	Nanjangud	Karnataka	Cauvery	1.37
19	Shimoga	Karnataka	Tunga	0.00
20	Srirangapatna	Karnataka	Cauvery	1.36
21	Pamba	Kerala	Pamba	4.50
22	Burhanpur	Madhya Pradesh	Tapti	6.00
23	Chapara	Madhya Pradesh	Wainganga	1.20
24	Hoshangabad	Madhya Pradesh	Narmada	0.00
25	Jabalapur	Madhya Pradesh	Narmada	0.00
26	Keolari	Madhya Pradesh	Wainganga	0.75
27	Seoni	Madhya Pradesh	Wainganga	0.00
28	Karad	Maharashtra	Krishna	28.00
29	Kohlapur	Maharashtra	Panchganga	78.00
30	Nanded	Maharashtra	Godavari	26.00
31	Nashik	Maharashtra	Godavari	100.00
32	Prakasha	Maharashtra	Tapi	0.00
33	Sangli	Maharashtra	Krishna	27.00
34	Trimbakeshwar	Maharashtra	Godavari	1.00
35	Pune	Maharashtra	Mula-Mutha	0.00
36	Dimapur	Nagaland	Dipu and Dhansir	0.00
37	Chandbali	Odisha	Brahmini	0.00
38	Cuttak	Odisha	Mahanadi	33.00
39	Dharamshala	Odisha	Brahmini	0.00
40	Puri	Odisha	Coastal Areas	15.00

Sl. No	Name of City	State	River	STP Capacity Created(MLD)
41	Talcher	Odisha	Brahmini	0.00
42	Banga	Punjab	Satluj	3.00
43	Bholath	Punjab	Beas and Satluj	4.00
44	Dasuya	Punjab	Beas and Satluj	4.00
45	Hosiyarpur	Punjab	Beas and Satluj	30.00
46	Jalandhar	Punjab	Satluj	185.00
47	Kapurthala	Punjab	Satluj	25.00
48	Ludhiana	Punjab	Satluj	311.00
49	Moga	Punjab	Beas and Satluj	27.00
50	Mukerian	Punjab	Beas and Satluj	5.00
51	Nawanshehr	Punjab	Satluj	6.00
52	Phagwara	Punjab	Satluj	36.00
53	Phillaur	Punjab	Satluj	5.60
54	Sulthanpur Lodhi	Punjab	Satluj	2.60
55	Tanda	Punjab	Beas and Satluj	4.00
56	Khanauri	Punjab	Ghaghar	0.00
57	Moonak	Punjab	Ghaghar	0.00
58	Patran	Punjab	Ghaghar	0.00
59	Lehragaga	Punjab	Ghaghar	0.00
60	Gangtok	Sikkim	Ranichu	16.59
61	Ranipool	Sikkim	Ranichu	1.27
62	Singtom	Sikkim	Ranichu	0.66
63	Bhiwani	Tamilnadu	Cauvery	3.94
64	Chennai	Tamilnadu	Adyar, Cooum	264.00
65	Erode	Tamilnadu	Cauvery	25.17
66	Karur	Tamilnadu	Cauvery	15.00
67	Kumarapalayam	Tamilnadu	Cauvery	6.00
68	Kumbakonam	Tamilnadu	Cauvery	17.00
69	Madurai	Tamilnadu	Vaigai	0.00
70	Mayiladuthurai	Tamilnadu	Cauvery	8.30
71	Pallipalayam	Tamilnadu	Cauvery	0.00
72	Thanjavur	Tamilnadu	Vennar	28.05
73	Tirunelveli	Tamilnadu	Tamrabarani	24.20
74	Trichirappalli	Tamilnadu	Cauvery	58.00
75	Trichy	Tamilnadu	Cauvery	28.00

Annexure-III

Statewise details of STP capacity created/to be created in towns as per information compiled by CPCB/NRCD (2015)

Sl. No.	State/UT	Installed Capacity (MLD)	Total No. of STPs	Operational Capacity (MLD)	No. of STPs Operational	Non-operational Capacity (MLD)	No. of STPs Non-operational	Under Construction Capacity (MLD)	No. of STPs Under Constructions	Proposed Capacity (MLD)	No. of STPs Proposed
1.	Andhra Pradesh	247.27	12	156.27	9	-	-	91	3	-	-
2.	Arunachal Pradesh	-	-	-	-	-	-	-	-	-	-
3.	Andaman & Nicobar	-	-	-	-	-	-	-	-	-	-
4.	Assam	1.37	4	1.01	2	-	-	0.36	2	-	-
5.	Bihar	124.55	6	99.55	5	25	1	-	-	-	-
6.	Chandigarh	314.5	5	314.5	5	-	-	-	-	-	-
7.	Chhattisgarh	89.64	36	89.10	33	0.03	1	0.01	1	0.5	1
8.	Delhi	2693.7	35	2693.7	35	-	-	-	-	-	-
9.	Daman Diu & Dadra Nagar Haveli	-	-	-	-	-	-	-	-	-	-
10.	Goa	74.58	7	34.5	4	-	-	40.08	3	-	-
11.	Gujarat	3068.92	52	2117.64	34	498	4	359.5	8	93.78	7
12.	Haryana	852.7	41	805	38	2.7	2	45	1	-	-
13.	Himachal Pradesh	56.59	67	28.28	36	28.31	31	-	-	-	-
14.	Jammu & Kashmir	266.32	25	147.32	21	2	1	117	3	-	-
15.	Jharkhand	127.87	24	127.87	24	-	-	-	-	-	-
16.	Karnataka	1304.16	57	1112.05	44	-	-	192.11	13	-	-
17.	Kerala	152.97	10	112.87	6	3	1	37.1	3	-	-
18.	Lakshadweep	-	-	-	-	-	-	-	-	-	-
19.	Maharashtra	5365.36	78	4888.9	62	300.5	9	175.96	7	-	-
20.	Madhya Pradesh	475.48	17	468.73	14	6.75	3	-	-	-	-
21.	Manipur	-	-	-	-	-	-	-	-	-	-
22.	Meghalaya	1	1	-	-	1	1	-	-	-	-
23.	Mizoram	10	1	-	-	-	-	10	1	-	-
24.	Nagaland	-	-	-	-	-	-	-	-	-	-
25.	Odisha	1513.55	47	1285.19	37	-	-	228.36	10	-	-
26.	Puducherry	68.5	6	17.5	3	-	-	51	3	-	-
27.	Punjab	1242.95	80	918.95	38	11.7	4	281.7	28	30.6	10
28.	Rajasthan	873.42	64	384.5	16	-	-	156.8	12	332.12	36
29.	Sikkim	31.88	11	8	1	5	1	18.88	9	-	-
30.	Tamil Nadu	1799.72	73	1140.83	33	5.17	1	521.08	28	132.64	11
31.	Telangana	685.8	18	634.8	17	-	-	51	1	-	-
32.	Tripura	0.20	2	0.195	2	-	-	-	-	-	-
33.	Uttar Pradesh	2646.84	73	2521.25	66	54.59	5	56	1	15	1
34.	Uttrakhand	152.9	24	90.75	10	-	-	39.15	12	23	2
35.	West Bengal	335.71	23	159.67	11	176.04	12	-	-	-	-
Total		**24578.43**	**899**	**20358.9**	**605**	**1119.79**	**77**	**2472.09**	**149**	**627.64**	**68**

Note : '–' indicates that information not received from concerned SPCB/PCC

Annexure-IV

Details of STP capacity created in towns as per information compiled by CPCB/NRCD (2015)

S.No	State	Name_city	Existing Capacity (MLD)	Under Construction (MLD)	Non functional	proposed
1	Andhra Pradesh	Rajamundry	30.00			
2	Andhra Pradesh	Tirupathi	25.00			
3	Andhra Pradesh	Vijayawada	101.27	40.00		
4	Andhra Pradesh	Visakhapatnam	86.00	51.00		
5	Andhra Pradesh	Vizianagaram	5.00			
6	Assam	Ds Hospitality (Assam) Ltd	0.21			
7	Bihar	Patna	84.55		25.00	
8	Bihar	Karmalichak	4.00			
9	Bihar	Bhagalpur	11.00			
10	Chandigarh	Chandigarh	314.50			
11	Delhi	Delhi	2693.20		22.50	
12	Goa	Calangute		0.08		
13	Goa	Margao	7.50	20.00		
14	Goa	Mormugao	14.00	20.00		
15	Goa	Panaji	13.00			
16	Gujarat	Gandhinagar	88.00			
17	Gujarat	Vadodara	255.50	21.00		
18	Gujarat	Talaja	3.00			
19	Gujarat	Bhavnagar				80
20	Gujarat	Kunkavav				1.35
21	Gujarat	Dhari				3.2
22	Gujarat	Khambha				1.5
23	Gujarat	Liliya Mota				1.73
24	Gujarat	Savarkundla				6
25	Gujarat	Palitana	4.50			
26	Gujarat	Ahmedabad	759.00		498.00	120
27	Gujarat	Ankleshwar	172.50			
28	Gujarat	Sanand		20.50		
29	Gujarat	Vallabh Vidhyanagar				
30	Gujarat	Rajkot	63.00	126.00		
31	Gujarat	Surat	947.50	70.00		
32	Haryana	Sonipat	35.00			
33	Haryana	Panipat	25.00	45.00		
34	Haryana	Gurgaon	225.00			
35	Haryana	Faridabad	158.00			
36	Haryana	Karnal	51.00		1.50	
37	Haryana	Bhadurgarh	36.00			
38	Haryana	Jhajjar	5.50			
39	Haryana	Kalanur	3.50			
40	Haryana	Bhiwani	60.00			

S.No	State	Name_city	Existing Capacity (MLD)	Under Construction (MLD)	Non functional	proposed
41	Haryana	Chakri Dadri	5.00			
42	Haryana	Meham	5.00			
43	Haryana	Rohtak	10.00			
44	Haryana	Rewari	22.50			
45	Haryana	Panchkula	72.00			
46	Haryana	Kalka			1.2	
47	Haryana	Beri	2.00			
48	Haryana	Jind	15.00			
49	Haryana	Uchana	4.50			
50	Haryana	Narvana	7.25			
51	Haryana	Kaithal	20.00			
52	Haryana	Ambala	7.75			
53	Haryana	Yamuna Nagar	35.00			
54	Himachal Pradesh	Bilaspur	2.55		1.50	
55	Himachal Pradesh	Chamba	2.60			
56	Himachal Pradesh	Hamirpur	5.16		3.44	
57	Himachal Pradesh	Kullu	8.72			
58	Himachal Pradesh	Una	3.15		8.72	
59	Himachal Pradesh	Shimla	38.80		2.715	
60	Himachal Pradesh	Mandi	9.59		2.02	
61	Himachal Pradesh	Kangra	9.16		9.804	
62	Himachal Pradesh	Kinnaur	1.00			
63	Himachal Pradesh	Solan			3.6	
64	Himachal Pradesh	Sirmour			2.72	
65	Himachal Pradesh	Lahaul&Spiti			0.692	
66	Jammu & Kashmir	Jammu	11.00	57.00		
67	Jammu & Kashmir	Reasikatra	0.50		2.00	
68	Jammu & Kashmir	Srinagar	68.20	114.06		
69	Jammu & Kashmir	Srinagar-Parimpora	11.98	11.98		
70	Jharkhand	Bokaro	33.57			
71	Jharkhand	Jamshedpur	73.15			
72	Jharkhand	UCIL Jadugora, ES	6.09			
73	Jharkhand	HCL Moubhandar	4.44			
74	Karnataka	Bangaluru	721.00			
75	Karnataka	Ramanagar	7.56			
76	Karnataka	Kolar	13.16			
77	Karnataka	Chikballapura		5.1		
78	Karnataka	Chamarajnagar	3.34	9		
79	Karnataka	Hassan	10.00			
80	Karnataka	Mandya	15.67			
81	Karnataka	Mysore	168.29			
82	Karnataka	Chikamagalur		25		
83	Karnataka	Karwar	5.00			
84	Karnataka	Mangalore	52.25	56.5		
85	Karnataka	Udupi	17.50			
86	Karnataka	Bagalkote	3.00	9.30		
87	Karnataka	Haveri		12.21		

S.No	State	Name_city	Existing Capacity (MLD)	Under Construction (MLD)	Non functional	proposed
88	Karnataka	Bellary	45.00			
89	Karnataka	Gulbarga		55		
90	Karnataka	Raichur		20		
91	Karnataka	Davangere	19.45			
92	Karnataka	Bhadravati	5.83			
93	Karnataka	Tumkur	25.00			
94	Kerala	Thiruvananthapuram	107.00			
95	Kerala	Ernakulam	5.10			
96	Kerala	Kottayam	0.09			
97	Kerala	Alappuzha	0.18			
98	Kerala	Kannur	0.50			
99	Kerala	Guruvayoor Municipality			3	
100	Kerala	Kollam				11.6
101	Kerala	Kochi				12
102	Kerala	Kozhikode				13.5
103	Madhya Pradesh	Ujjain	105.00			
104	Madhya Pradesh	Gwalior	50.00			
105	Madhya Pradesh	Indore	90.00			
106	Madhya Pradesh	Burhanpur			6	
107	Madhya Pradesh	MC Jabalpur	150.00			
108	Madhya Pradesh	MC Bhopal	80.48			
109	Madhya Pradesh	Nagda				
110	Madhya Pradesh	Vidisha				
111	Madhya Pradesh	Keolari			0.75	
112	Maharashtra	Amravati	30.50		44	
113	Maharashtra	Aurangabad	11.50			
114	Maharashtra	Bhiwandi Nizampur	17.00		13.00	
115	Maharashtra	Chandrapur		70		
116	Maharashtra	Kalyan Dombivali	41.00		112.00	
117	Maharashtra	Kolhapur	119.50			
118	Maharashtra	Mira Bhaindar	2.00		1.50	
119	Maharashtra	Greater Mumbai	2600.90			
120	Maharashtra	Nagpur	100.00			
121	Maharashtra	Nanded Waghela	117.00			
122	Maharashtra	Nashik	200.50			
123	Maharashtra	Navi Mumbai	596.00			
124	Maharashtra	Pimpi Chinchwad	338.00			
125	Maharashtra	Pune	362.00			
126	Maharashtra	Sangli Miraj Kupwad		48.96		
127	Maharashtra	Solapur			55	
128	Maharashtra	Thane	120.00	132.00		
129	Maharashtra	Ulhasnagar	28.00			
130	Meghalaya	Shillong			1	
131	Mizoram	Aizawal Mizoram		10		
132	Odisha	Roulkela	21.24			
133	Odisha	OCL, Rajgangpur	50.40			

S.No	State	Name_city	Existing Capacity (MLD)	Under Construction (MLD)	Non functional	proposed
134	Odisha	L&T Kansbahal	38.40			
135	Odisha	Cuttack	33.00	52		
136	Odisha	Puri	15.00			
137	Odisha	Bhubaneswar		175.5		
138	Puducherry	Lawspet, Puducherry	15.00	17		
139	Puducherry	Dubrayapet, Puducherry	2.50	17.00		
140	Puducherry	Reddiarpalyam, Puducherry		17		
141	Punjab	Ludhiana	466.00			
142	Punjab	Nawanshahr		6		
143	Punjab	Banga		3		
144	Punjab	Hoshiarpur		30		
145	Punjab	Tanda		4		
146	Punjab	Mukerian		4		
147	Punjab	Dasuya	4.00			
148	Punjab	Sham Churasi		1		
149	Punjab	BBMB Township, Talwara	8.00			
150	Punjab	Municipal Council, Fazilka	8.00	25.00		
151	Punjab	Municipal Council,Talwand Bhai, Distt. Ferozepur	8.00	8.00		
152	Punjab	Municipal Corporation, Moga	27.00	4.00		
153	Punjab	Municipal Corporation, Bathinda	52.00			
154	Punjab	Municipal Council, Rampura Phul	7.50			
155	Punjab	Municipal Council, Bhucho Mandi	3.00			
156	Punjab	Nagar Panchayat,Kotfatta	1.50			
157	Punjab	Municipal Council,Mour				
158	Punjab	Municipal Council,Ram an Mandi				
159	Punjab	Municipal Council,Sang at Mandi		1.50		
160	Punjab	Municipal Council,Goniana	3.00			
161	Punjab	Nagar Panchayat, Talwandi Sabo	3.00			
162	Punjab	Municipal Council, Mukatsar	8.70		9.20	
163	Punjab	Municipal Council,Malout				
164	Punjab	Municipal Council,Gidderbaha				
165	Punjab	Nagar Panchayat,Bari Wala				
166	Punjab	Municipal	14.00			

S.No	State	Name_city	Existing Capacity (MLD)	Under Construction (MLD)	Non functional	proposed
		Council,Mansa				
167	Punjab	Municipal Council,Budhlada	6.50			
168	Punjab	Municipal Council,Bareta				
169	Punjab	Nagar Panchayat, Sardulgarh	4.00			
170	Punjab	Nagar Panchayat, Bhikhi	3.00			
171	Punjab	Sri Hargobindpur			1	
172	Punjab	Dera Baba Nanak	1.50			
173	Punjab	Pathankot		27		
174	Punjab	Samana Distt. Patiala	10.00			
175	Punjab	Adampur				4
176	Punjab	Alawalpur				1
177	Punjab	Nakodar		6		
178	Punjab	Nurmahal				4
179	Punjab	Shahkot				3
180	Punjab	Goraya				4
181	Punjab	Phillaur	2.60	3.00		
182	Punjab	Lohian				1.5
183	Punjab	Phagwara	20.00	16.00		
184	Punjab	Jalandhar	125.00	110.00		
185	Punjab	Kartarpur				4
186	Punjab	Kapurthala	25.00			
187	Punjab	Bholath		4		
188	Punjab	Bhogpur				4
189	Punjab	Begowal		2.5		
190	Punjab	Sultanpur Lodhi	2.60			2.60
191	Punjab	Dhilwan				2.5
192	Punjab	Naya Nangal	8.00	5.00		
193	Punjab	BBMB Township	6.75			
194	Punjab	Anandpur Sahib	8.00			
195	Punjab	Zirakpur	17.30			
196	Punjab	Roopnagar	14.50			
197	Punjab	Chamkaur Sahib		1.7		
198	Punjab	Kharar		11		
199	Punjab	Kurali		5		
200	Punjab	Jaula Kalan				
201	Punjab	Lalru		1.5		
202	Punjab	Mohali	45.00			
203	Punjab	Machhiwara		4		
204	Rajasthan	Jaipur	235.00	31		3.00
205	Rajasthan	Alwar	24.00			
206	Rajasthan	Jodhpur	70.00			50.00
207	Rajasthan	Sawaimadhpur	10.00			
208	Rajasthan	Bikaner	20.00			4.50
209	Rajasthan	Bhilwara	5.50			

S.No	State	Name_city	Existing Capacity (MLD)	Under Construction (MLD)	Non functional	proposed
210	Rajasthan	Udaipur	20.00			
211	Rajasthan	Rajsamand		4.3		5
212	Rajasthan	Kota		56		
213	Rajasthan	Jaisalmer		10		
214	Rajasthan	Ajmer		30		56.50
215	Rajasthan	Dholpur		10		
216	Rajasthan	Bundi		8		
217	Rajasthan	Pali				10
218	Rajasthan	Jalore				10
219	Rajasthan	Nagor				13
220	Rajasthan	Barmer				10
221	Rajasthan	Karoli				5
222	Rajasthan	Bharatpur				8
223	Rajasthan	Chittorgarh				5
224	Rajasthan	Sirohi				6
225	Rajasthan	Sikar				32.5
226	Rajasthan	Jhunjhunu				8.5
227	Rajasthan	Churu				20.6
228	Rajasthan	Bikaner				12
229	Rajasthan	Hanumangarh				12.5
230	Rajasthan	Jhalawar				9
231	Rajasthan	Tonk				1.01
232	Rajasthan	Nagur				6
233	Rajasthan	Sri Ganganagar, Rajasthan				35
234	Rajasthan	Balotra				9
235	Sikkim	Gangtok	8.00	11.46	5	
236	Sikkim	Singtam		0.66		
237	Sikkim	Rangpo		0.96		
238	Sikkim	Namchi		3.62		
239	Sikkim	Jorethang		1.7		
240	Sikkim	Melli		0.48		
241	Uttar Pradesh	Agra	220.75			
242	Uttar Pradesh	Etawah	10.45	13.5		
243	Uttar Pradesh	Mainpuri		23		
244	Uttar Pradesh	Mathura	15.00		17.59	
245	Uttar Pradesh	Varanasi	101.80			
246	Uttar Pradesh	Noida	355.00			
247	Uttar Pradesh	Saharanpur	38.00			
248	Uttar Pradesh	Muzaffarnagar	32.50			
249	Uttar Pradesh	Allahabad	254.00			
250	Uttar Pradesh	Mirzapur	18.00			
251	Uttar Pradesh	Farrukhabad	2.70			
252	Uttar Pradesh	Kanpur	430.00			
253	Uttar Pradesh	Ghaziabad	916.00	112		
254	Uttar Pradesh	Bulandsahar	2.56			
255	Uttar Pradesh	Meerut	88.00			

S.No	State	Name_city	Existing Capacity (MLD)	Under Construction (MLD)	Non functional	proposed
256	Uttar Pradesh	Moradabad		78		
257	Uttar Pradesh	Rampur		15.00		
258	Tripura	Tripura	0.05			
259	Telangana	Greater Hyderabad	606.30	51		
260	Telangana	Bhadrachalam	4.00			
261	Telangana	Ramagundam	18.00			
262	Telangana	Manchiryala	6.50			
263	Tamil Nadu	Ambattur		7		
264	Tamil Nadu	Ariyalur	4.20	4.16		
265	Tamil Nadu	Chennai	481.00	120		
266	Tamil Nadu	Coimbatore North				3.53
267	Tamil Nadu	Coimbatore South	70.00	111.50		
268	Tamil Nadu	Dindigul		13.5		
269	Tamil Nadu	Erode		55.72		
270	Tamil Nadu	Hosur	4.86	9.19		
271	Tamil Nadu	Madurai	170.70			
272	Tamil Nadu	M.M.Nagar	128.20	54		
273	Tamil Nadu	Nagapattinam		9.63		
274	Tamil Nadu	Nagercoil		20.86		
275	Tamil Nadu	Namakkal	1.50	1.50		
276	Tamil Nadu	Perundurai		3.07		
277	Tamil Nadu	Pudukkottai		10.62		
278	Tamil Nadu	Sivagangai	8.19	7.34		
279	Tamil Nadu	Tanjavur	61.67	2.3		
280	Tamil Nadu	THENI		19.09		
281	Tamil Nadu	Tiruvannamalai	8.70			
282	Tamil Nadu	Tiruppur	15.00	7.81		
283	Tamil Nadu	Tiruvallur		39		6.2
284	Tamil Nadu	Udhagamandalam	7.00			
285	Tamil Nadu	VELLORE	10.72	10.72		
286	Tamil Nadu	Villupuram				12.5
287	Tamil Nadu	Salem				117.85
288	Tamil Nadu	TRICHY	88.64			
289	Tamil Nadu	Karur	15.00			
290	Tamil Nadu	Tirunelveli	24.20			
291	Tamil Nadu	Sriperumbudur	14.71	8.50		
292	Tamil Nadu	Thoothukudi		28.23		
293	Tamil Nadu	Cuddalore		12.25		
294	Tamil Nadu	Virudhunagar		8.37		
295	West Bengal	Titagarh	4.50		4.50	
296	West Bengal	Jagaddal Bhatpara			28.5	
297	West Bengal	KANKINARA			10	
298	West Bengal	Baidyabati	6.00			
299	West Bengal	Bandipur	14.00			
300	West Bengal	Konnagar			22	
301	West Bengal	Panihati	12.00			
302	West Bengal	Kona	13.00			

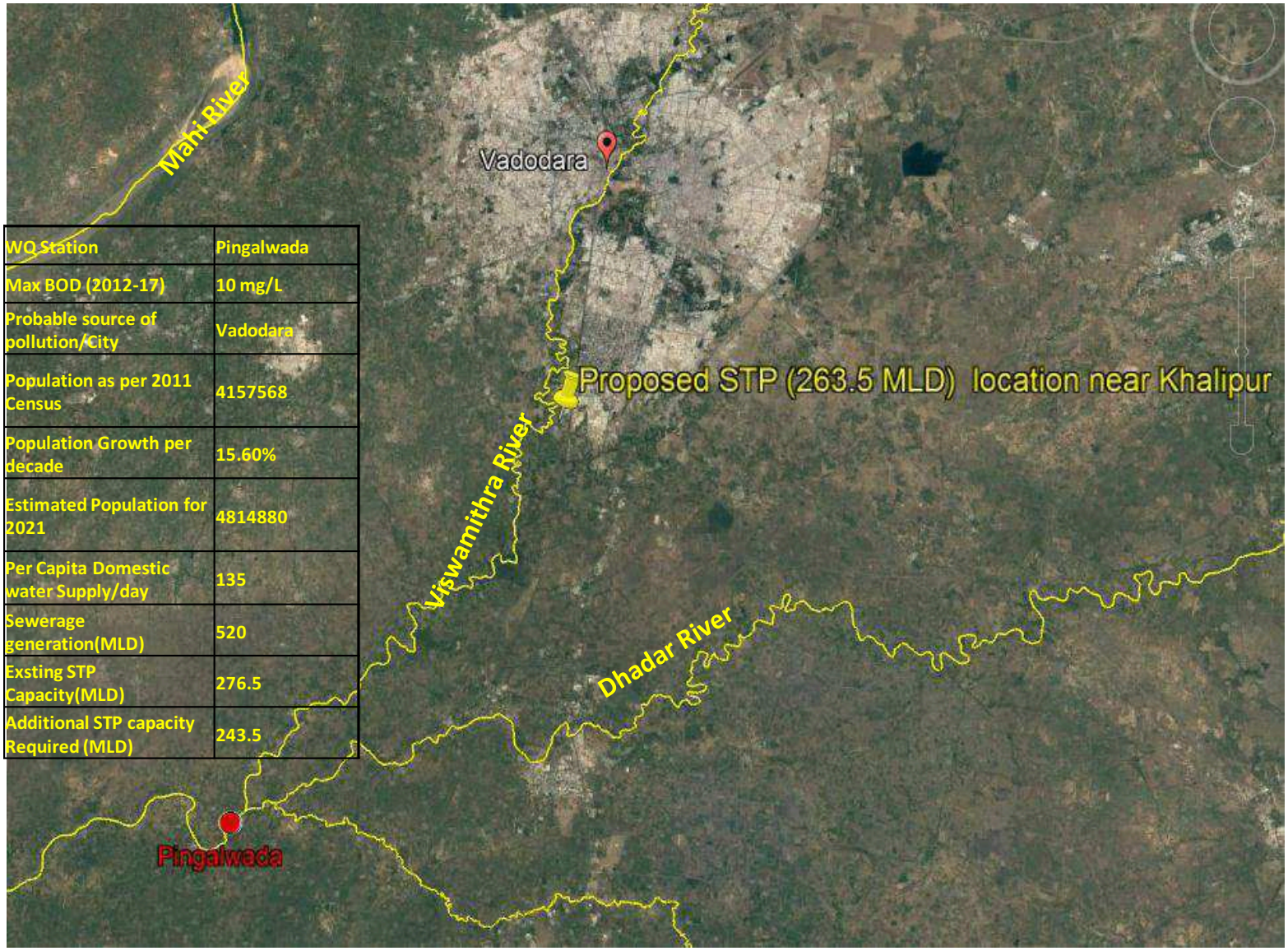
S.No	State	Name_city	Existing Capacity (MLD)	Under Construction (MLD)	Non functional	proposed
303	West Bengal	Chandannagore	18.16		4.54	
304	West Bengal	Bansberia	0.30			
305	West Bengal	Kamarhati	40.00			
306	West Bengal	Naihati	11.56			
307	West Bengal	Garulia			7.9	
308	West Bengal	Garden Reach			47.5	
309	West Bengal	Serampore	18.89			
310	West Bengal	Maheshtala			4	
311	West Bengal	Budge Budge	4.25			
312	West Bengal	Bhadreswar			7.6	
313	West Bengal	Howrah			45	
314	West Bengal	Kalyani	17.00			
315	West Bengal	Berhampore	3.70			
316	West Bengal	Cossipore Chitpore	45.00			
317	West Bengal	Nabadwip	10.00			
318	Uttarakhand	Almora	2.00			
319	Uttarakhand	Bhimtal	1.25			
320	Uttarakhand	Nainital	10.00			
321	Uttarakhand	Rishikesh	6.00			
322	Uttarakhand	Srinagar	3.50			
323	Uttarakhand	Swargashram	3.00			
324	Uttarakhand	Tapovan		3.5		
325	Uttarakhand	Uttarkashi	2.00			
326	Uttarakhand	Devprayag		1.4		
327	Uttarakhand	Gangotri		1		
328	Uttarakhand	Haridwar	63.00			
329	Uttarakhand	Mussoorie		6.12		
330	Uttarakhand	Dehradun		27.13		23

Annexure-V

Map showing source of river pollution, proposed STP location etc at some of Hot Spots

WQ Station	Pingalwada
Max BOD (2012-17)	10 mg/L
Probable source of pollution/City	Vadodara
Population as per 2011 Census	4157568
Population Growth per decade	15.60%
Estimated Population for 2021	4814880
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	520
Exsting STP Capacity(MLD)	276.5
Additional STP capacity Required (MLD)	243.5

Cluster of Industries in Vadodara



WQ Station	Pingalwada
Max BOD (2012-17)	10 mg/L
Probable source of pollution/City	Vadodara
Population as per 2011 Census	4157568
Population Growth per decade	15.60%
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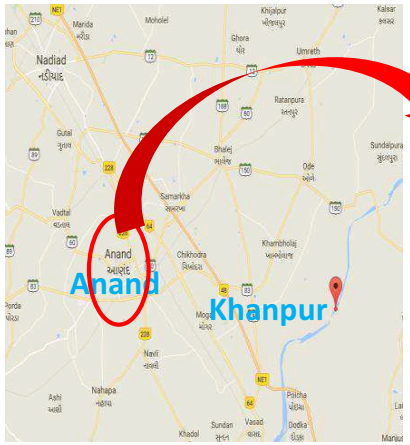
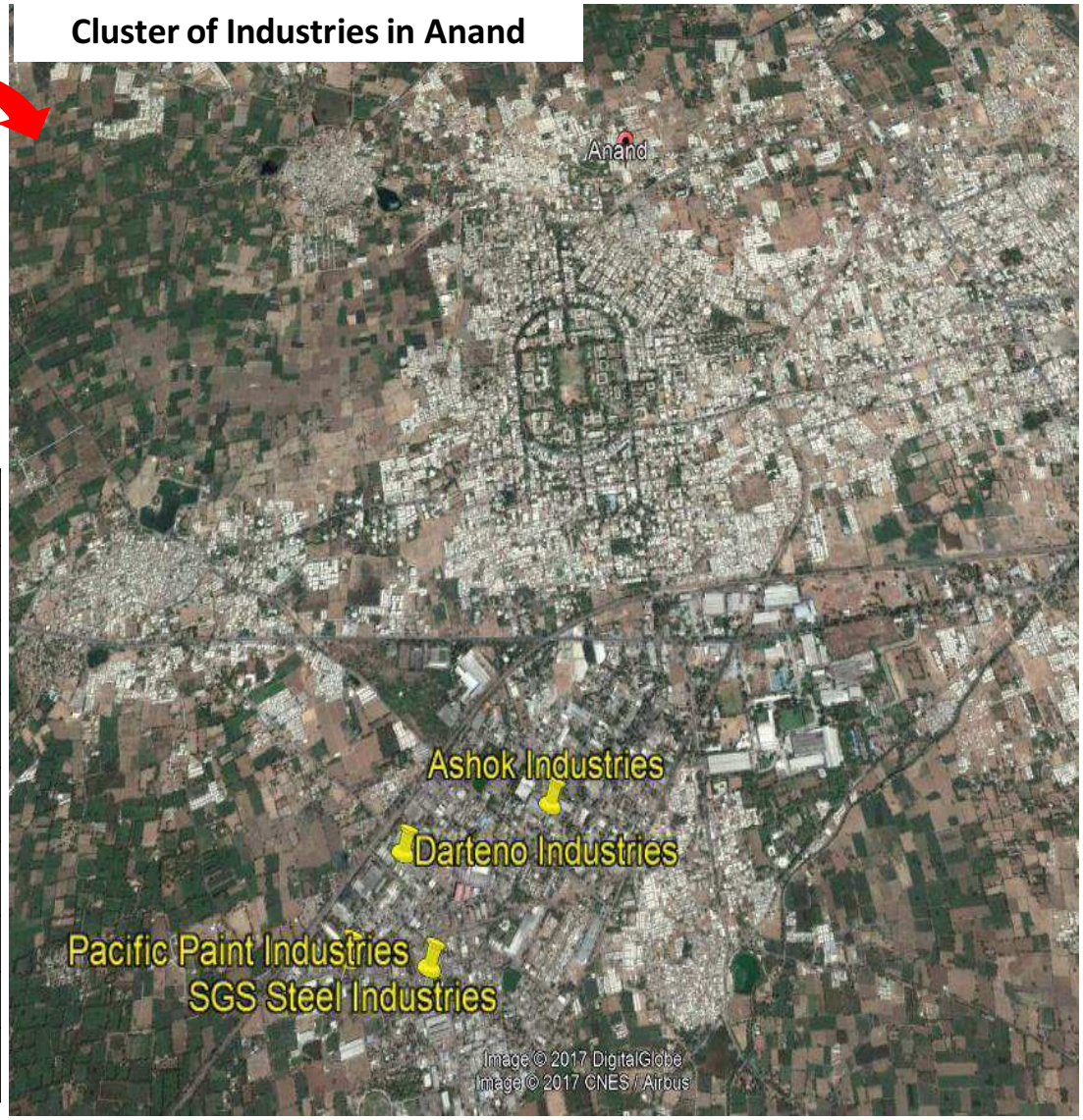
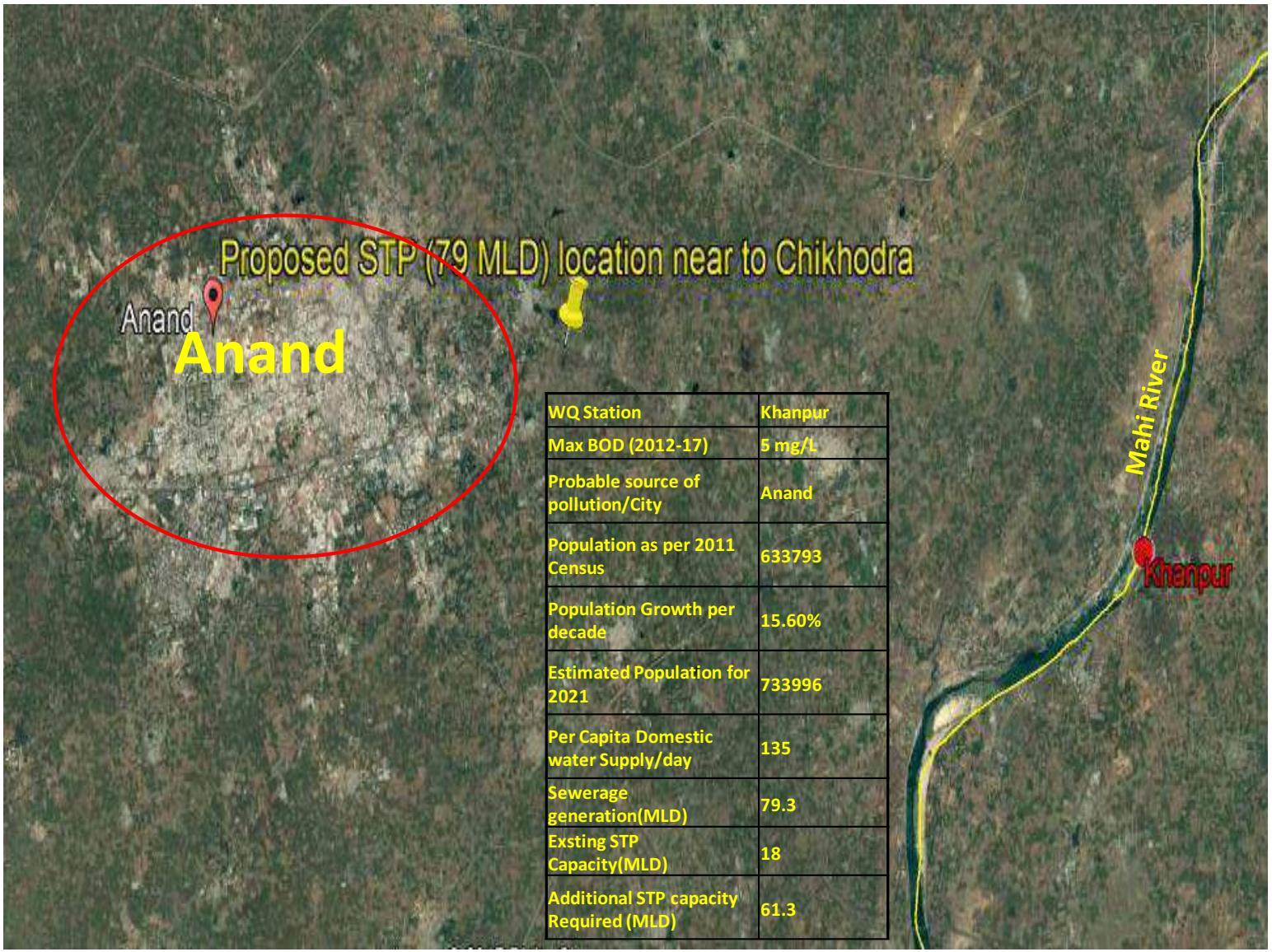
Additional STP capacity Required (MLD)	243.5



WQ Station	Khanpur
Max BOD (2012-17)	5 mg/L
Probable source of pollution/City	Anand
Population as per 2011 Census	633793
Population Growth per decade	15.60%
Estimated Population for 2021	733996
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	79.3
Exsting STP Capacity(MLD)	18
Additional STP capacity Required (MLD)	61.3

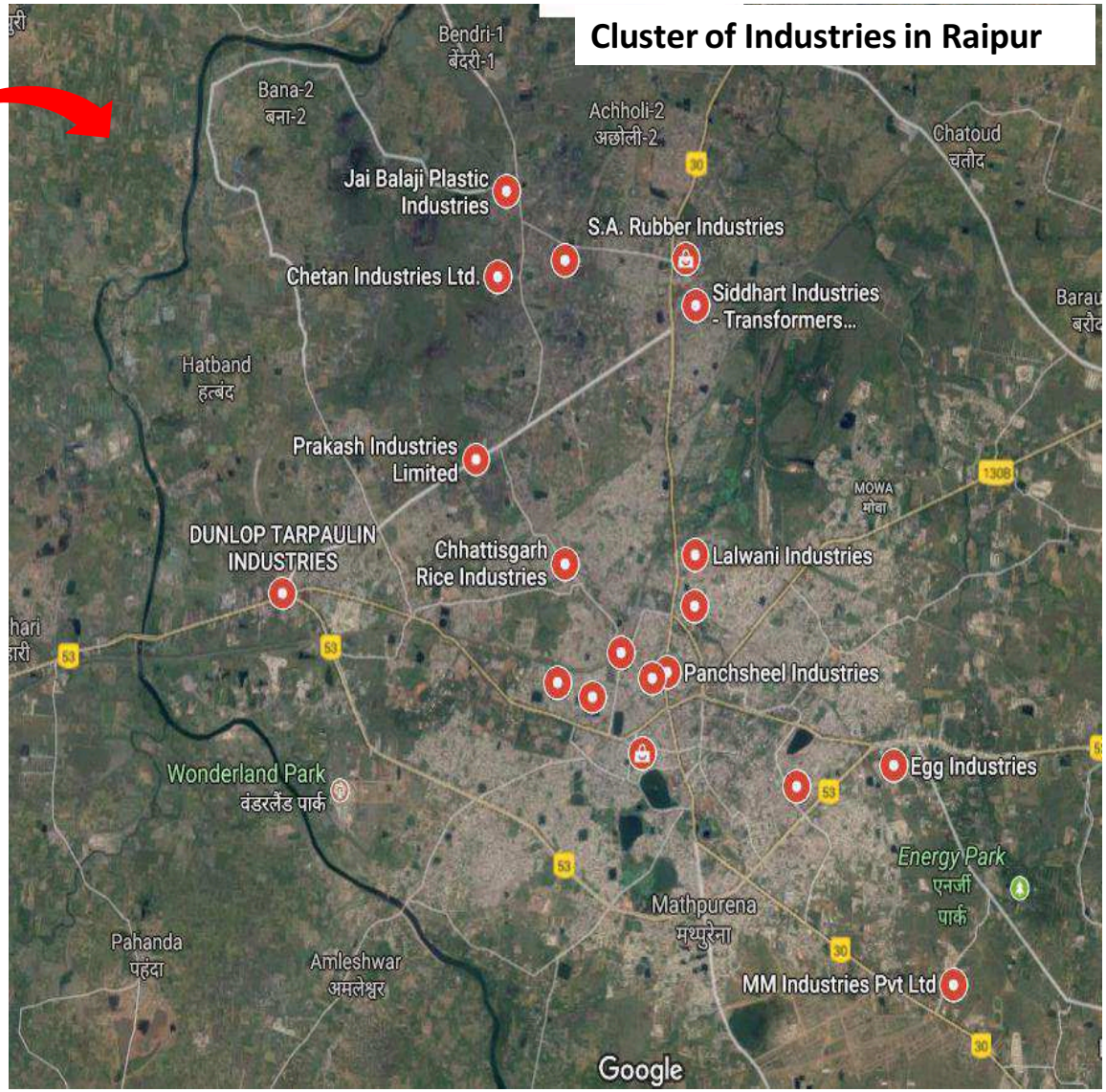
Cluster of Industries in Anand

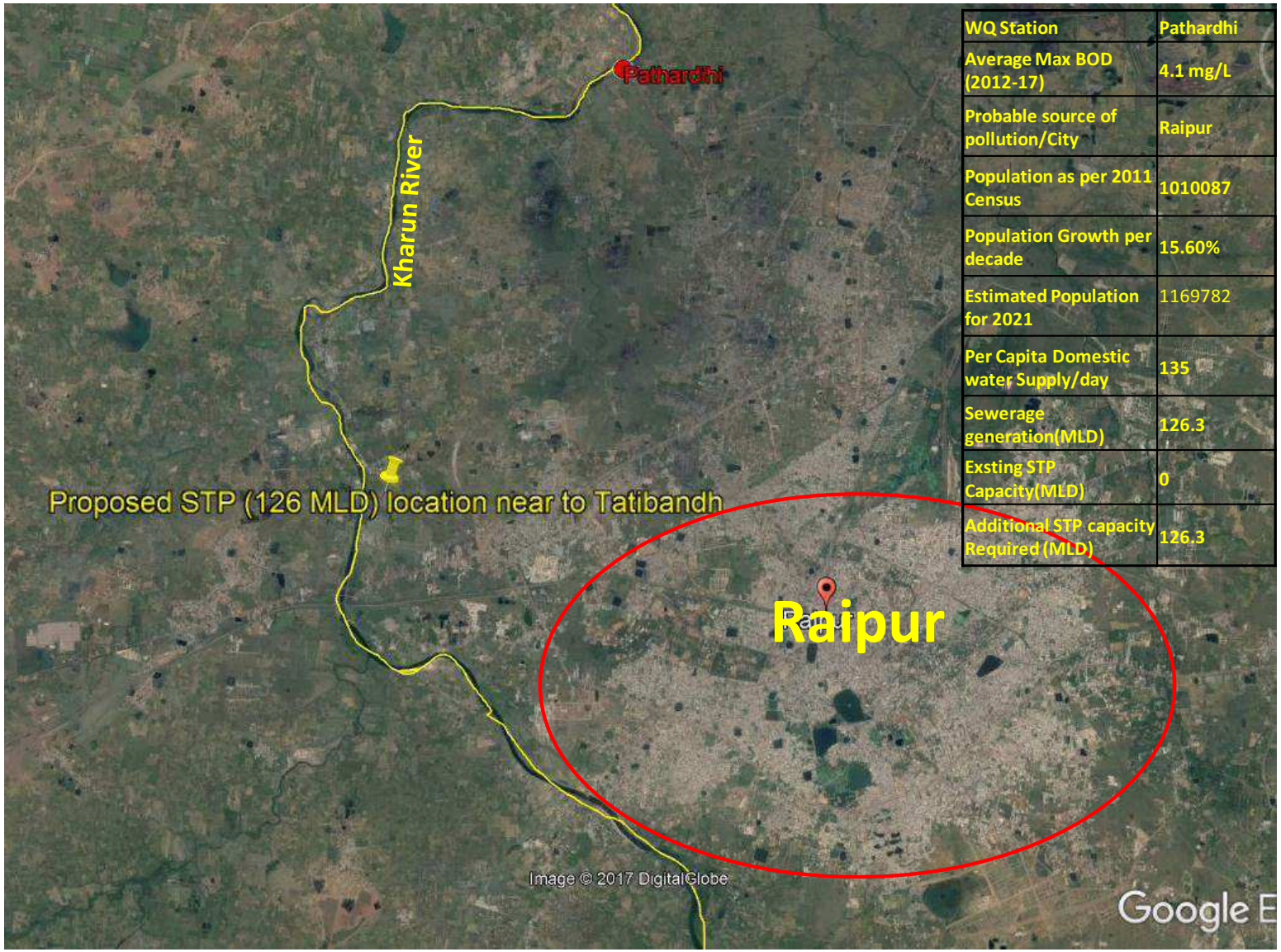




WQ Station	Khanpur
Max BOD (2012-17)	5 mg/L
Probable source of pollution/City	Anand
Population as per 2011 Census	633793
Population Growth per decade	15.60%
Estimated Population for 2021	733996
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	79.3
Exsting STP Capacity(MLD)	18
Additional STP capacity Required (MLD)	61.3

WQ Station	Pathardhi
Average Max BOD (2012-17)	4.1 mg/L
Probable source of pollution/City	Raipur
Population as per 2011 Census	1010087
Population Growth per decade	15.60%
Estimated Population for 2021	1169782
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	126.3
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	126.3

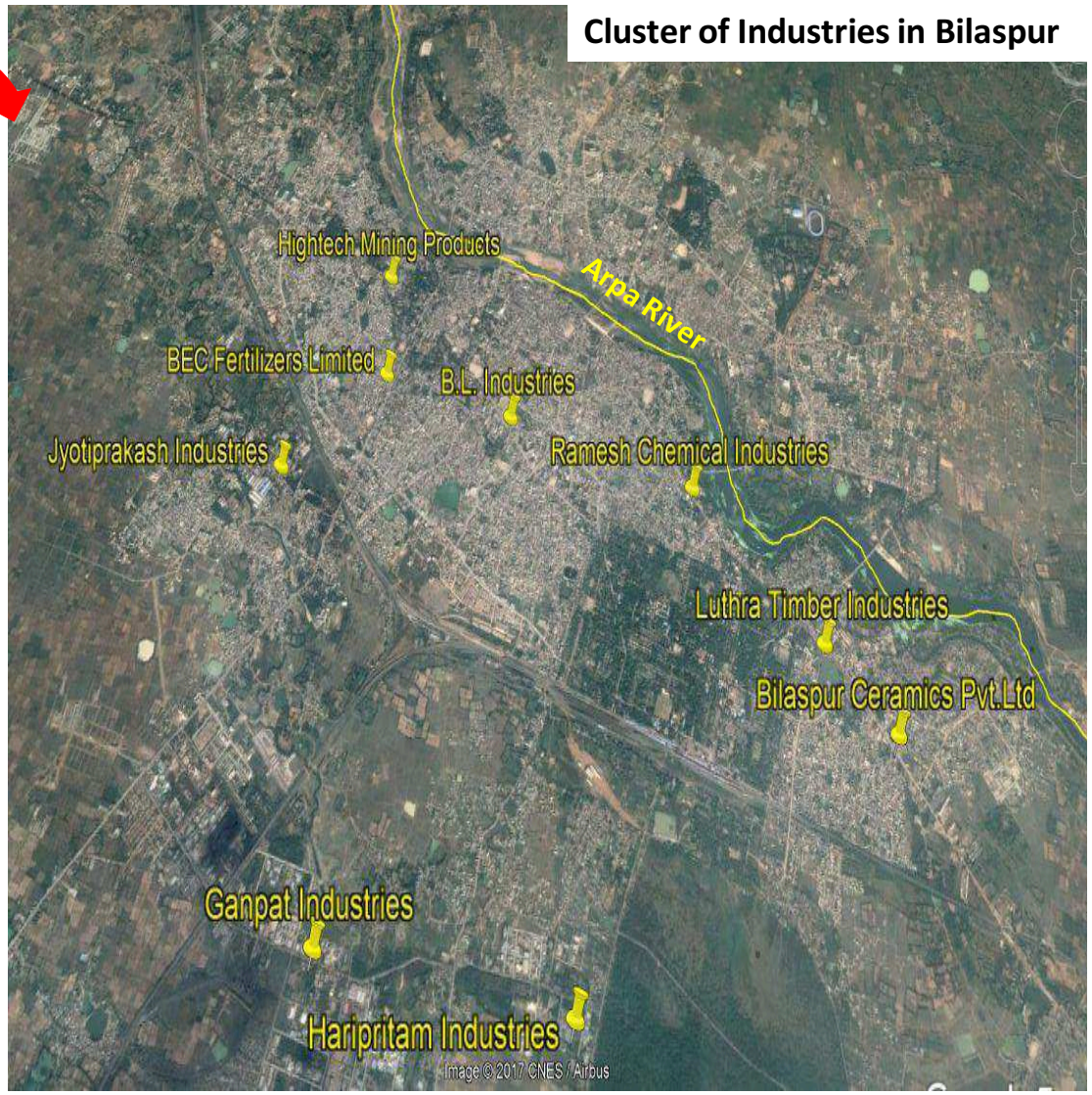


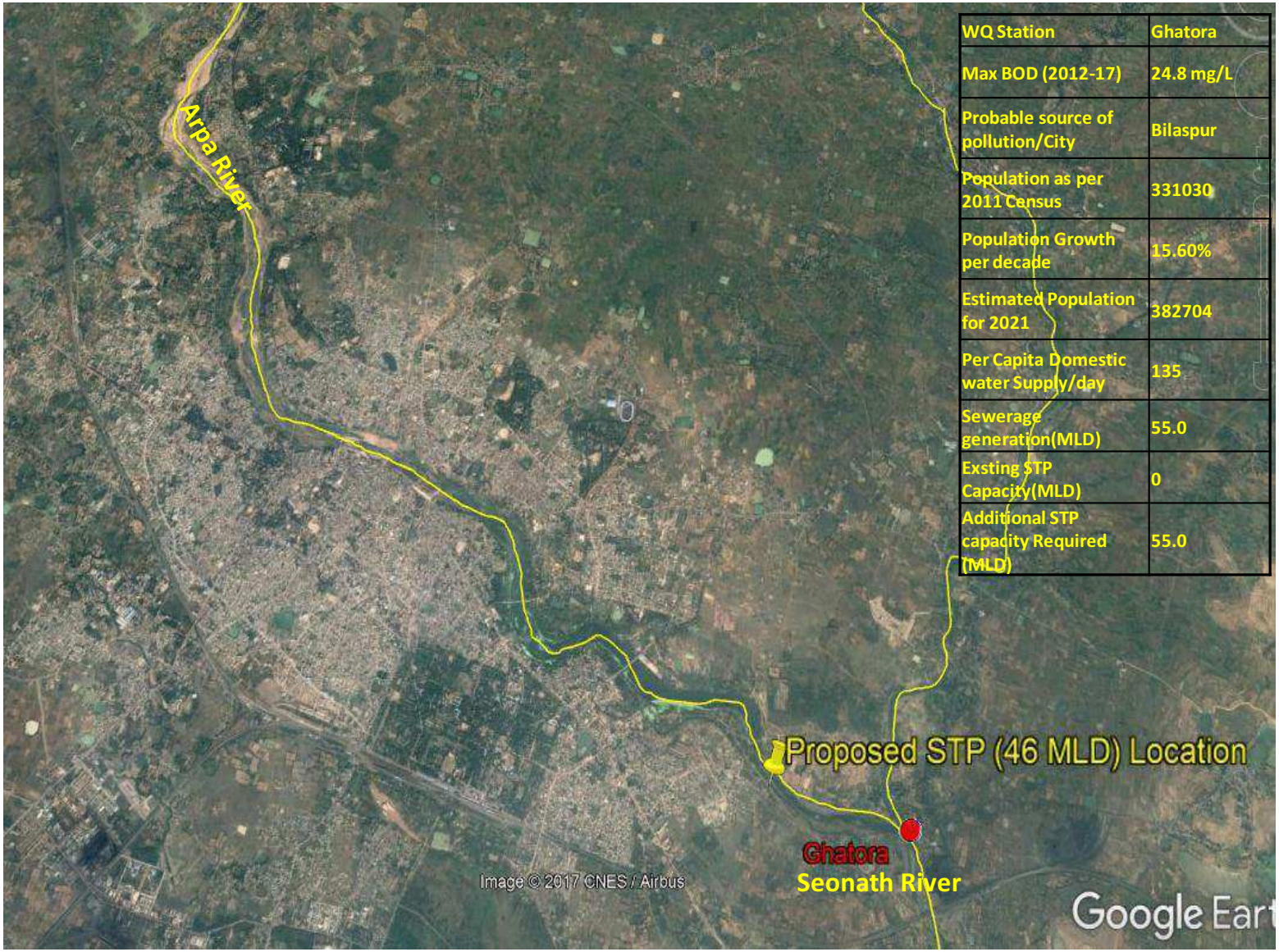


WQ Station	Pathardhi
Average Max BOD (2012-17)	4.1 mg/L
Probable source of pollution/City	Raipur
Population as per 2011 Census	1010087
Population Growth per decade	15.60%
Estimated Population for 2021	1169782
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	126.3
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	126.3

WQ Station	Ghatora
Max BOD (2012-17)	24.8 mg/L
Probable source of pollution/City	Bilaspur
Population as per 2011 Census	331030
Population Growth per decade	15.60%
Estimated Population for 2021	382704
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	55.0
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	55.0

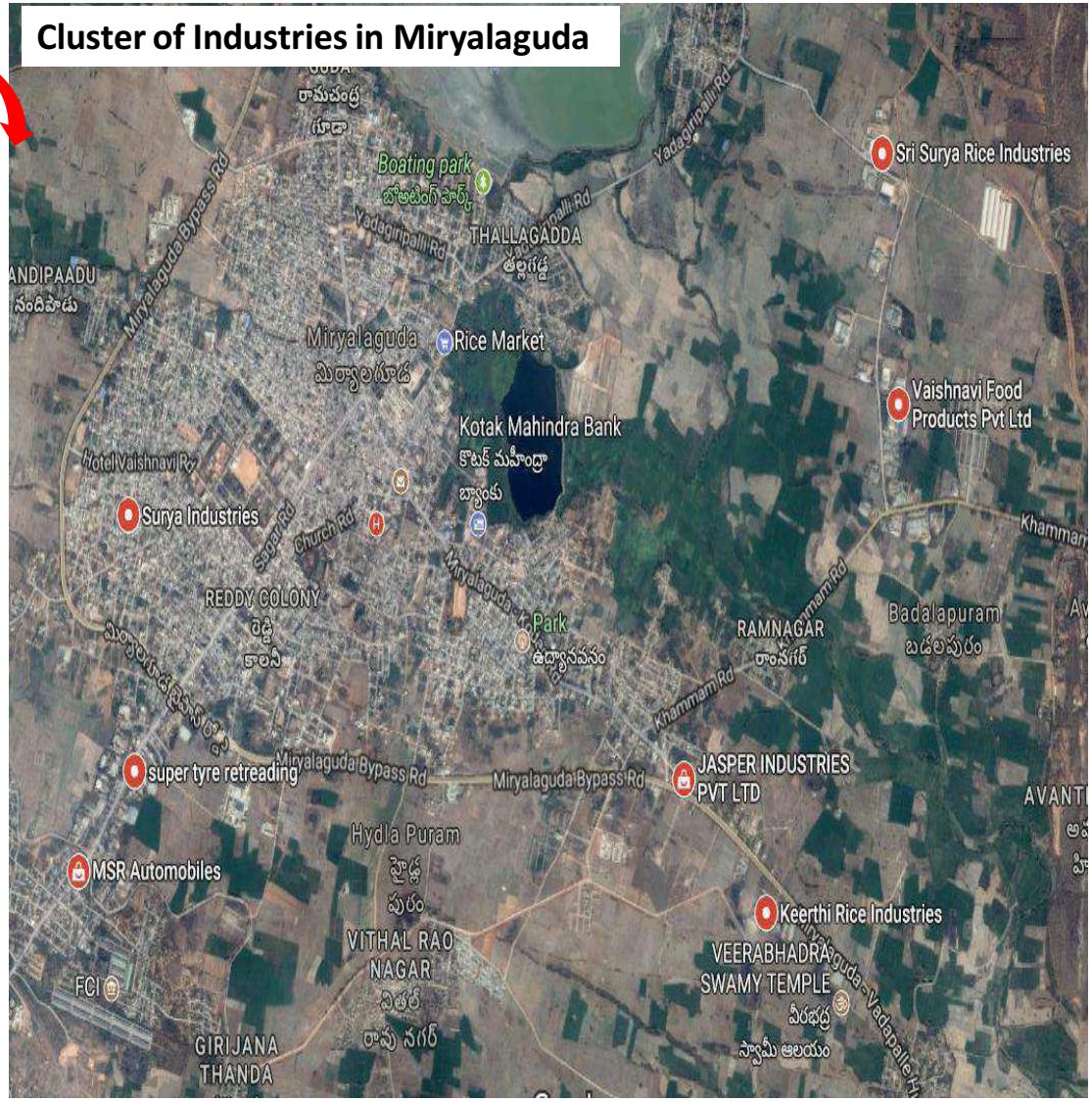
Cluster of Industries in Bilaspur

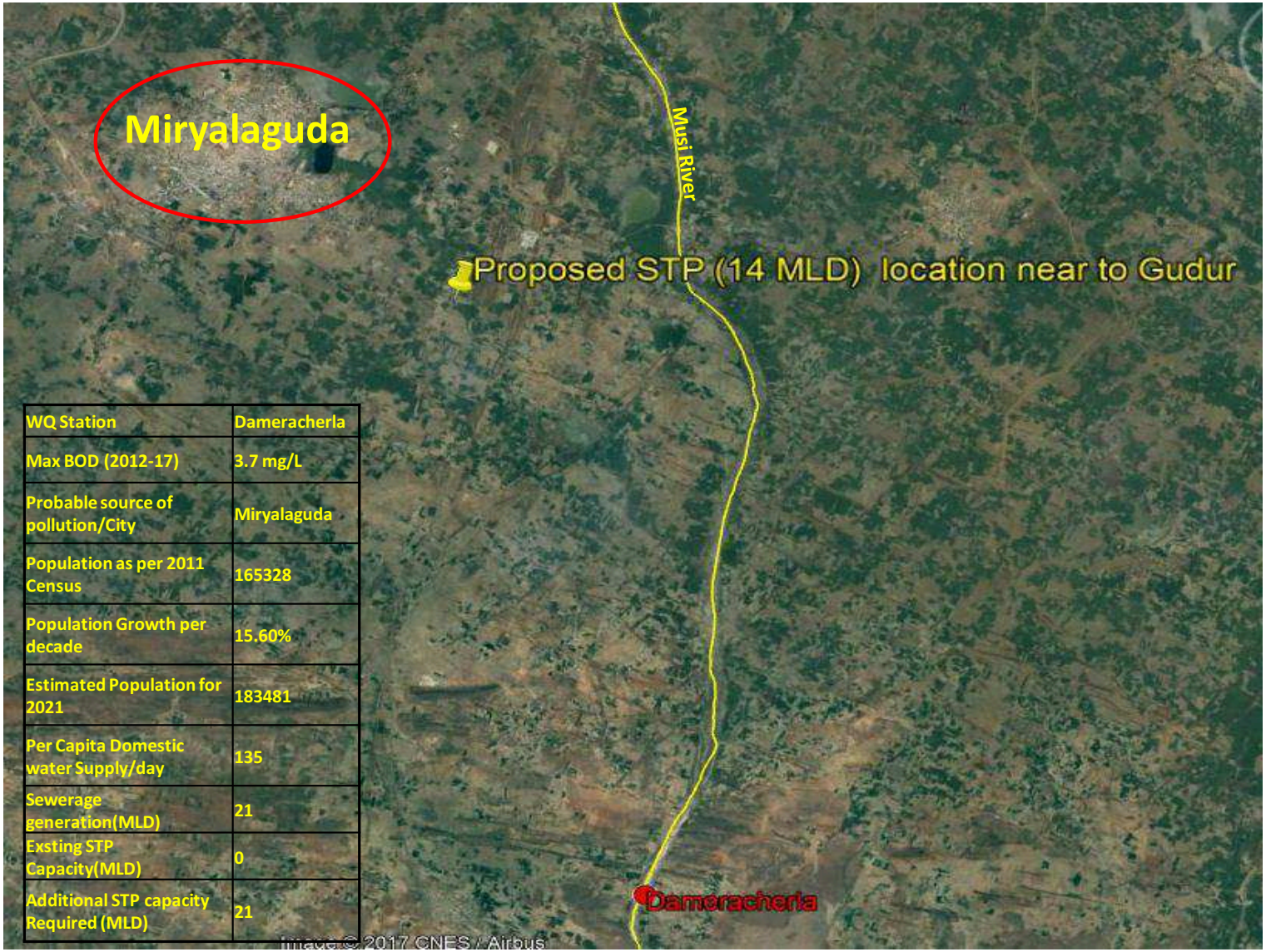




WQ Station	Ghatora
Max BOD (2012-17)	24.8 mg/L
Probable source of pollution/City	Bilaspur
Population as per 2011 Census	331030
Population Growth per decade	15.60%
Estimated Population for 2021	382704
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	55.0
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	55.0

WQ Station	Dameracherla
Max BOD (2012-17)	3.7 mg/L
Probable source of pollution/City	Miryalaguda
Population as per 2011 Census	165328
Population Growth per decade	15.60%
Estimated Population for 2021	183481
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	21
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	21

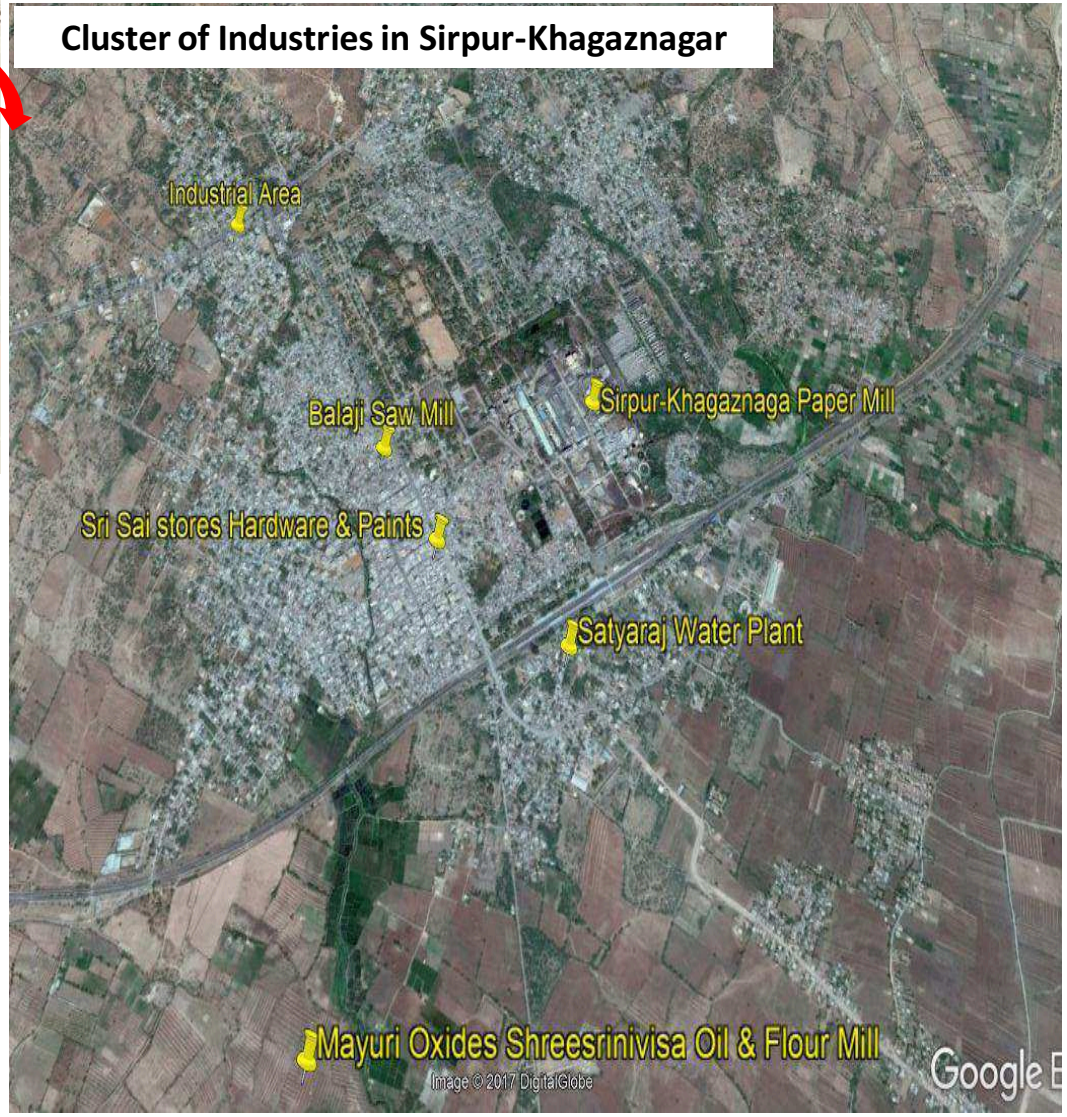


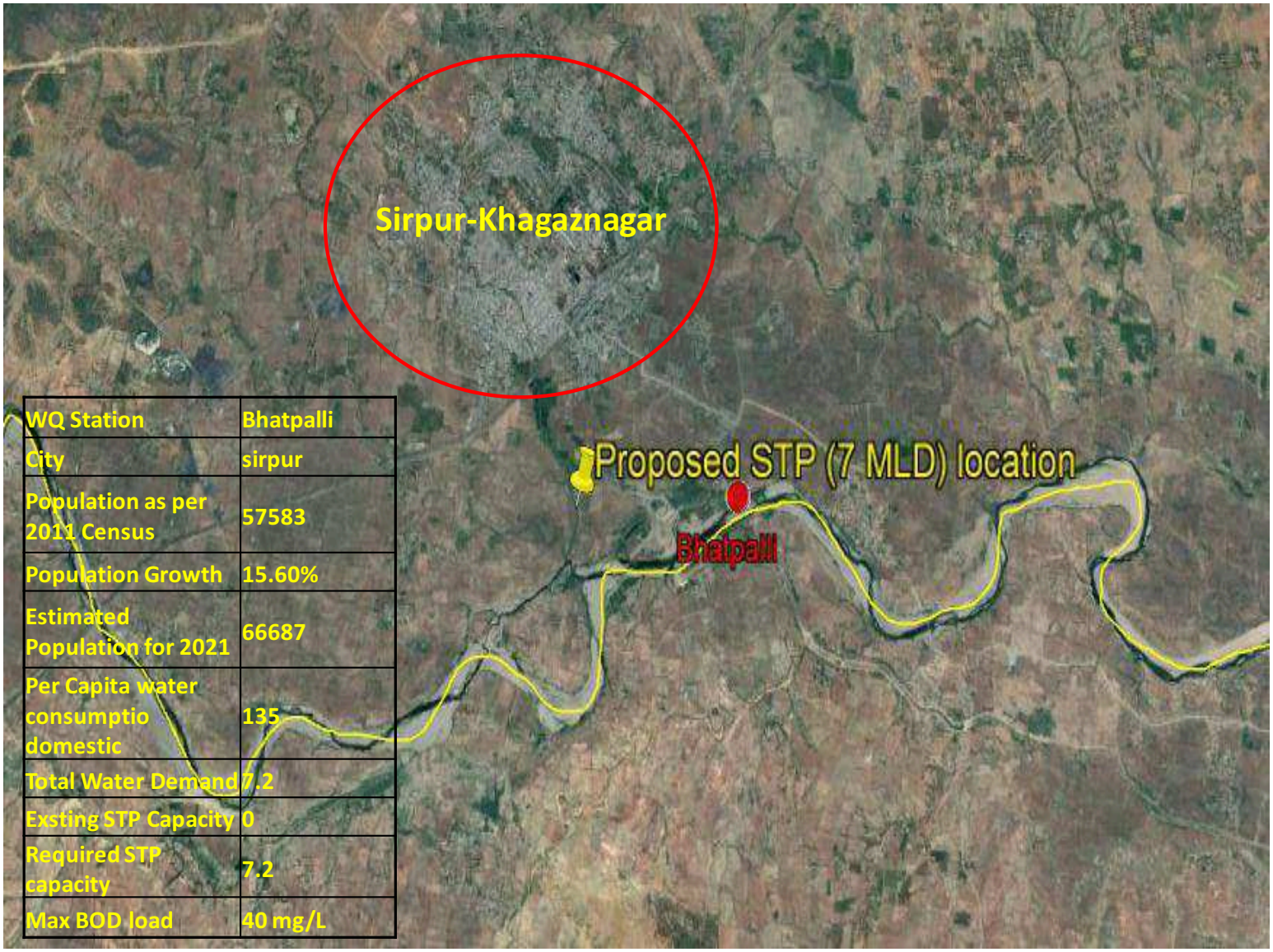


WQ Station	Dameracherla
Max BOD (2012-17)	3.7 mg/L
Probable source of pollution/City	Miryalaguda
Population as per 2011 Census	165328
Population Growth per decade	15.60%
Estimated Population for 2021	183481
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	21
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	21

WQ Station	Bhatpalli
City	sirpur
Population as per 2011 Census	57583
Population Growth	15.60%
Estimated Population for 2021	66687
Per Capita water consumptio domestic	135
Total Water Demand	7.2
Exsting STP Capacity	0
Required STP capacity	7.2
Max BOD load	40 mg/L

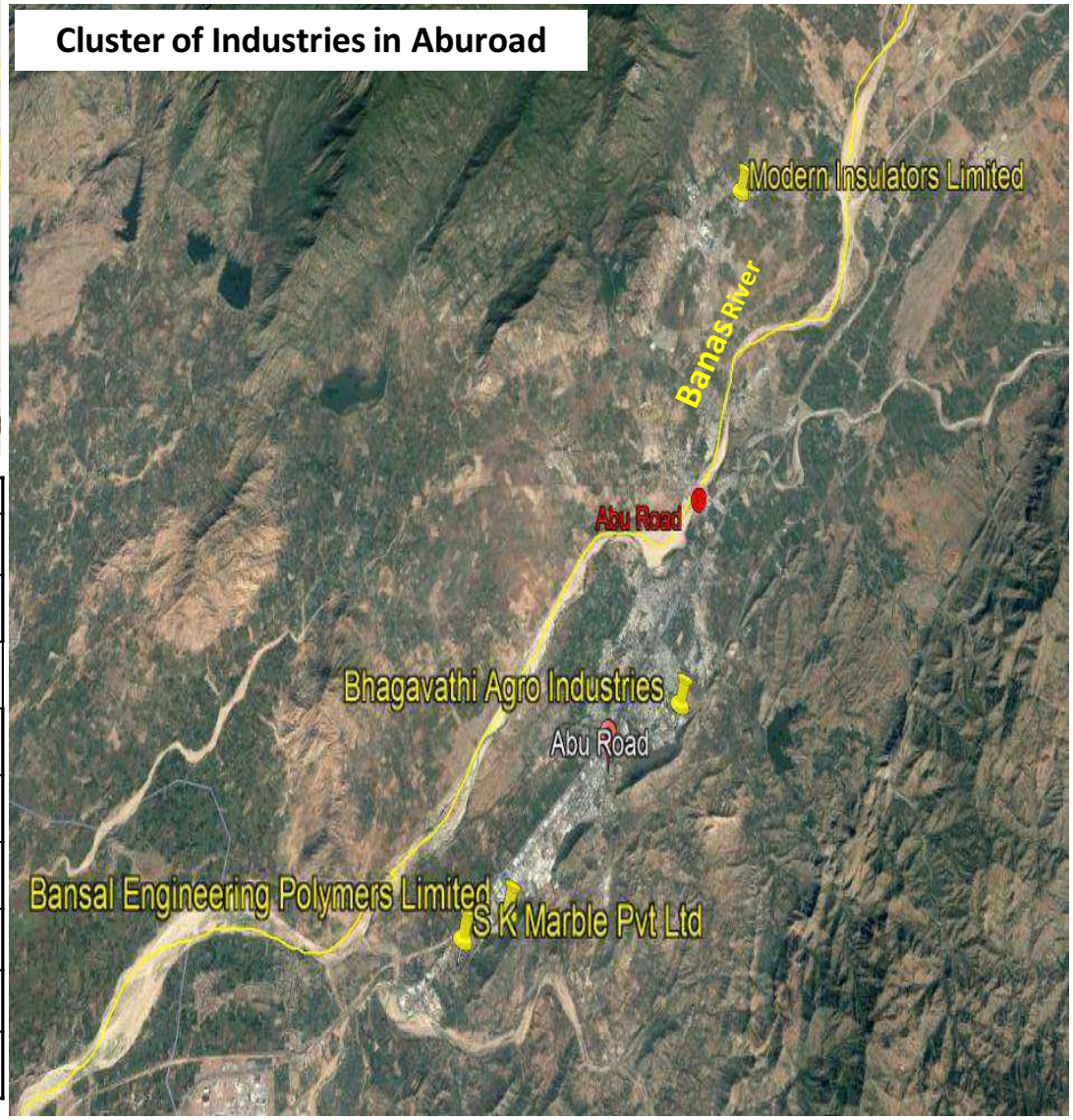
Cluster of Industries in Sirpur-Khagaznagar



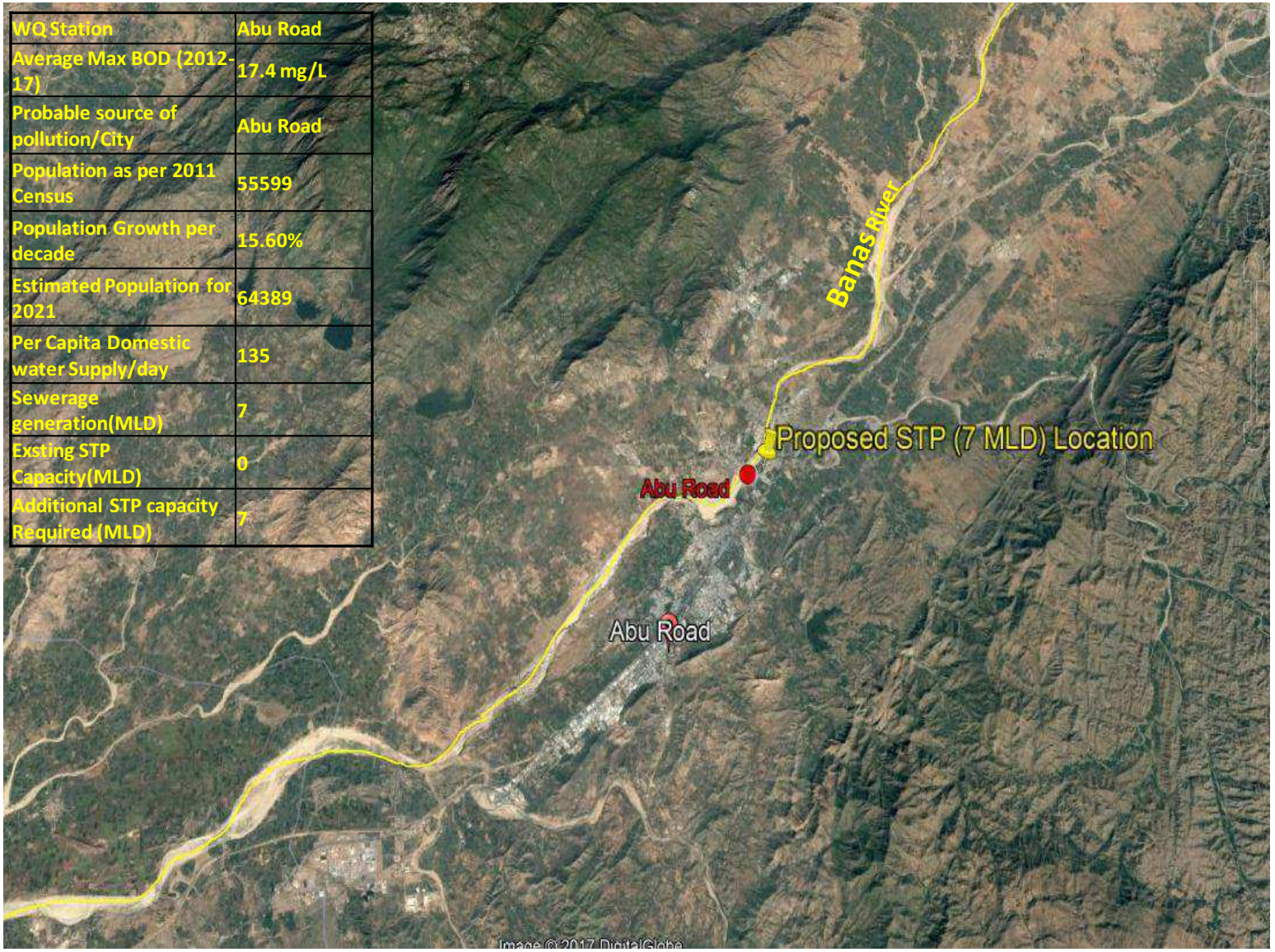


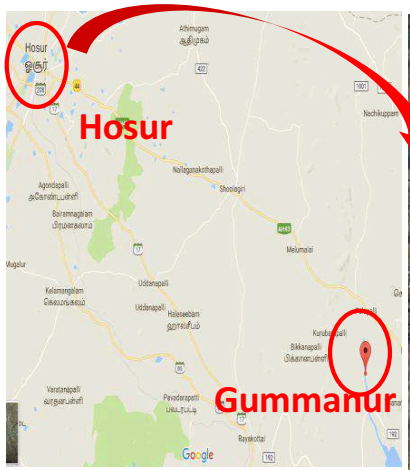
WQ Station	Bhatpalli
City	sirpur
Population as per 2011 Census	57583
Population Growth	15.60%
Estimated Population for 2021	66687
Per Capita water consumptio domestic	135
Total Water Demand	7.2
Exsting STP Capacity	0
Required STP capacity	7.2
Max BOD load	40 mg/L

WQ Station	Abu Road
Average Max BOD (2012-17)	17.4 mg/L
Probable source of pollution/City	Abu Road
Population as per 2011 Census	55599
Population Growth per decade	15.60%
Estimated Population for 2021	64389
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	7
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	7



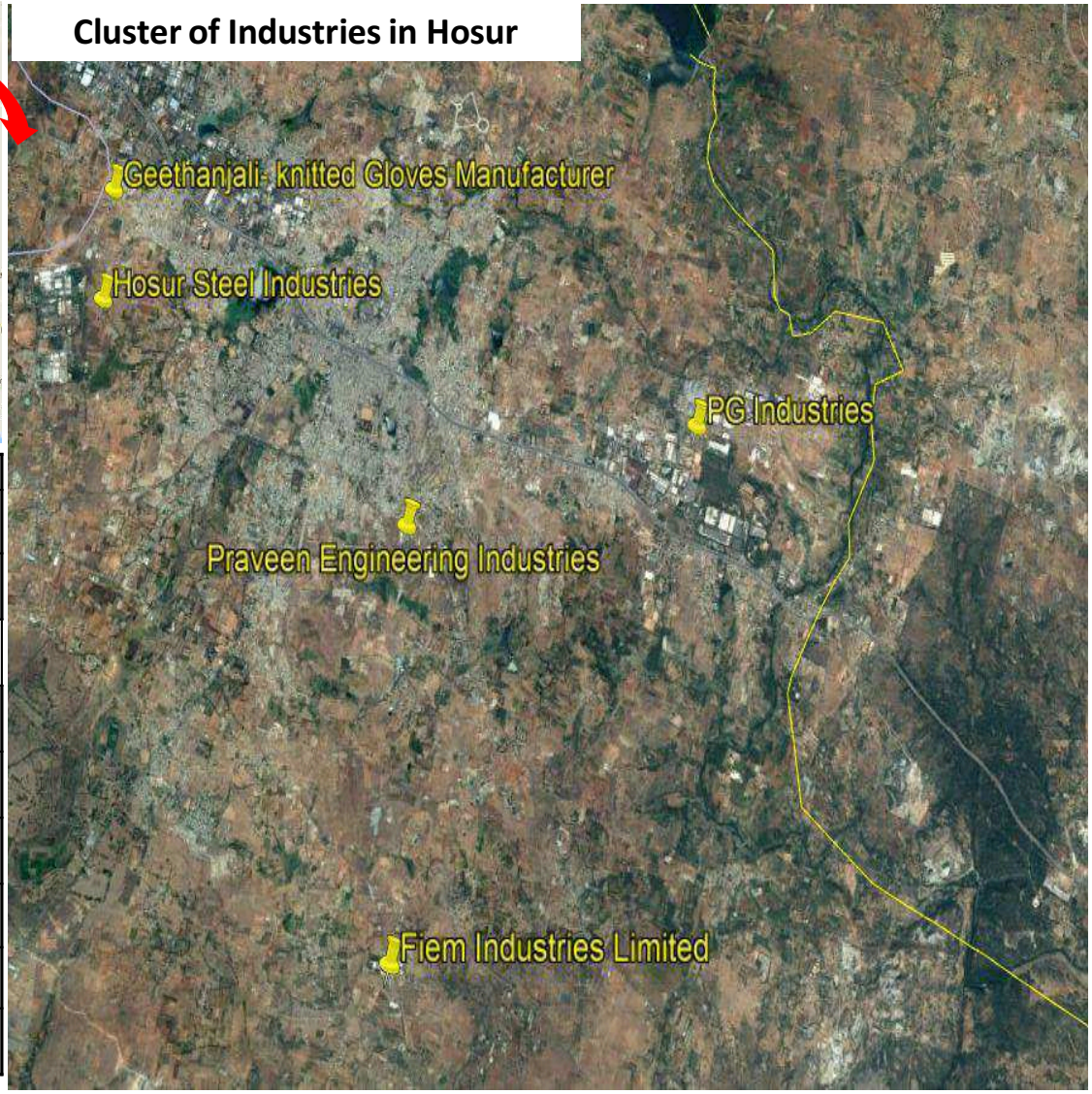
WQ Station	Abu Road
Average Max BOD (2012-17)	17.4 mg/L
Probable source of pollution/City	Abu Road
Population as per 2011 Census	55599
Population Growth per decade	15.60%
Estimated Population for 2021	64389
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	7
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	7

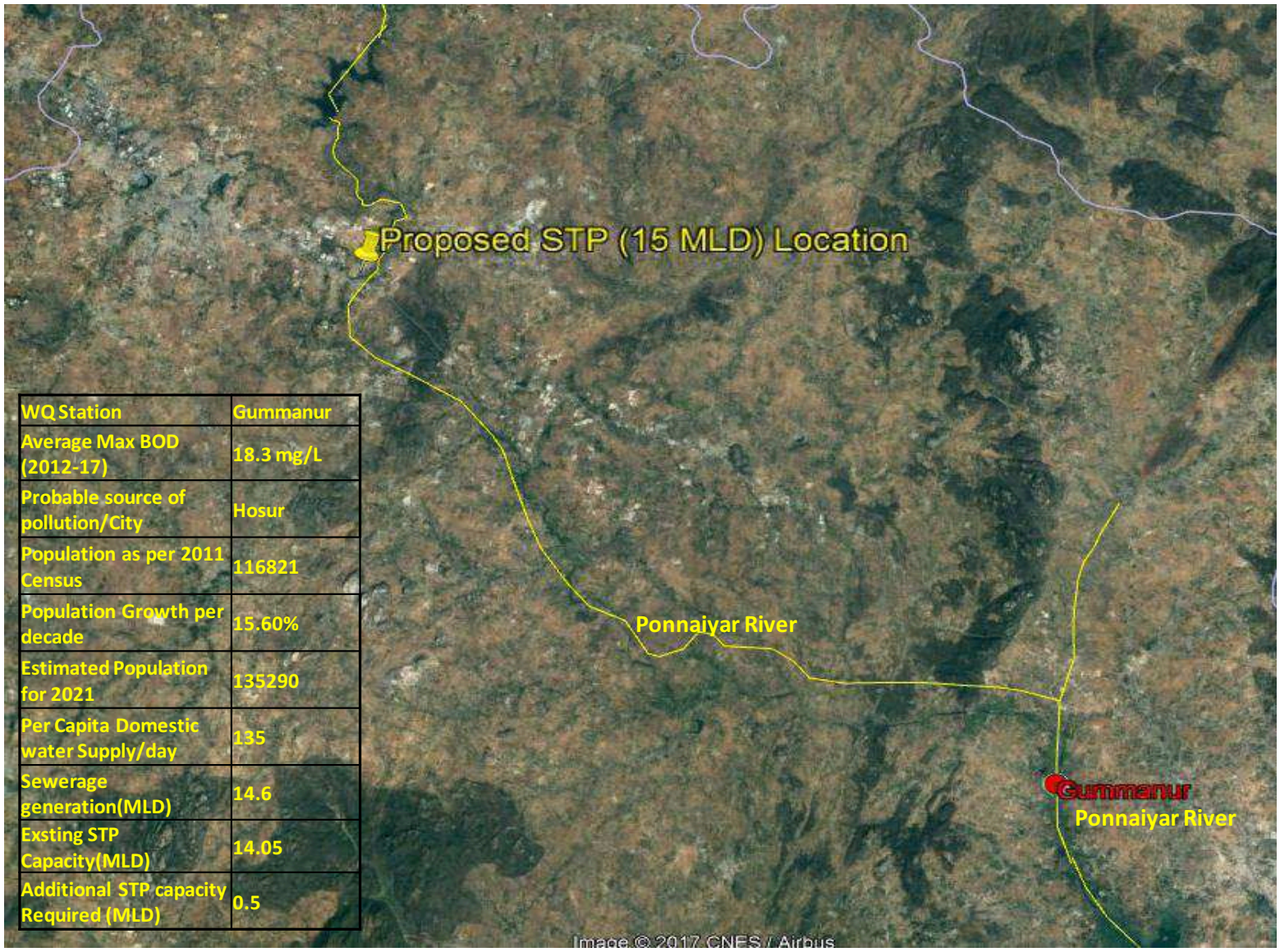




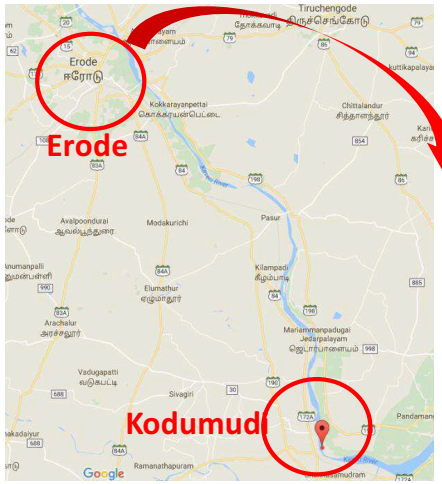
WQ Station	Gummanur
Average Max BOD (2012-17)	18.3 mg/L
Probable source of pollution/City	Hosur
Population as per 2011 Census	116821
Population Growth per decade	15.60%
Estimated Population for 2021	135290
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	14.6
Exsting STP Capacity(MLD)	14.05
Additional STP capacity Required (MLD)	0.5

Cluster of Industries in Hosur

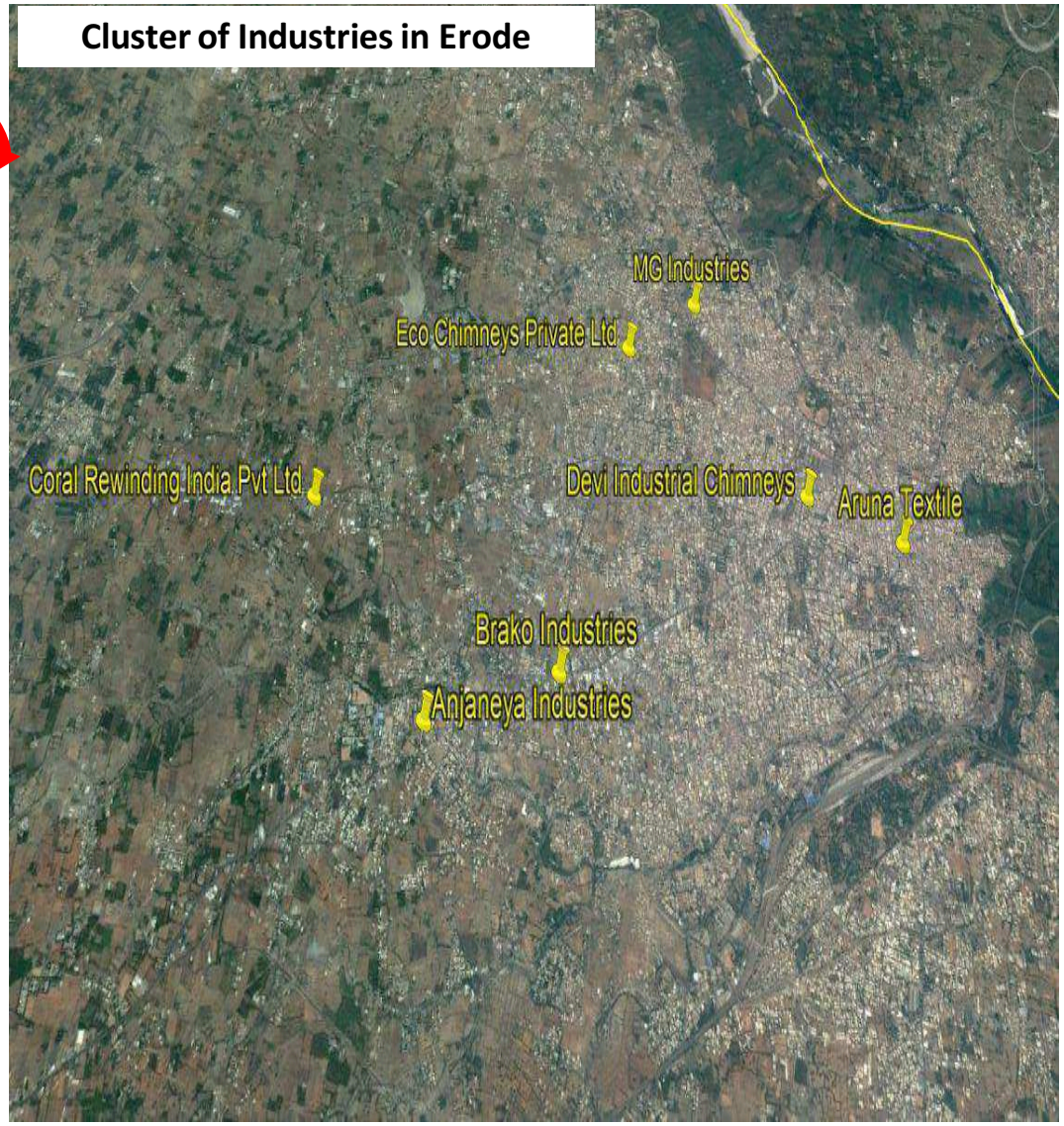


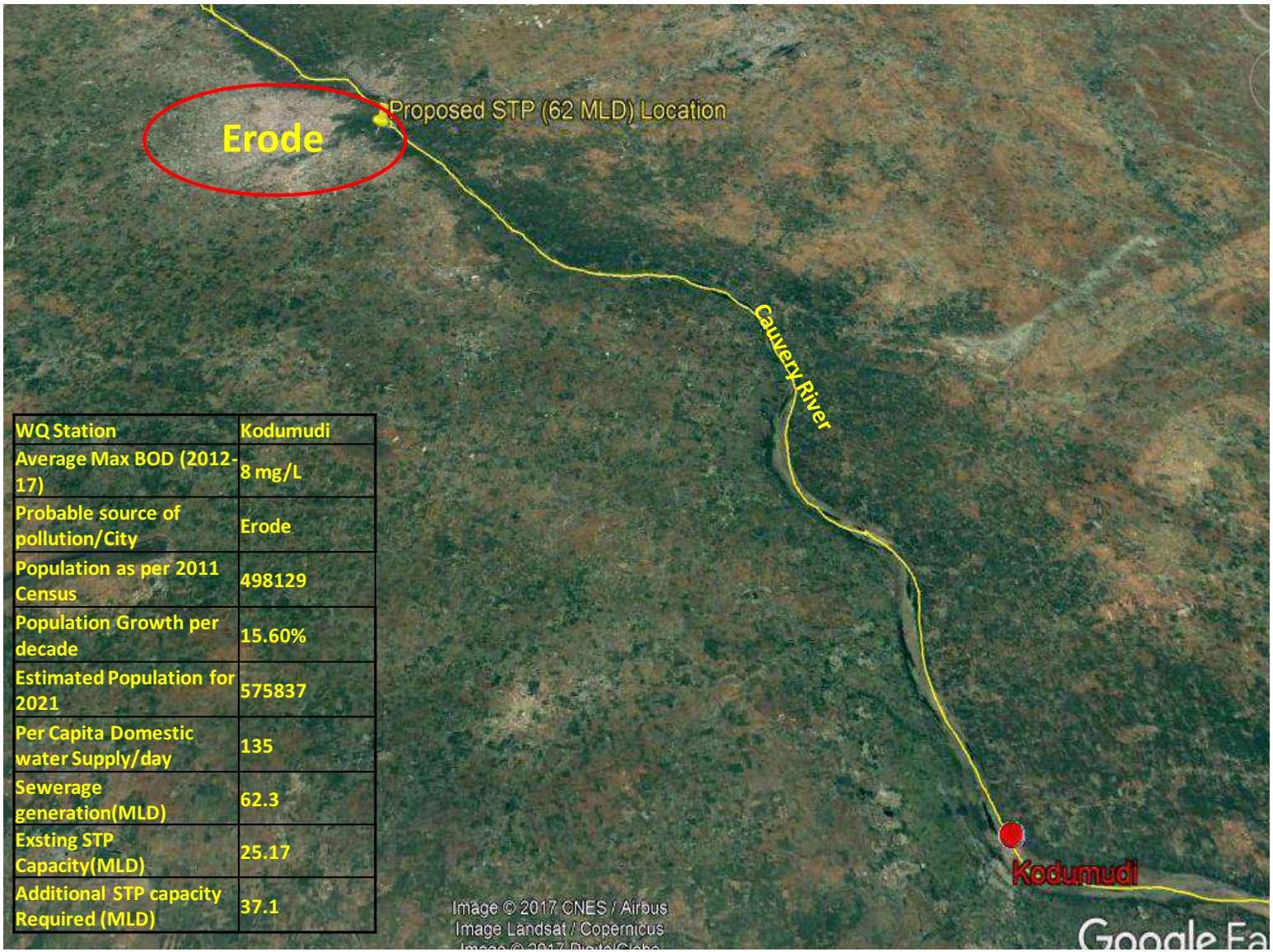


WQ Station	Gummanur
Average Max BOD (2012-17)	18.3 mg/L
Probable source of pollution/City	Hosur
Population as per 2011 Census	116821
Population Growth per decade	15.60%
Estimated Population for 2021	135290
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	14.6
Exsting STP Capacity(MLD)	14.05
Additional STP capacity Required (MLD)	0.5

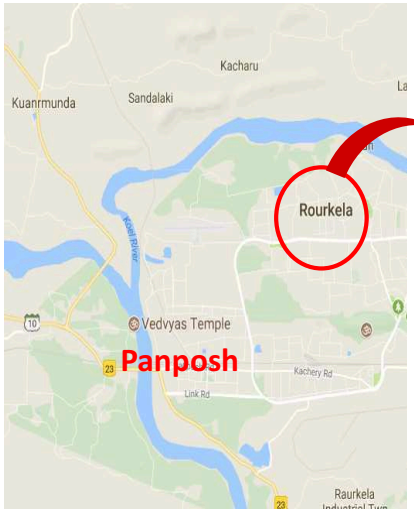


WQ Station	Kodumudi
Average Max BOD (2012-17)	8 mg/L
Probable source of pollution/City	Erode
Population as per 2011 Census	498129
Population Growth per decade	15.60%
Estimated Population for 2021	575837
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	62.3
Exsting STP Capacity(MLD)	25.17
Additional STP capacity Required (MLD)	37.1

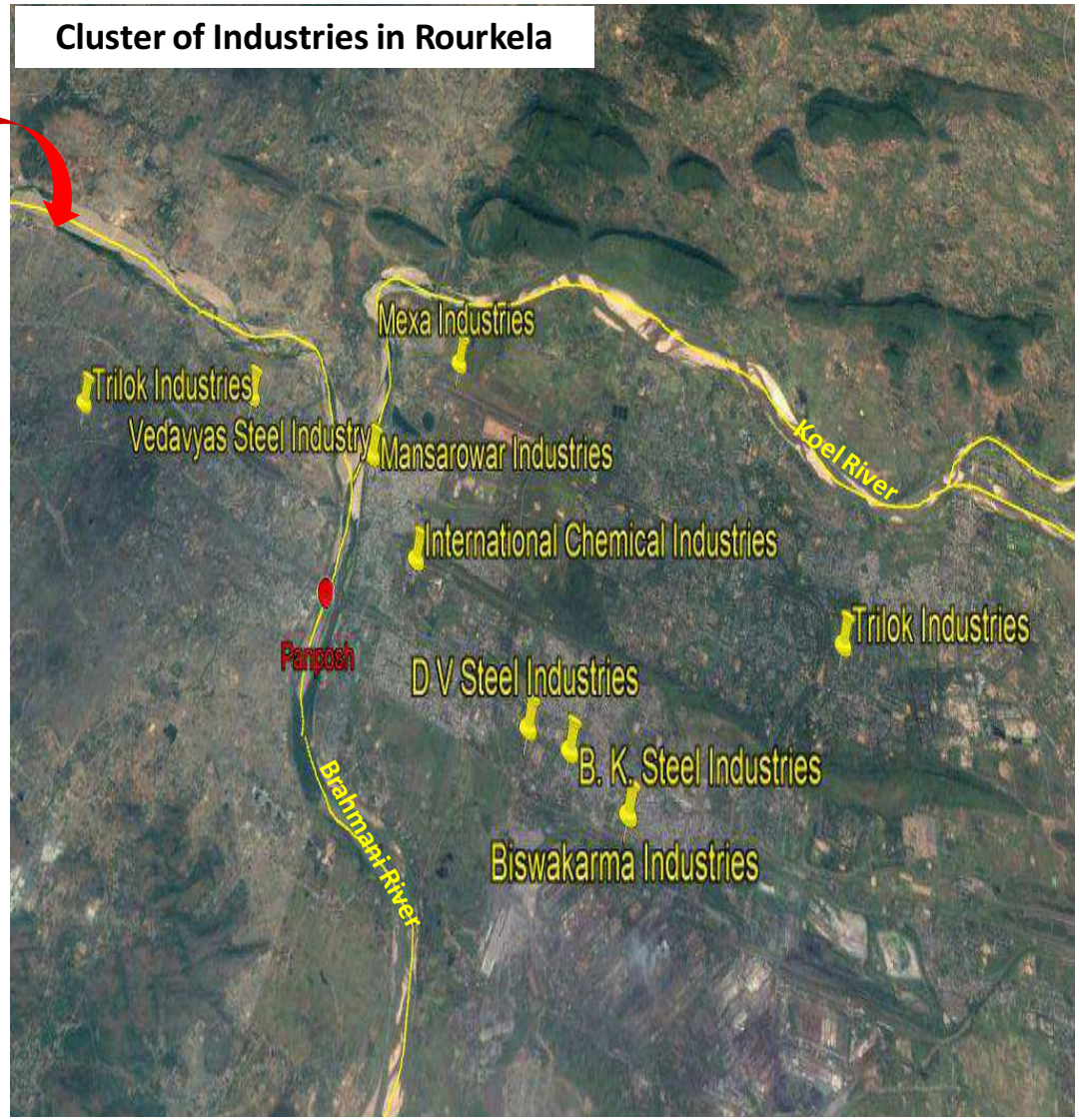


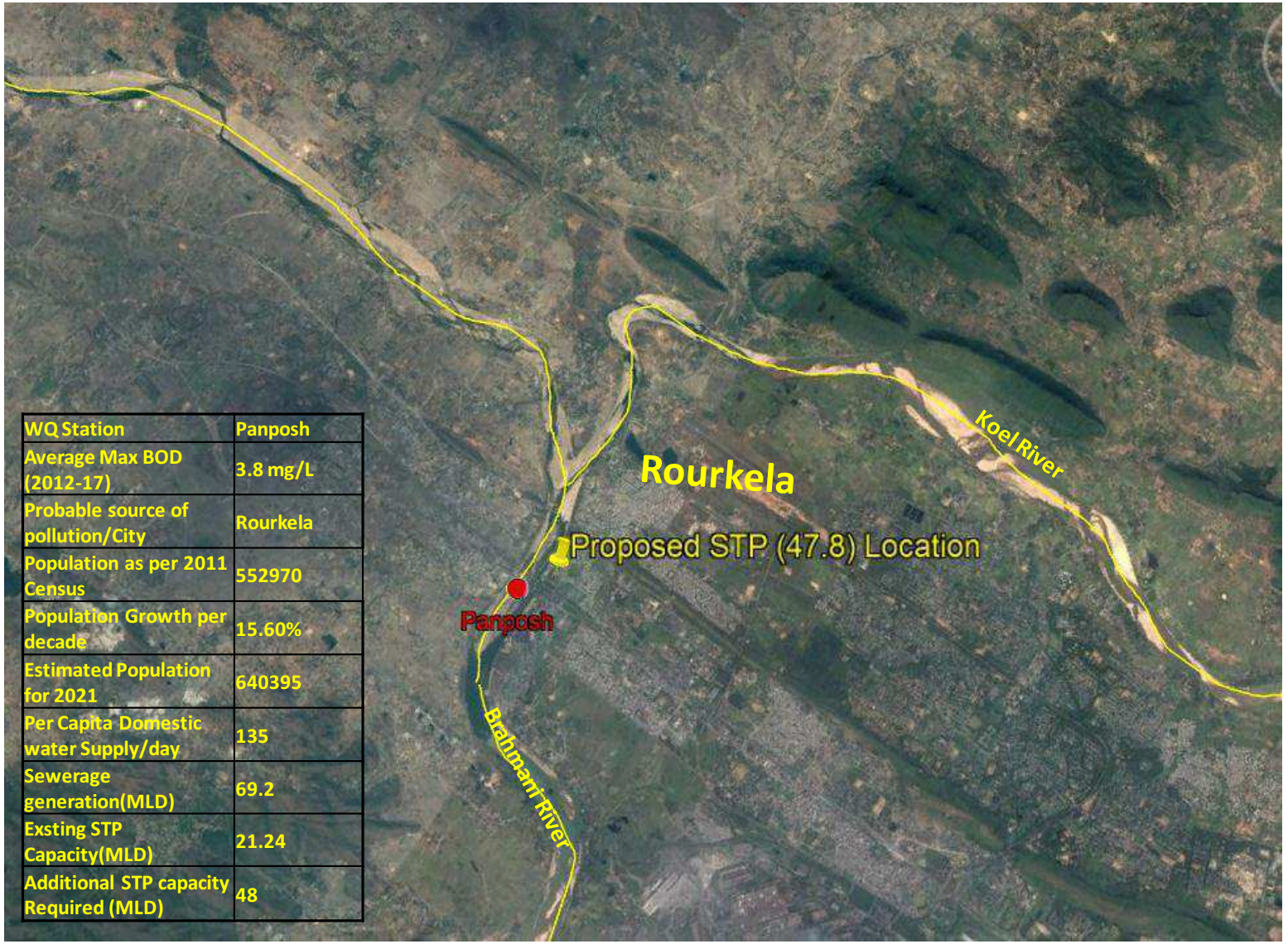


WQ Station	Kodumudi
Average Max BOD (2012-17)	8 mg/L
Probable source of pollution/City	Erode
Population as per 2011 Census	498129
Population Growth per decade	15.60%
Estimated Population for 2021	575837
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	62.3
Exsting STP Capacity(MLD)	25.17
Additional STP capacity Required (MLD)	37.1

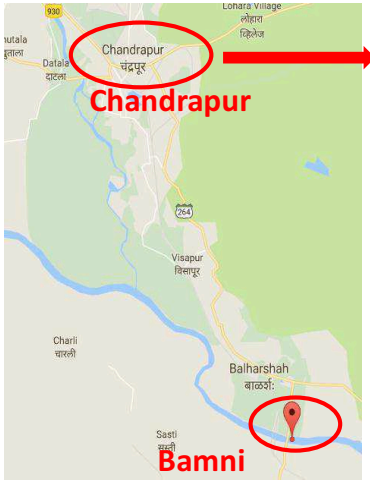


WQ Station	Panposh
Average Max BOD (2012-17)	3.8 mg/L
Probable source of pollution/City	Rourkela
Population as per 2011 Census	552970
Population Growth per decade	15.60%
Estimated Population for 2021	640395
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	69.2
Exsting STP Capacity(MLD)	21.24
Additional STP capacity Required (MLD)	48



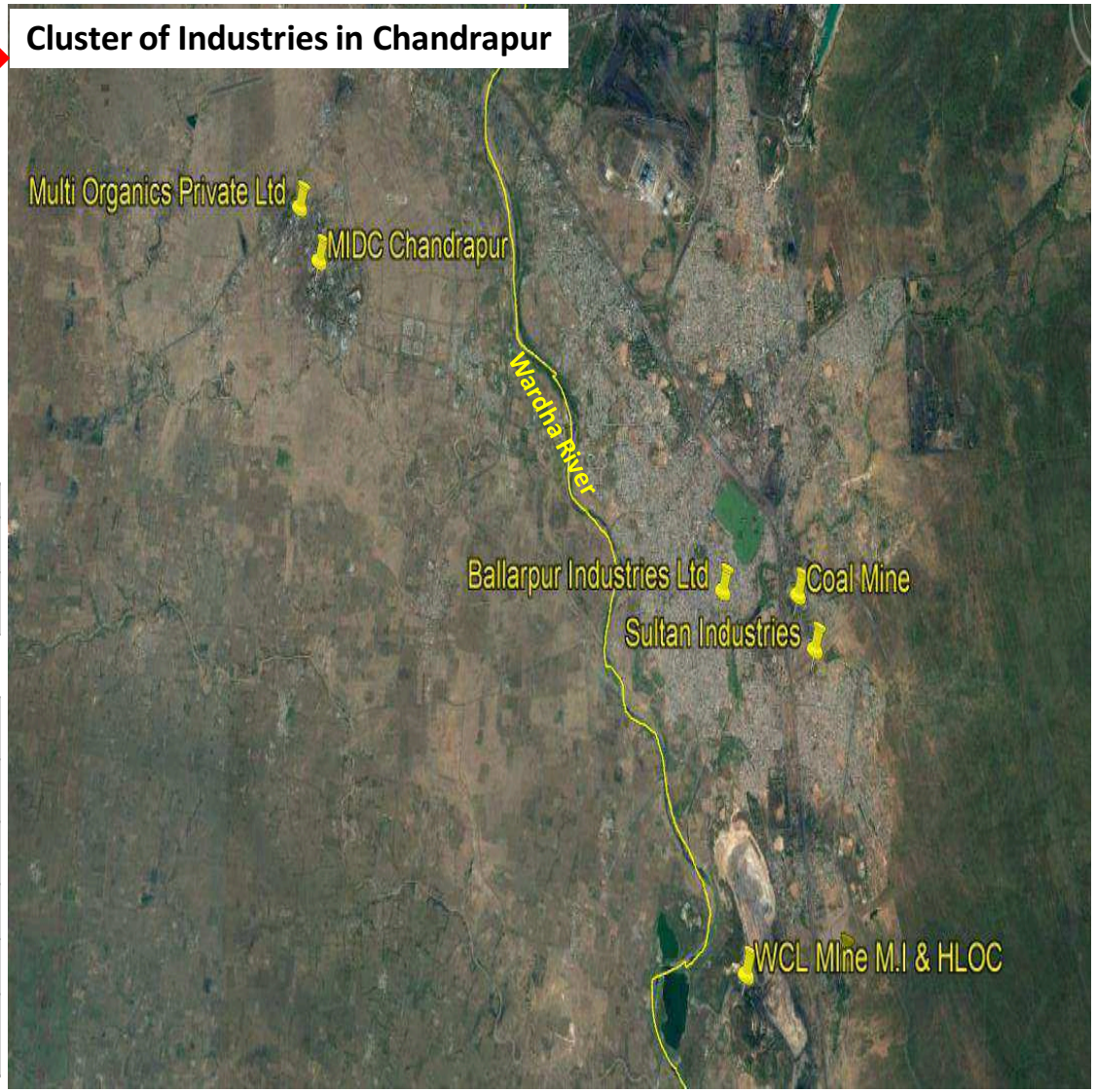


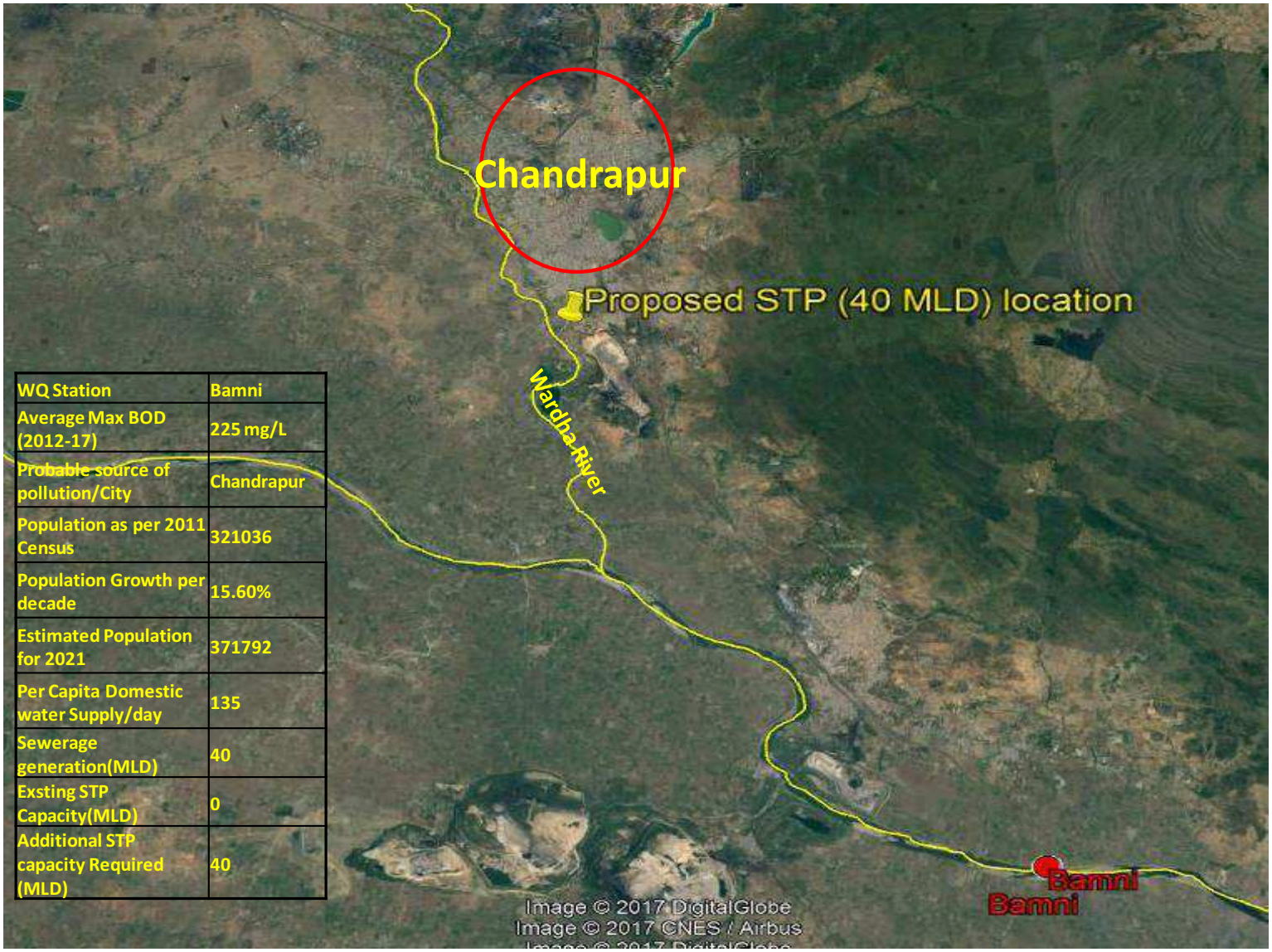
WQ Station	Panposh
Average Max BOD (2012-17)	3.8 mg/L
Probable source of pollution/City	Rourkela
Population as per 2011 Census	552970
Population Growth per decade	15.60%
Estimated Population for 2021	640395
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	69.2
Exsting STP Capacity(MLD)	21.24
Additional STP capacity Required (MLD)	48



WQ Station	Bamni
Average Max BOD (2012-17)	225 mg/L
Probable source of pollution/City	Chandrapur
Population as per 2011 Census	321036
Population Growth per decade	15.60%
Estimated Population for 2021	371792
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	40
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	40

Cluster of Industries in Chandrapur

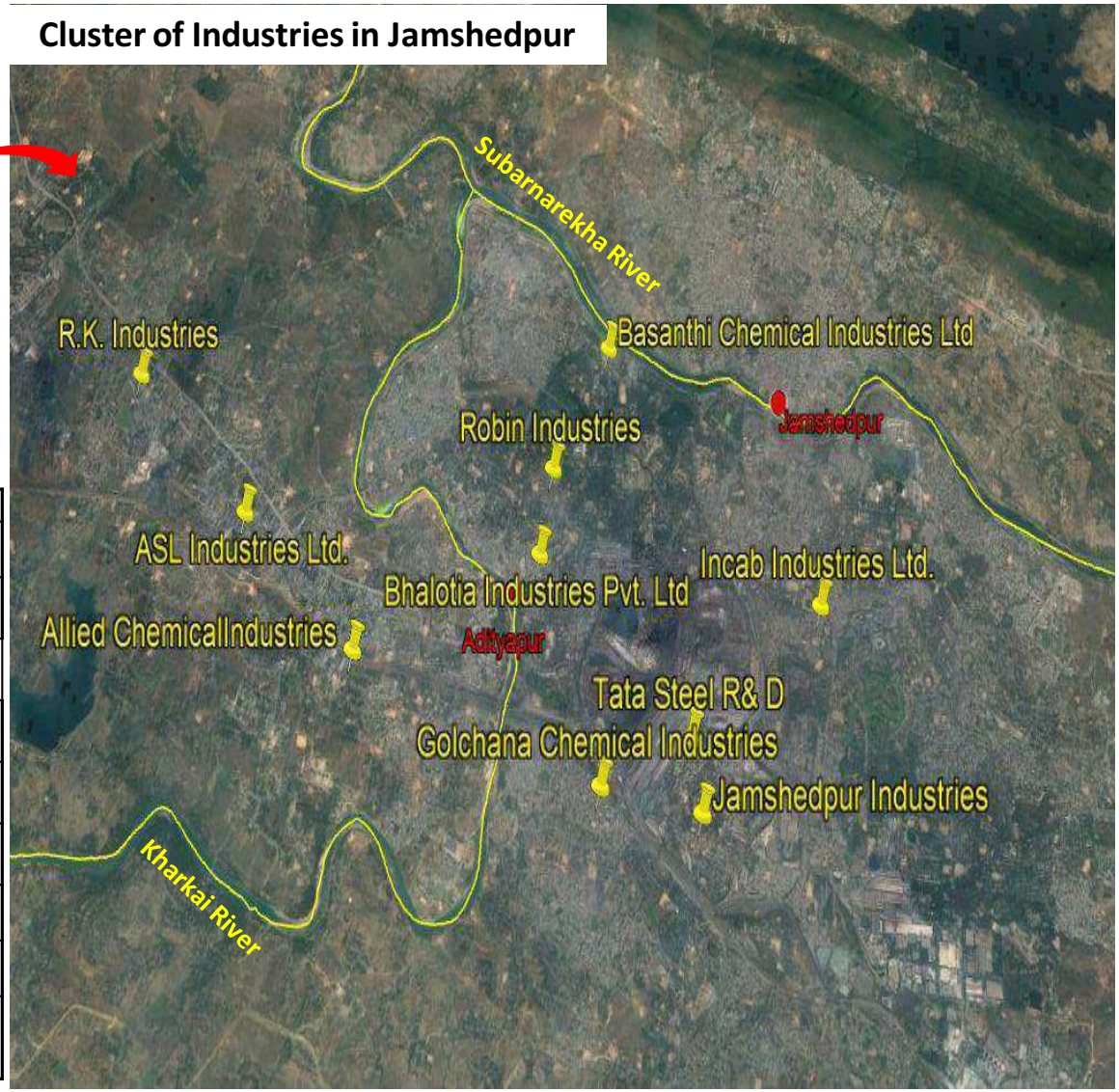




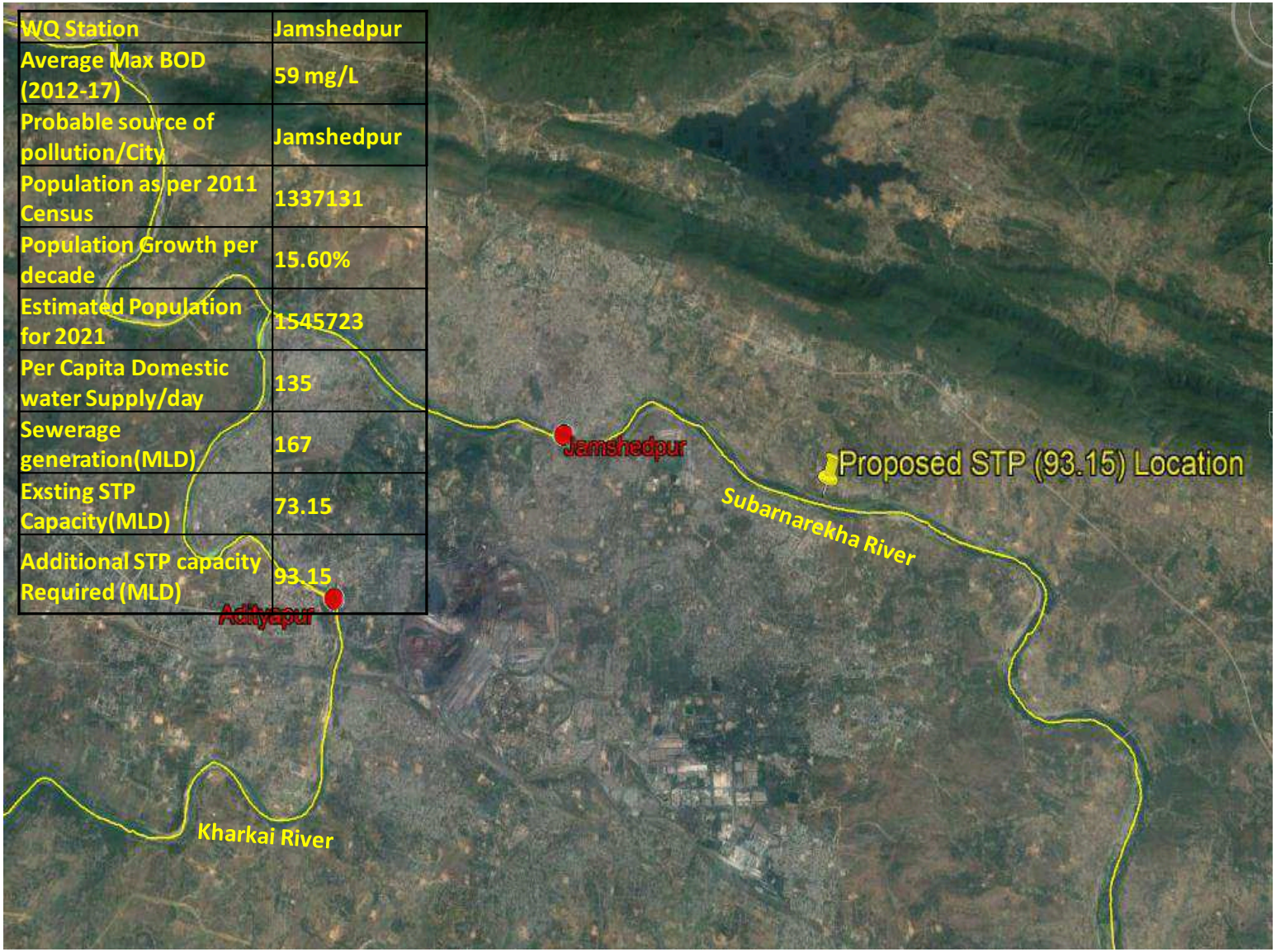
WQ Station	Bamni
Average Max BOD (2012-17)	225 mg/L
Probable source of pollution/City	Chandrapur
Population as per 2011 Census	321036
Population Growth per decade	15.60%
Estimated Population for 2021	371792
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	40
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	40

WQ Station	Jamshedpur
Average Max BOD (2012-17)	59 mg/L
Probable source of pollution/City	Jamshedpur
Population as per 2011 Census	1337131
Population Growth per decade	15.60%
Estimated Population for 2021	1545723
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	167
Exsting STP Capacity(MLD)	73.15
Additional STP capacity Required (MLD)	93.15

Cluster of Industries in Jamshedpur

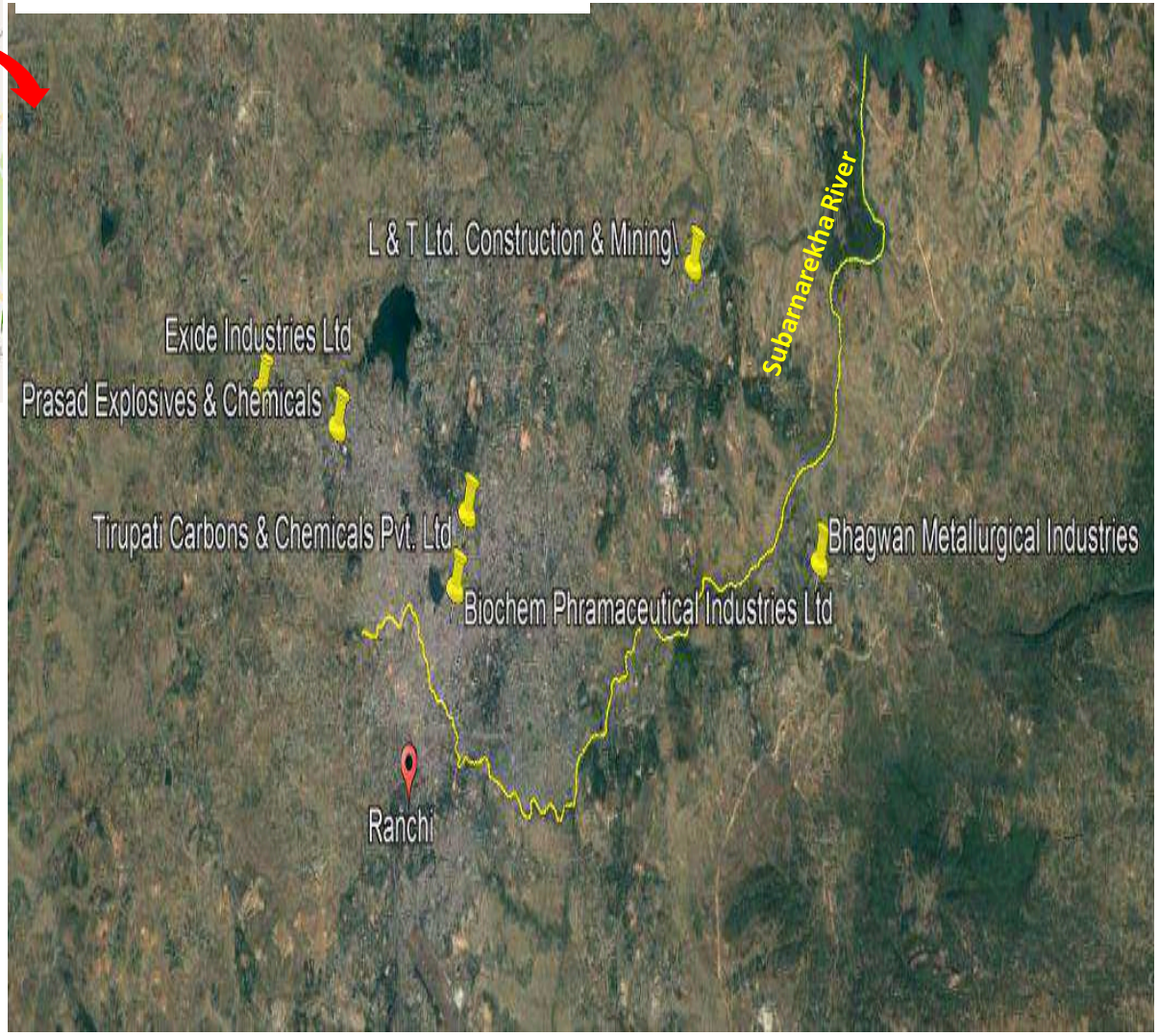


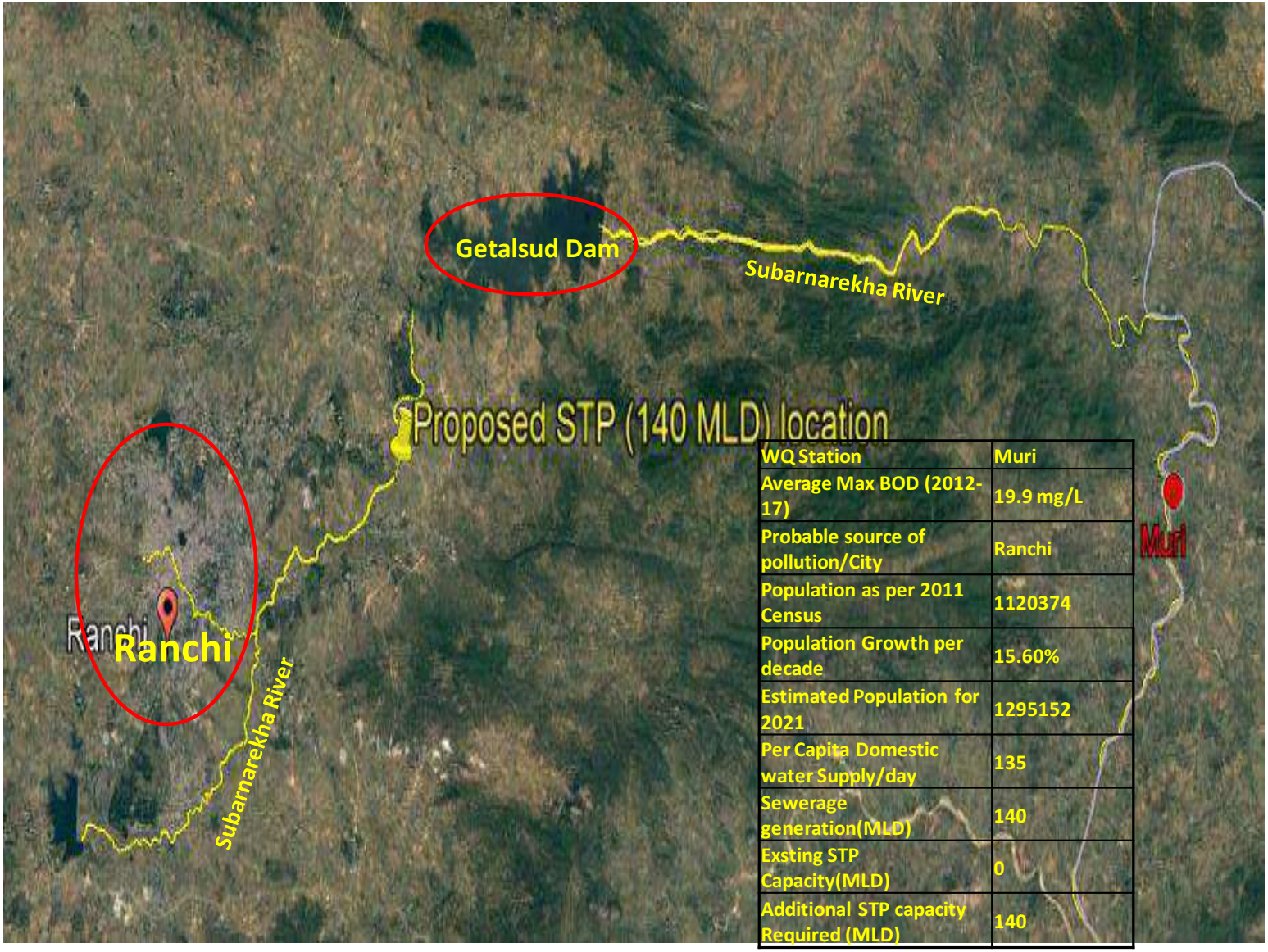
WQ Station	Jamshedpur
Average Max BOD (2012-17)	59 mg/L
Probable source of pollution/City	Jamshedpur
Population as per 2011 Census	1337131
Population Growth per decade	15.60%
Estimated Population for 2021	1545723
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	167
Exsting STP Capacity(MLD)	73.15
Additional STP capacity Required (MLD)	93.15



WQ Station	Muri
Average Max BOD (2012-17)	19.9 mg/L
Probable source of pollution/City	Ranchi
Population as per 2011 Census	1120374
Population Growth per decade	15.60%
Estimated Population for 2021	1295152
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	140
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	140

Cluster of Industries in Ranchi

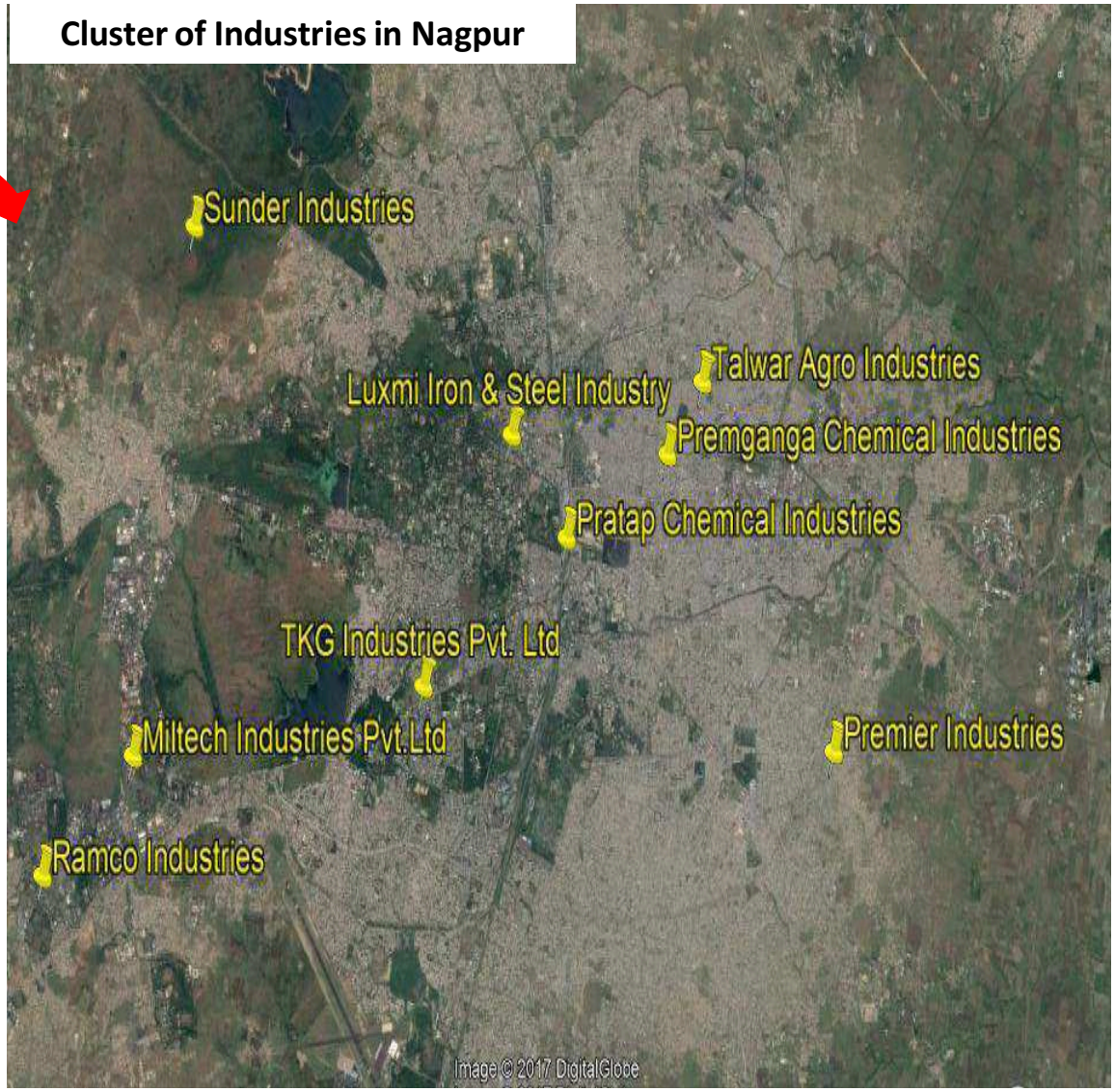




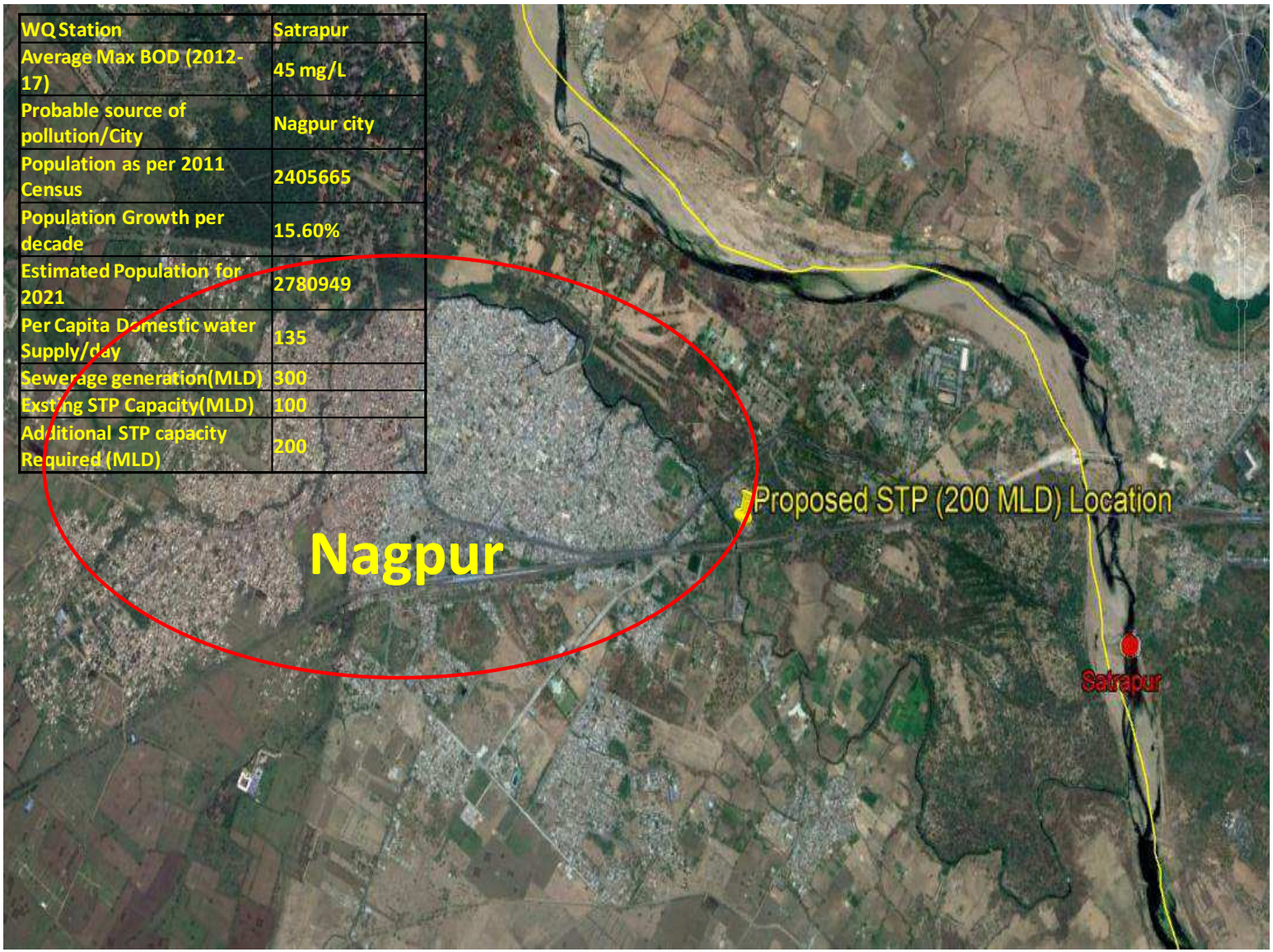
WQ Station	Muri
Average Max BOD (2012-17)	19.9 mg/L
Probable source of pollution/City	Ranchi
Population as per 2011 Census	1120374
Population Growth per decade	15.60%
Estimated Population for 2021	1295152
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	140
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	140

WQ Station	Satrapur
Average Max BOD (2012-17)	45 mg/L
Probable source of pollution/City	Nagpur city
Population as per 2011 Census	2405665
Population Growth per decade	15.60%
Estimated Population for 2021	2780949
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	300
Exsting STP Capacity(MLD)	100
Additional STP capacity Required (MLD)	200

Cluster of Industries in Nagpur

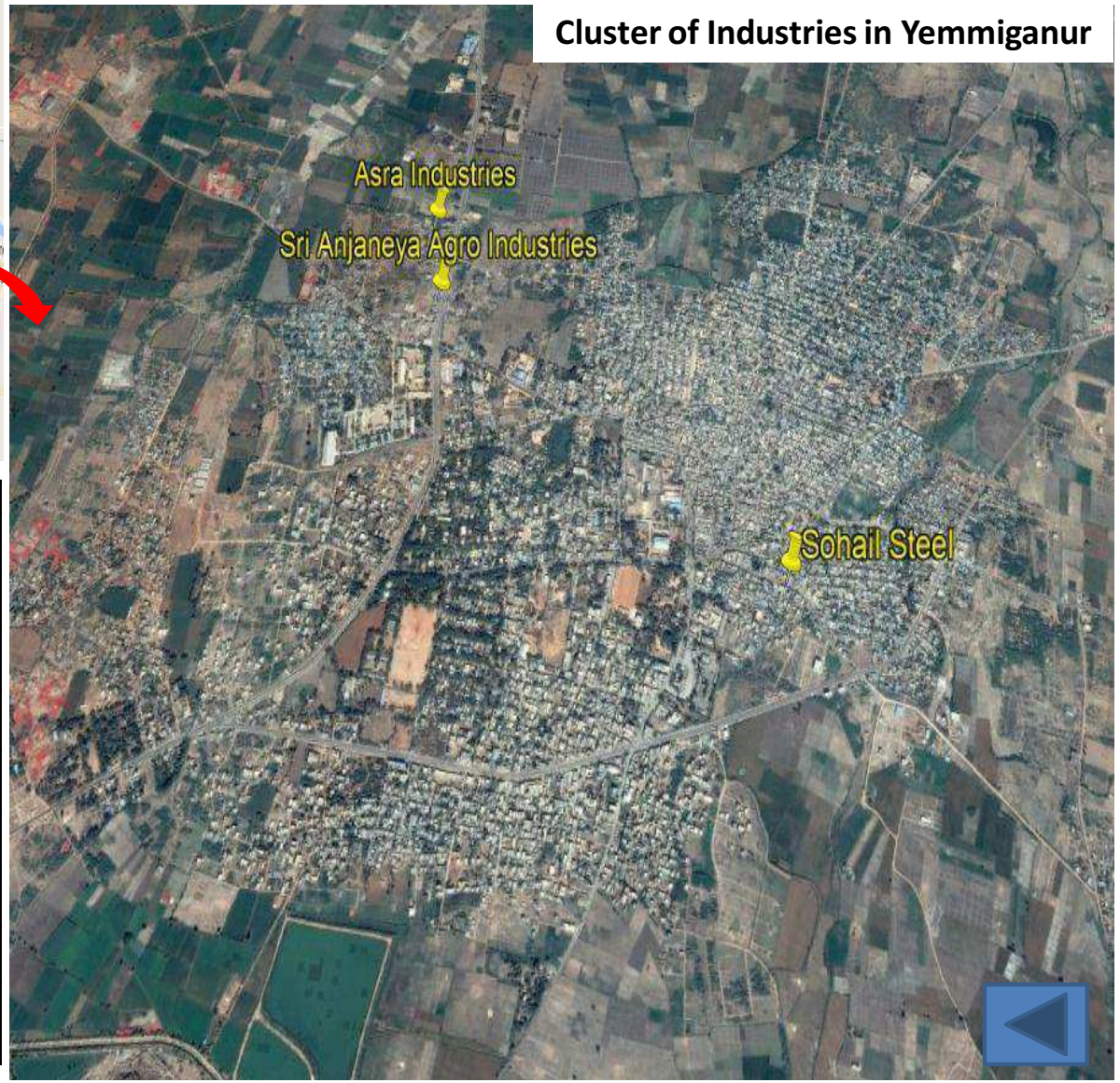


WQ Station	Satrapur
Average Max BOD (2012-17)	45 mg/L
Probable source of pollution/City	Nagpur city
Population as per 2011 Census	2405665
Population Growth per decade	15.60%
Estimated Population for 2021	2780949
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	300
Existing STP Capacity(MLD)	100
Additional STP capacity Required (MLD)	200

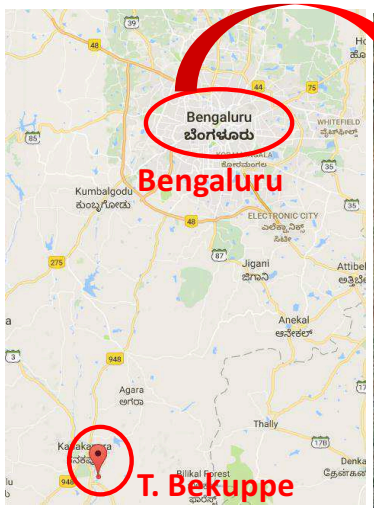


WQ Station	Bawapuram
Average Max BOD (2012-17)	3.7 mg/L
Probable source of pollution/City	Yemmiganur
Population as per 2011 Census	430214
Population Growth per decade	15.60%
Estimated Population for 2021	489842
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	55
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	55

Cluster of Industries in Yemmiganur

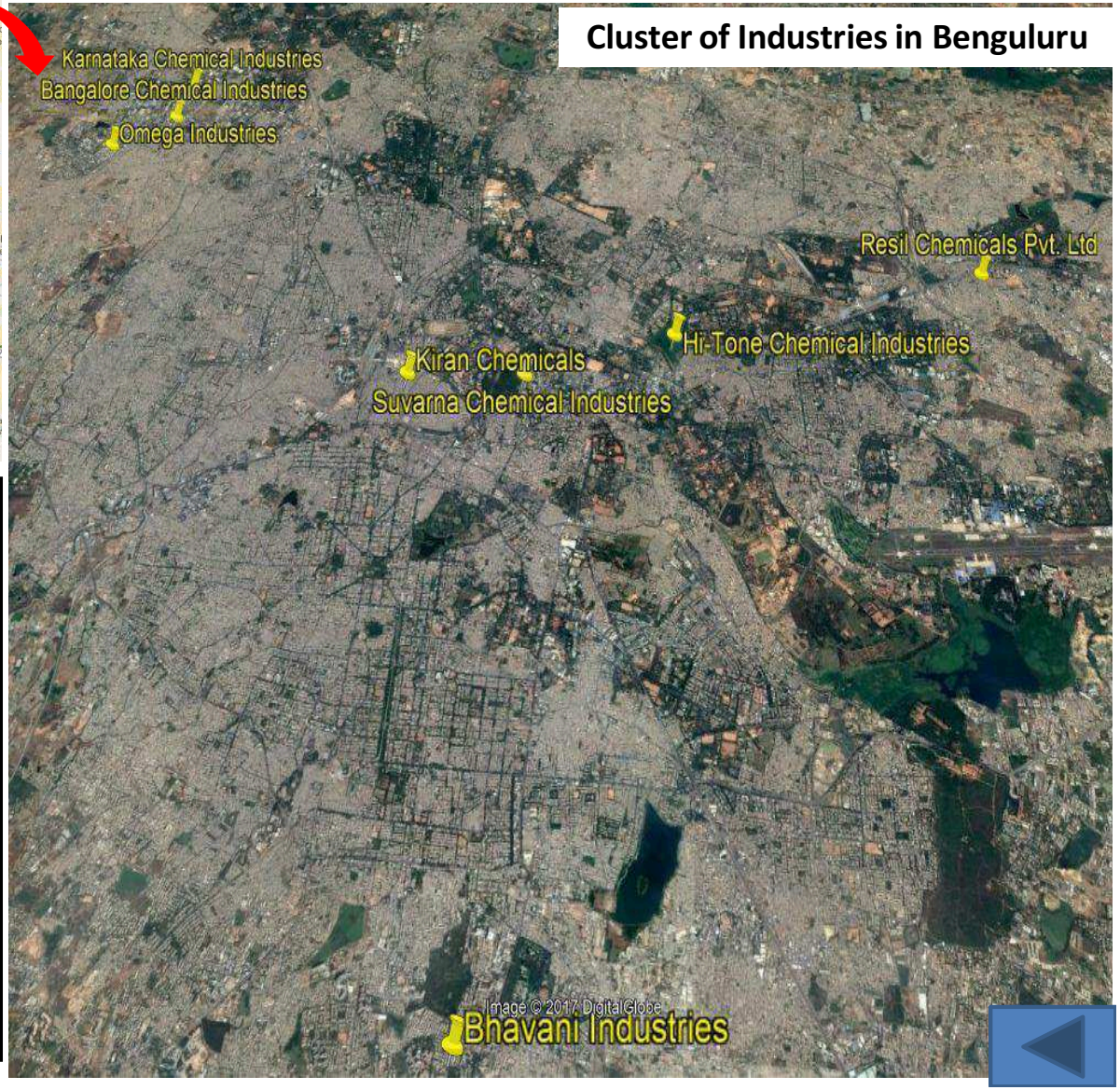


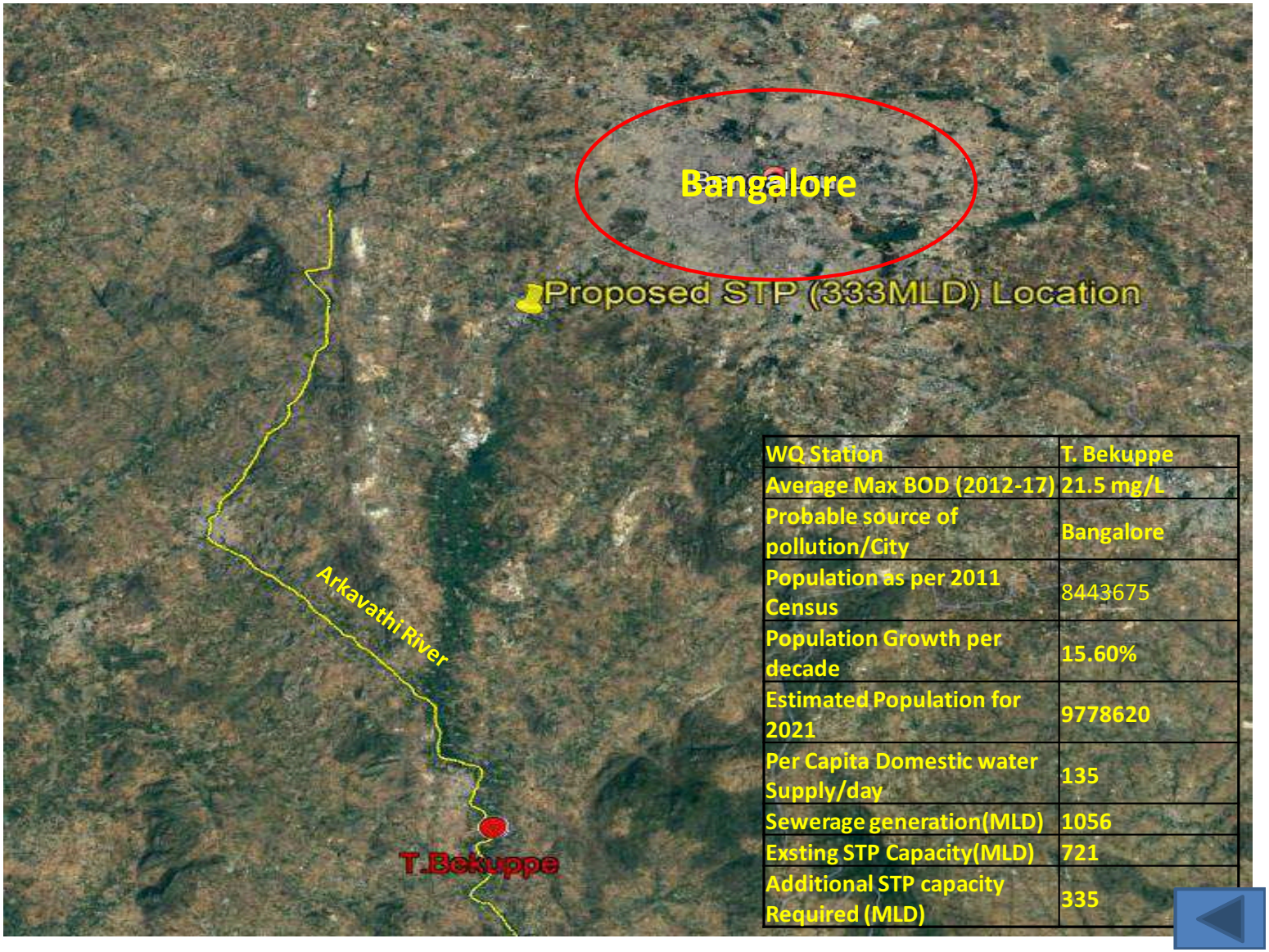
WQ Station	Bawapuram
Average Max BOD (2012-17)	3.7 mg/L
Probable source of pollution/City	Yemmiganur
Population as per 2011 Census	430214
Population Growth per decade	15.60%
Estimated Population for 2021	489842
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	55
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	55



WQ Station	T. Bekuppe
Average Max BOD (2012-17)	21.5 mg/L
Probable source of pollution/City	Bangalore
Population as per 2011 Census	8443675
Population Growth per decade	15.60%
Estimated Population for 2021	9778620
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	1056
Exsting STP Capacity(MLD)	721
Additional STP capacity Required (MLD)	335

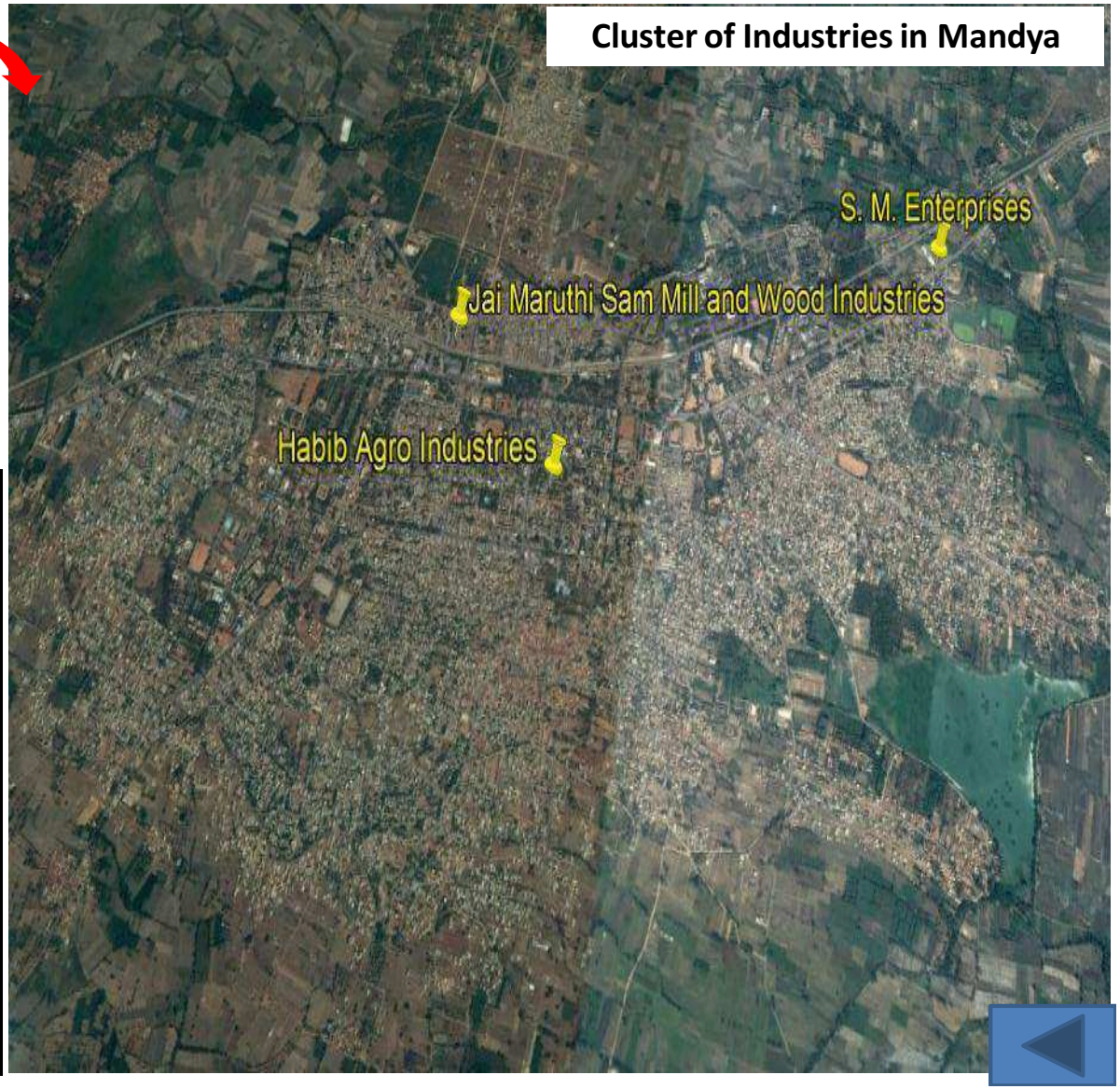
Cluster of Industries in Benguluru

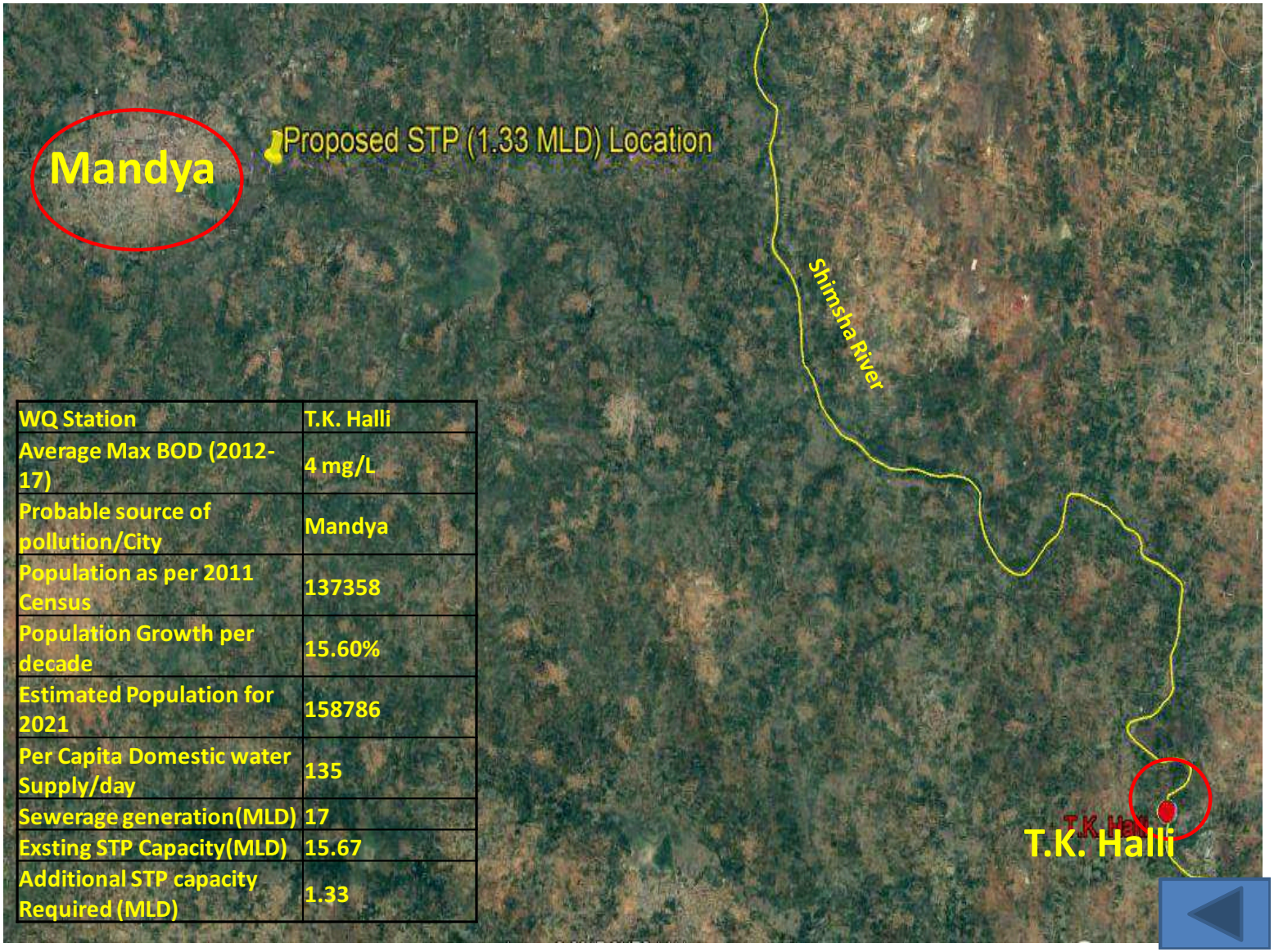




WQ Station	T. Bekuppe
Average Max BOD (2012-17)	21.5 mg/L
Probable source of pollution/City	Bangalore
Population as per 2011 Census	8443675
Population Growth per decade	15.60%
Estimated Population for 2021	9778620
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	1056
Exsting STP Capacity(MLD)	721
Additional STP capacity Required (MLD)	335

WQ Station	T.K. Halli
Average Max BOD (2012-17)	4 mg/L
Probable source of pollution/City	Mandya
Population as per 2011 Census	137358
Population Growth per decade	15.60%
Estimated Population for 2021	159074
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	17.2
Exsting STP Capacity(MLD)	15.67
Additional STP capacity Required (MLD)	2

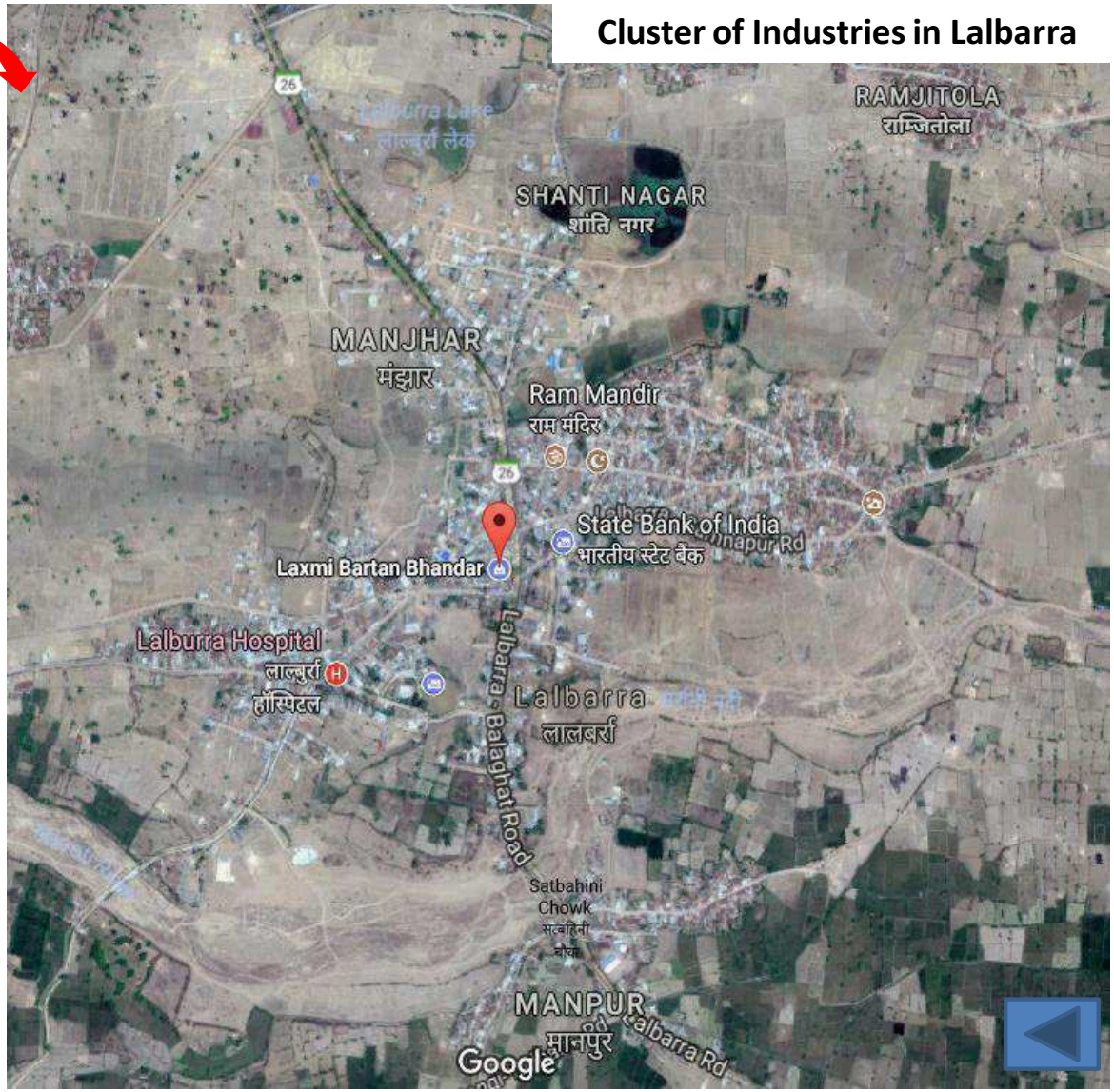


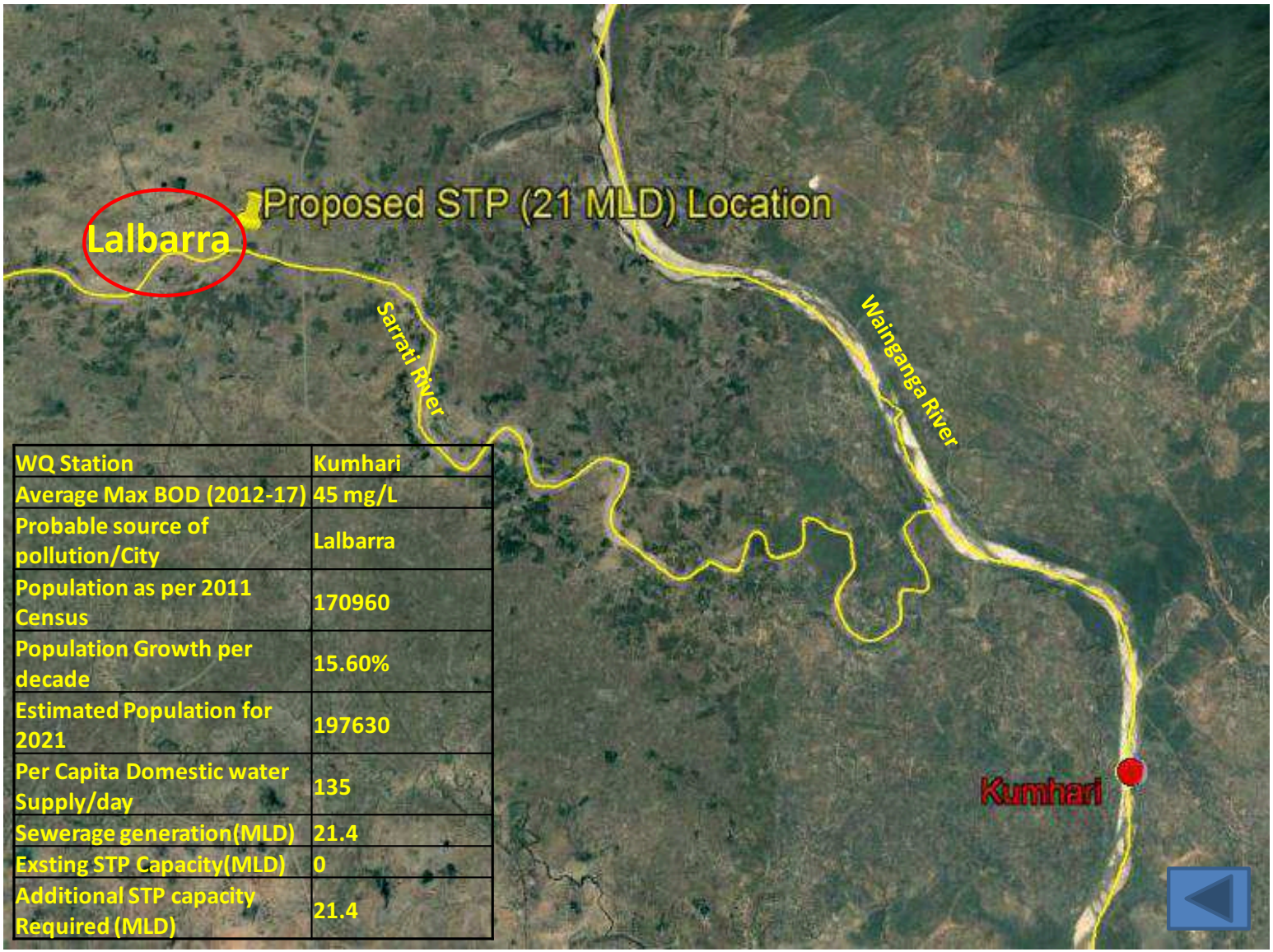


WQ Station	T.K. Halli
Average Max BOD (2012-17)	4 mg/L
Probable source of pollution/City	Mandya
Population as per 2011 Census	137358
Population Growth per decade	15.60%
Estimated Population for 2021	158786
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	17
Exsting STP Capacity(MLD)	15.67
Additional STP capacity Required (MLD)	1.33

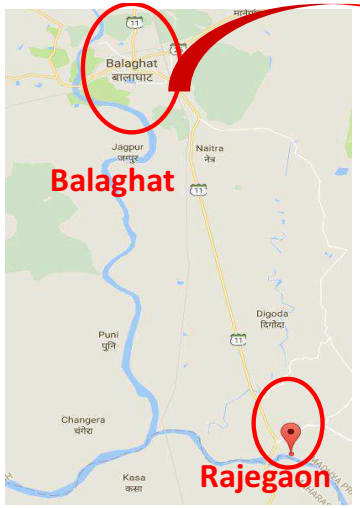
WQ Station	Kumhari
Average Max BOD (2012-17)	45 mg/L
Probable source of pollution/City	Lalbarra
Population as per 2011 Census	170960
Population Growth per decade	15.60%
Estimated Population for 2021	197630
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	21.4
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	21.4

Cluster of Industries in Lalbarra



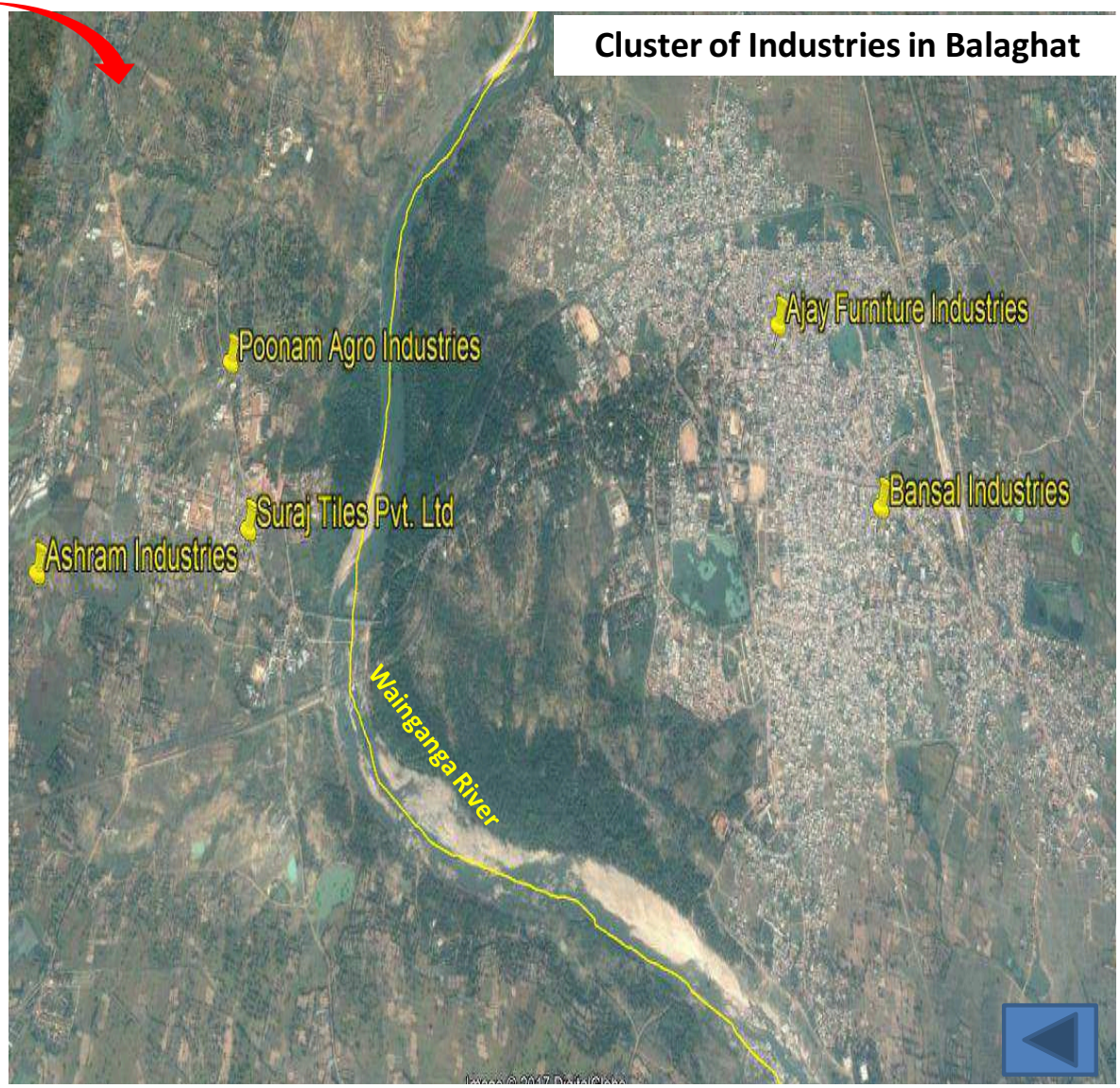


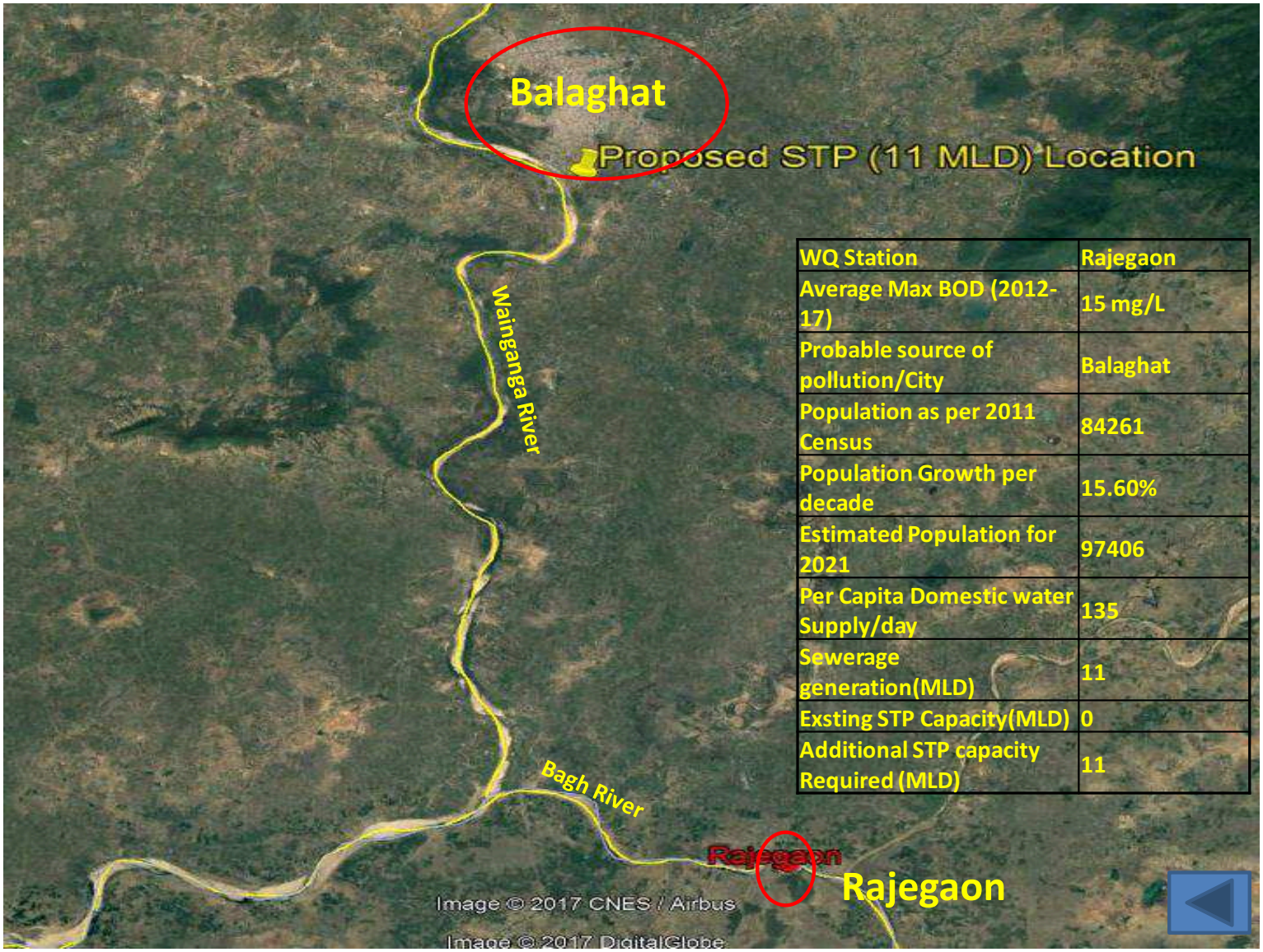
WQ Station	Kumhari
Average Max BOD (2012-17)	45 mg/L
Probable source of pollution/City	Lalbarra
Population as per 2011 Census	170960
Population Growth per decade	15.60%
Estimated Population for 2021	197630
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	21.4
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	21.4



WQ Station	Rajegaon
Average Max BOD (2012-17)	15 mg/L
Probable source of pollution/City	Balaghat
Population as per 2011 Census	84261
Population Growth per decade	15.60%
Estimated Population for 2021	97406
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	11
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	11

Cluster of Industries in Balaghat

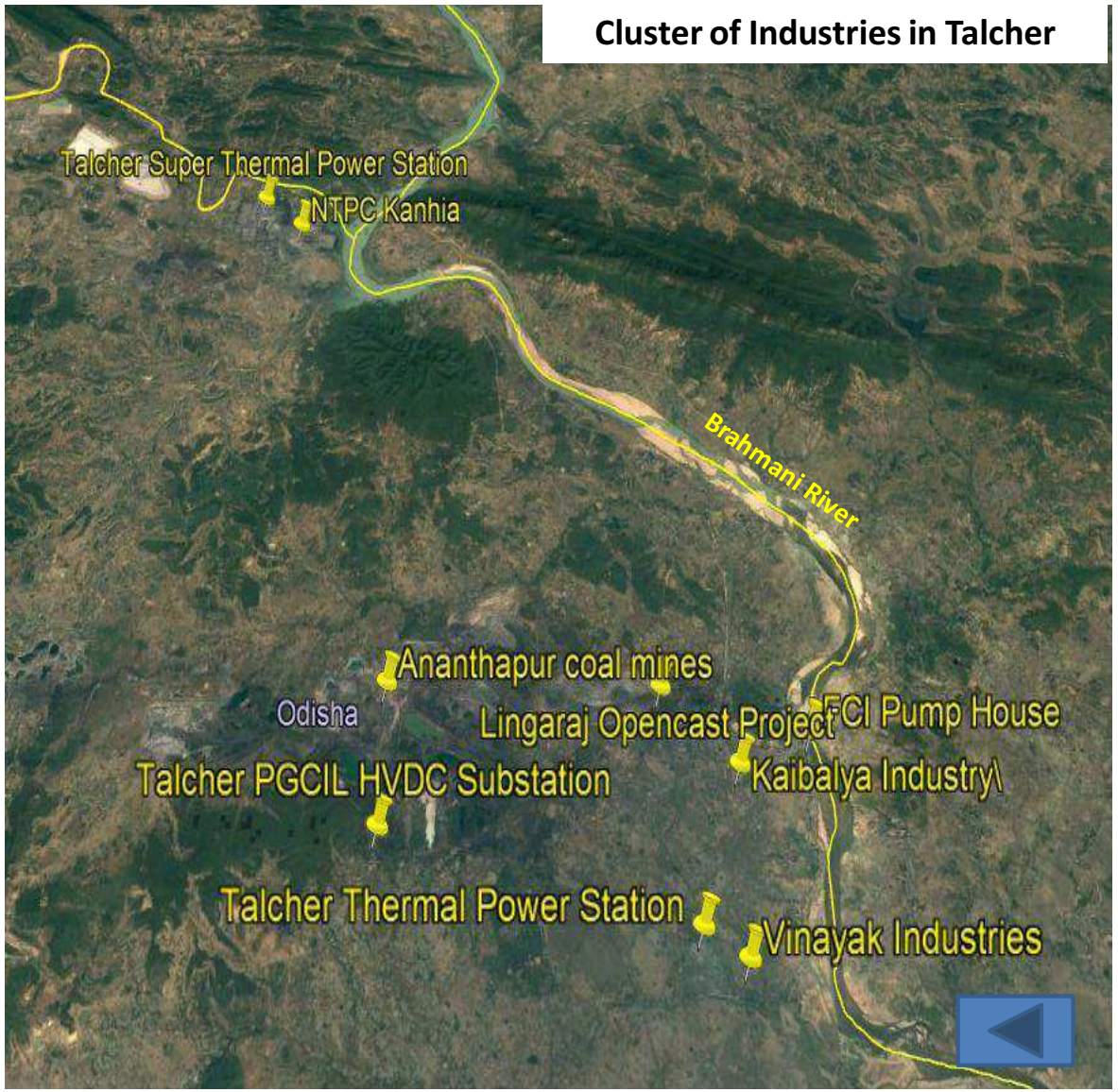


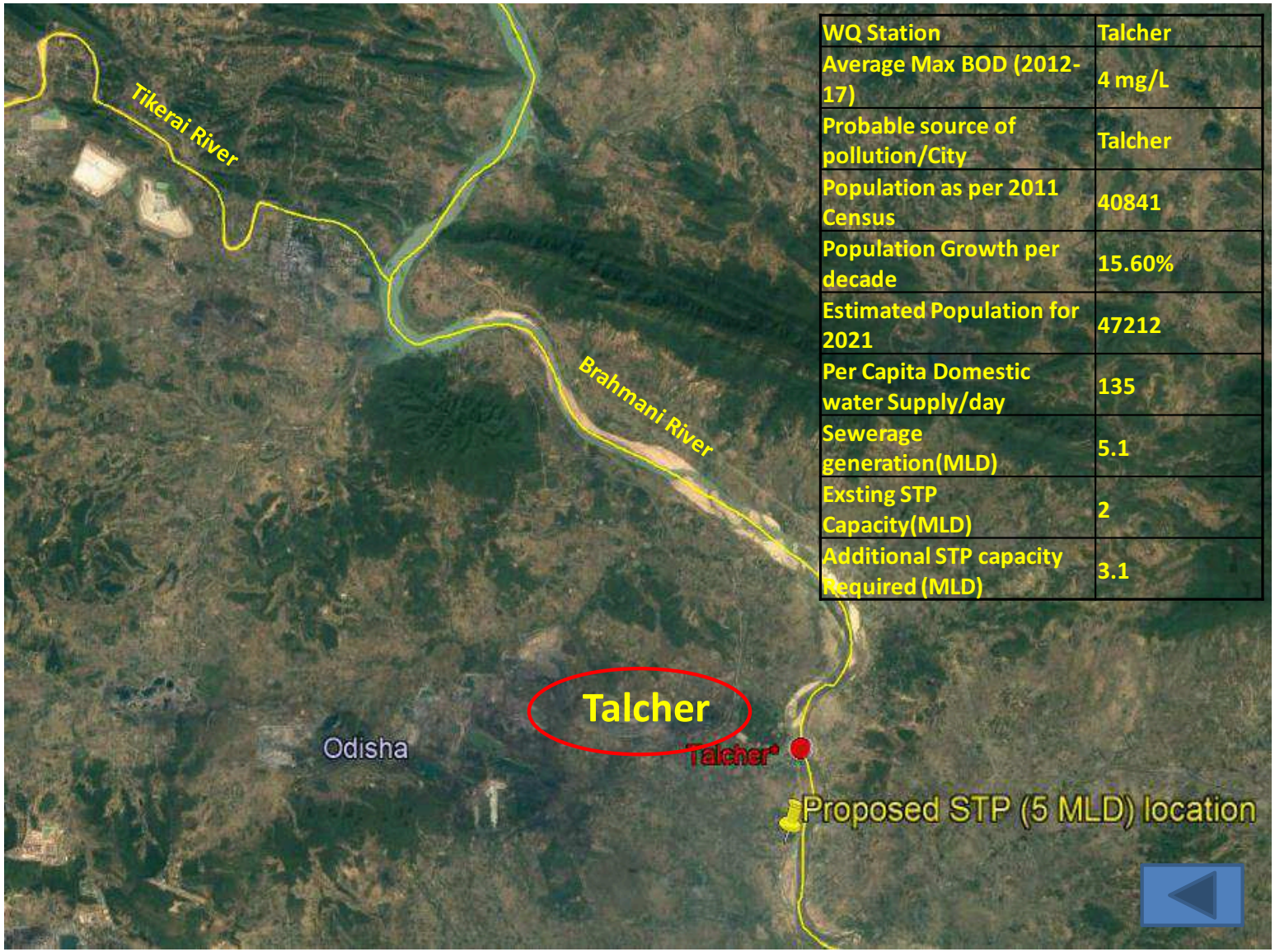


WQ Station	Rajegaon
Average Max BOD (2012-17)	15 mg/L
Probable source of pollution/City	Balaghat
Population as per 2011 Census	84261
Population Growth per decade	15.60%
Estimated Population for 2021	97406
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	11
Exsting STP Capacity(MLD)	0
Additional STP capacity Required (MLD)	11

WQ Station	Talcher
Average Max BOD (2012-17)	4 mg/L
Probable source of pollution/City	Talcher
Population as per 2011 Census	40841
Population Growth per decade	15.60%
Estimated Population for 2021	47212
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	5.1
Exsting STP Capacity(MLD)	2
Additional STP capacity Required (MLD)	3.1

Cluster of Industries in Talcher





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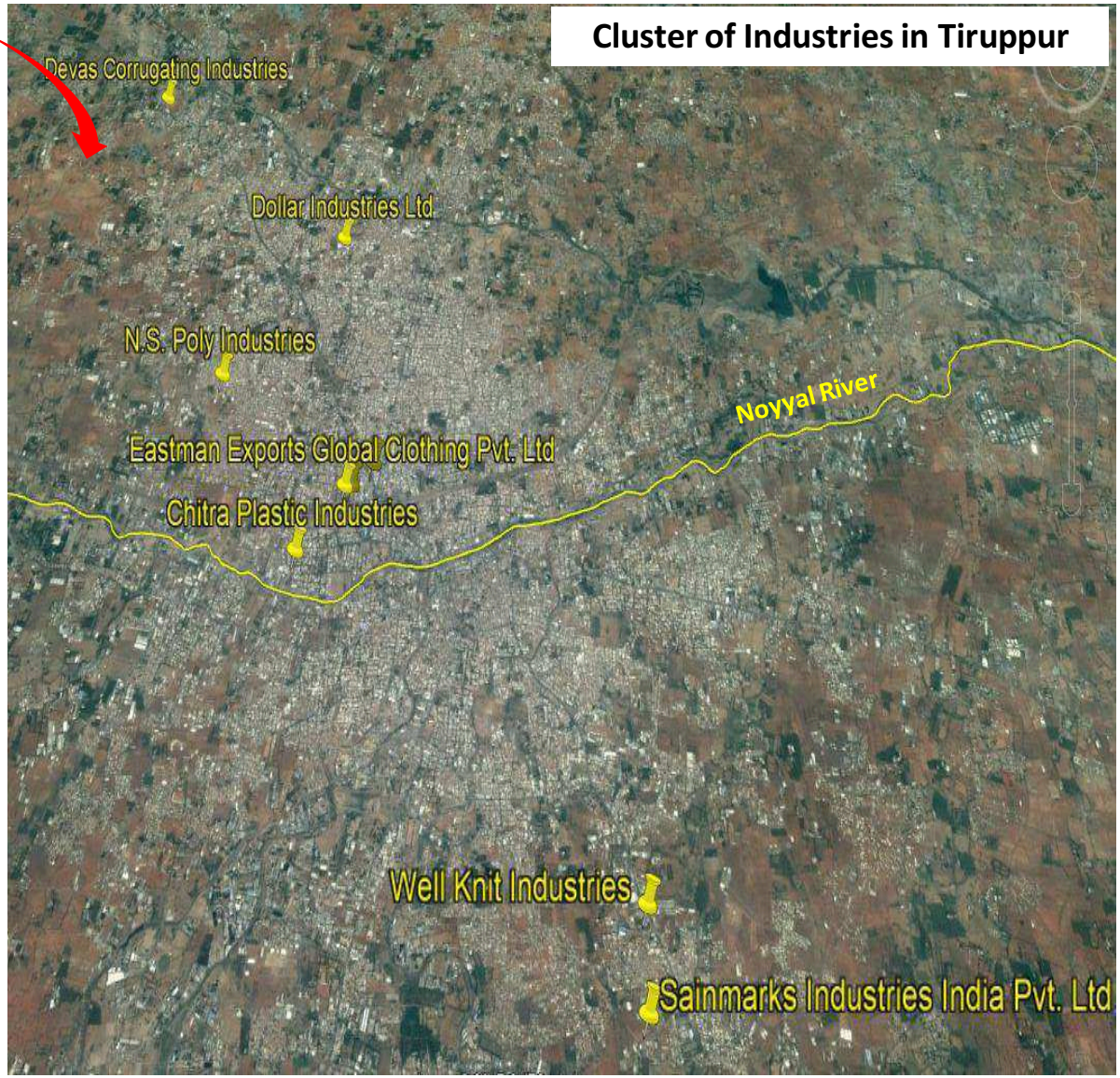
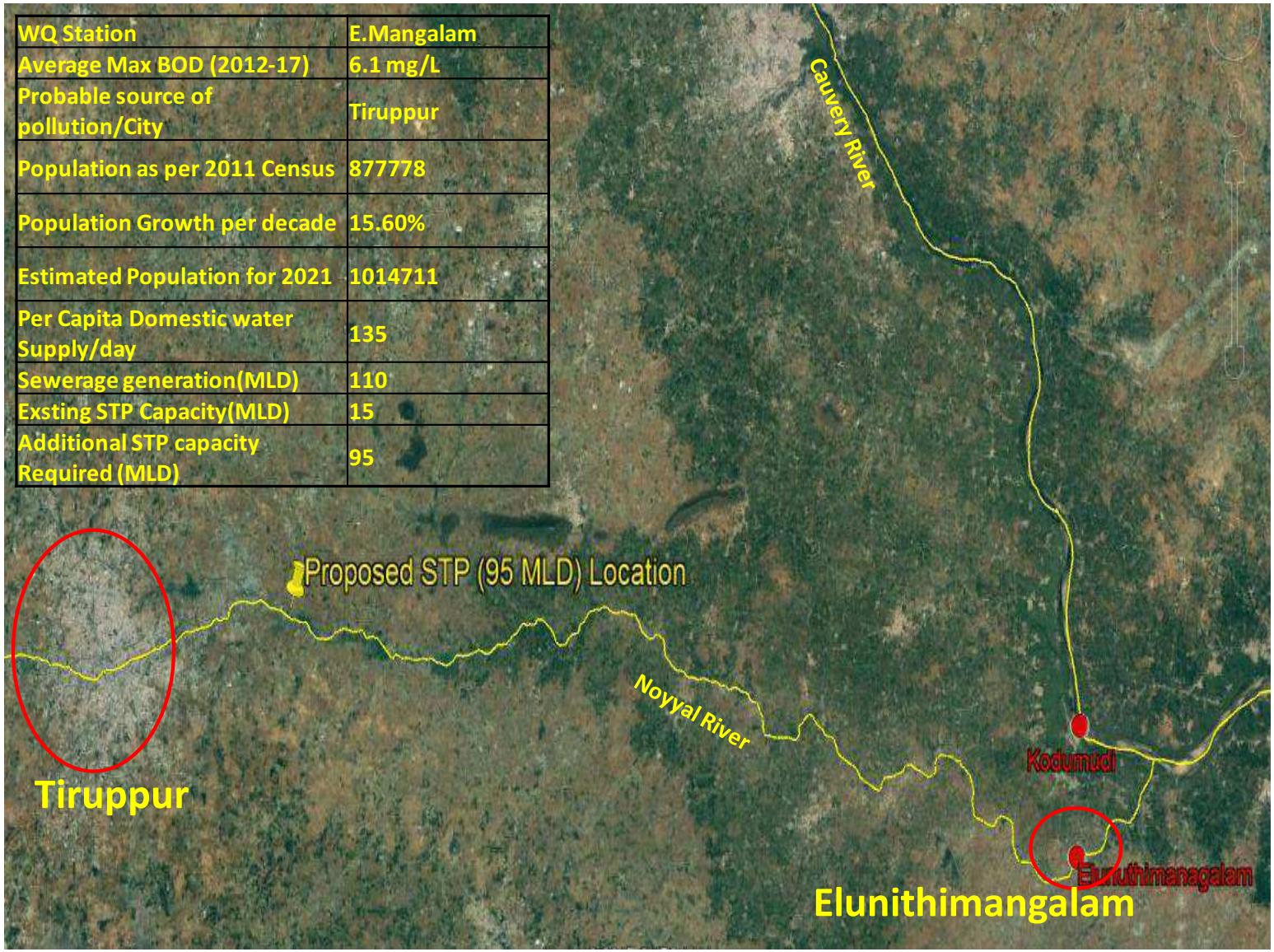
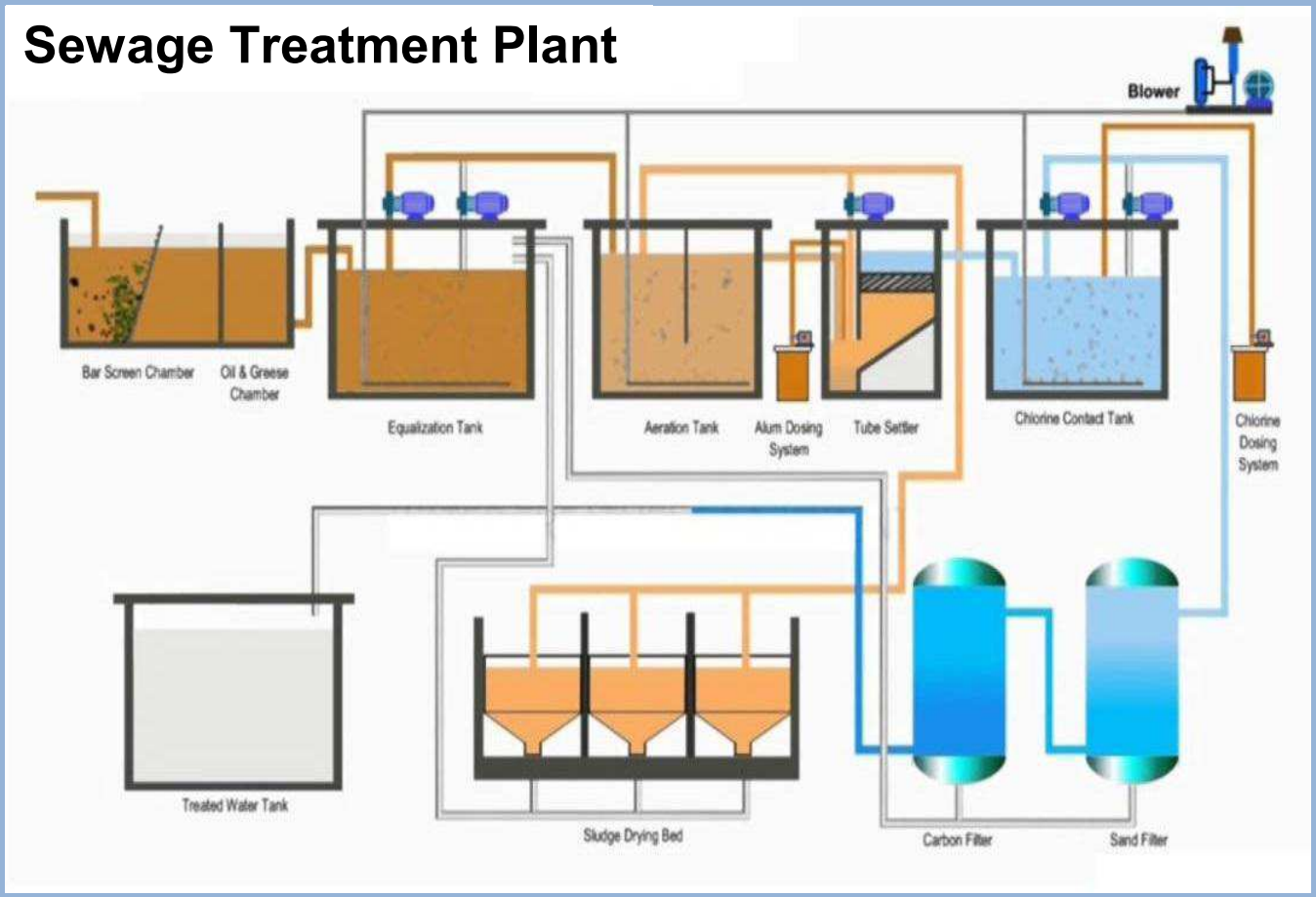
WQ Station	E.Mangalam
Average Max BOD (2012-17)	6.1 mg/L
Probable source of pollution/City	Tiruppur
Population as per 2011 Census	877778
Population Growth per decade	15.60%
Estimated Population for 2021	1014711
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	110
Exsting STP Capacity(MLD)	15
Additional STP capacity Required (MLD)	95



WQ Station	E.Mangalam
Average Max BOD (2012-17)	6.1 mg/L
Probable source of pollution/City	Tiruppur
Population as per 2011 Census	877778
Population Growth per decade	15.60%
Estimated Population for 2021	1014711
Per Capita Domestic water Supply/day	135
Sewerage generation(MLD)	110
Exsting STP Capacity(MLD)	15
Additional STP capacity Required (MLD)	95



Sewage Treatment Plant



CENTRAL WATER COMMISSION
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