

RESTORATION OF POLLUTED RIVER STRETCHES

CONCEPT & PLAN



Central Pollution Control Board

(Ministry of Environment, Forest & Climate Change, Govt. of India)

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ABBREVIATIONS

BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
CPCB	Central Pollution Control Board
CETPs	Common Effluent Treatment Plant
DPR	Detailed Project Report
ETPs	Effluent Treatment Plant
E(P)A	Environmental Protection Act , 1986
FC	Feacal Coliform
MoEF&CC	Ministry of Environment, Forest & Climate Change
MLD	Million Litres Per Day
NRCP	National River Conservation Plan
NWMP	National Water Quality Monitoring Programme
PCC	Pollution Control Committee
STPs	Sewage Treatment Plants
SS	Suspended Solids
SPCB	State Pollution Control Board
TC	Total Coliform
ZLD	Zero Liquid Discharge

RESTORATION OF POLLUTED RIVER STRETCHES

1.0 Background

Water is essential for thriving of people, it is needed for domestic purposes, agricultural, industrial and energy production and these uses are highly inter-linked and sometimes in competition to each other use. Water consumption pattern in India is around 90% in agriculture, 6% in domestic and 4% for industrial use. Usage of water by industrial and domestic purposes generates wastewater that may cause pollution, however agriculture usage largely remains consumptive.

The key challenges to better management of the water quality in India are temporal and spatial variation of rainfall, improper management of surface runoff, uneven geographic distribution of surface water resources, persistent droughts, overuse of ground water and contamination, drainage & salinization and water quality problems due to treated, partially treated and untreated wastewater discharge from urban settlements, industrial establishments and runoff from irrigation sector besides poor management of municipal solid waste and animal dung in rural areas.

India, being an economy in transition from developing to developed nation, is faced with two problems. On one side, lack of infrastructure and on the other, an ever-increasing urban population. The urban population in India was about 387 million in 2011 and rose to about 420 million by 2017. This has thrown up two self-perpetuating problems viz. shortage of water and sewage overload. It is estimated that by 2050, more than 50% of the country's population estimated as 1000 million will live in cities and towns and thus the likely demand for infrastructure facilities including fresh water for drinking and resultant wastewater discharges are expected to rise sharply posing a challenge to urban planners, policy makers, environmental regulators and managers.

Public services could not keep pace with rapid urbanization. Water supply, sanitation measure, management of sewage and solid wastes could cover a fraction of total urban population. The majority of towns and cities have no sewerage and sewage treatment services. Many cities have expanded beyond municipalities, but the new urban agglomerations remain under rural administrations, which do not have capacity to handle the sewage. The sewage is either directly dumped into rivers or lakes or in the open field.

1.1 Availability of Water

The fresh water resources forming rivers, lakes and enriching aquifer through inflow from water sheds. Water shed retain the rain water through trees, bushes and grass land which infiltrate to subsurface and the surface water flow from the land mass by gravity action. Degradation of water shed in terms of tree cutting, cattle grazing etc. is

leading to less infiltration of rain water and abstraction of surface and ground water in excess to the infiltration is reducing outflow from the water shed that ultimately reduce perennial flow in the rivers and streams in plains.

Water that supports productive activities such as; agriculture, generation of hydro power, municipal drinking water supply, industrial consumptive and non-consumptive use etc. have competitive demand that leads to no flow or very meagre flow in the rivers and streams for sustaining environmental concerns.

1.2 Pattern of Precipitation & Lean Flows

The rain fall pattern in the sub-continent of India varies widely from West to East and the average rain fall days are forty in a year. This rain fall pattern leads to flooding during monsoon season in the rivers and streams whereas lean flow period remains for nine to ten months. The lean flow period is unable to sustain the competing uses on one hand and leading to pollution in the rivers and streams on the other hand due to lack of infrastructure for handling/treating municipal as well as industrial effluents.

In view of wide variability in rain fall pattern and few rain fall days in a year, conservation of water by application of water shed management practices will improve water retention capacity as soil moisture in the root zone of trees and grass land by building bunds across gullies and furrows to retain rain water. The water retention structures will increase infiltration, water holding capacity and prevent soil erosion. In this way an appreciable amount of precipitation which is generally lost as a surface flow, can be harvested and stored in the water shed for beneficial purposes during non-monsoon months.

1.3 Water Quality Assessment

Water Quality Assessment activities have provided base line information in respect of water bodies covered under the network locations. Water quality in rivers is deteriorating due to depleting water flow, aggravated by discharge of pollutants from domestic sewage, industrial effluents and run-off from agriculture. Most of the surface water bodies in the country are contaminated to some extent due to organic pollutants and bacteriological contamination. 317 polluted river stretches on 293 rivers and tributaries have been identified and enclosed at (**Annexure I – Table 1to5**).

The monitoring locations not meeting the water quality criteria have been identified as polluted and the sources of pollution are identified for intervention to contain the discharges. The river action plans are formed on the basis of source identification and enforcement of discharge standards.

The identified rivers are not polluted in its entire length but the locations or segments are polluted downstream of urban centers i.e. cities or towns, after meeting a polluted tributary, drains or any nearby point source.

2.0 Sources of Pollution

Broadly sources of pollution are categorized as point sources and non-point sources. Point sources impacting the water resources in a significant manner whereas non-point sources are contributing only during the monsoon season or the rainy days which are confined to 40 monsoon days in the large part of Indian sub-continent. Thus the control of pollution from point sources is the prime requirement and accordingly required to be prioritized.

2.1 Municipal Waste Water

Water pollution from untreated municipal wastewater is an enormous problem in India with grave implications for public health as well as environmental quality. Even the largest cities are struggling to put in place expensive wastewater treatment systems and associated infrastructure. It is implausible that such expensive infrastructure can contribute meaningfully to the water pollution and sanitation challenge in smaller towns and rural areas in the foreseeable future. Low-cost, decentralized, wetland-based bio-treatment systems have strong potential to dramatically improve the water quality and sanitation problems facing much of India. Scientific research has shown that well designed bio-treatment systems have good performance in terms of removing pollutants from municipal wastewater. Moreover, they are low-cost, quick to deploy, and easy to operate and maintain, making them ideal for India's sanitation context. They can be used extensively in rural areas, small towns, peri-urban areas of large cities, industrial townships or institutional campuses, as well as for certain types of industries such as agro-food/beverage. In addition to contribution towards improved public health and water quality, this approach has additional potential co-benefits such as employment generation and availability of treated wastewater for irrigation that can increase farm productivity and incomes. However, these potential benefits can only be realized if such bio-treatment systems are deployed widely. Prospects of large scale deployment of bio-treatment systems including potential challenges, sources of finance, manpower, appropriate government interventions and civil society support needs to be considered. These approaches have the potential to contribute significantly to the goal of important government programs such as the Swachh Bharat Mission as well as our commitment to Sustainable Development Goals.

2.1.1 Municipal Wastewater Generation and Treatment

It is estimated that 30042 million litres per day (MLD) of domestic sewage is generated from urban areas along the polluted river stretches. The installed sewage treatment capacity is about 16846 MLD leaving a gap of about 13196 MLD (43.9%)

Sewage generation and treatment capacity of the identified cities and towns along the polluted river locations have been compiled and observed that there is large gap in the system hence treated/untreated and partially treated municipal wastewater is flowing into nearby rivers causing pollution in the downstream reaches (**Annexure II & III**).

There are issues with regard to regular operation of these STPs and compliance to discharge standards. The new Effluent discharge standards (applicable to all mode of disposal) for sewage treatment plants has been notified by Ministry of Environment, Forest and Climate Change under the Environment (Protection) Act, 1986 vide G.S.R. 1265 (E) dated 13th October, 2017 (pH 6.5 -9.0; BOD-20 mg/ (metro cities and as mentioned in the notification) and 30 mg/l (areas /regions other than mentioned in the notification); Total Suspended Solids <50 mg/ (metro cities and as mentioned in the notification) and <100 mg/l (areas /regions other than mentioned in the notification) and Faecal Coliform (MPN/100ml)<1000 mg/l (anywhere in the country) with an objective to encourage use of treated water for non-potable domestic, commercial or industrial use as well as to provide better assimilating capacity to receiving water bodies. Limitations in managing the treatment of domestic wastewater in the country are attributed to:

- Lack of sewerage systems for collection and conveyance of sewage (open storm water drains carry city sewage in many cities)
- Non availability of STPs
- Inappropriate technology and capacity of STPs
- Non-prioritization of wastewater treatment (focus has been on supply of drinking water rather than wastewater treatment)
- No revenue source to meet the management cost of sewage
- Limitation of skilled manpower, technical know-how on operation
- Non-sustainable approach in design of Sewage management projects
- Water not considered as valuable resources and the concept of Reuse, Recycle & Recovery not imbibed in project design
- Energy recovery potential not envisaged (there is a potential to meet up to 50% of the energy requirement through captive generation)
- Multiple agencies are not making efforts for meeting the objectives
- ULBs are so far immune to enforcement and regulatory provisions
- Lack of awareness on consequences

2.2 Industrial Effluents (Wastewater) Discharges and Management Aspect

As per an estimate carried by CPCB in the year 2005, about 11000 MLD of wastewater

is generated alone from 17 categories of medium and large scale industries. The quantity of industrial discharge has increased many folds over the years in all sectors thus requires comprehensive assessment. Discharge of untreated industrial wastewater through open drains has potential for soil and groundwater contamination. One of the main challenges in control of wastewater pollution from industries is non-compliance to discharge standards; the reasons for such non-compliance may be attributed to:

- Inadequate capacity of ETPs
- Improper selection of treatment technologies
- Poor operation and maintenance of ETP
- Lack of priority or ETP considered as financial liability (Cost centred)
- Failure of regulators to identify the short-comings
- Exploitation of resource limitation of regulators
- Lack of environmental consciousness or self-regulation by industry

2.2.1 Common Effluent Treatment Plant (CETP)

There are large number of highly polluting small scale industries such as tanneries, textile, electroplating, dye & dye intermediates, food processing etc., which exists in clusters in industrial estates. These industries collectively have high pollution potential on receiving environment. Having limited financial resources at their disposal in individual capacity, CETPs (Common Effluent Treatment Plants) are a viable option for SSI units for management of cluster origin industrial wastewater.

Various schemes of Government have been facilitating and encouraging CETPs, over past 2 decades. The number of CETPs increased from 88 facilities (with a capacity of 560 MLD) in the year 2005 to 193 facilities with treatment capacity of 1500 MLD. However, achievement of satisfactory performance has been a challenge, including non-compliance to standards due to (i) discharge of recalcitrant effluent from heterogeneous chemical industrial sources and (ii) non-compliance to inlet water quality by member industries.

There is huge potential for utilization of treated wastewater as resource in agriculture, non-potable urban and Industrial use. Keeping this in view, CPCB has prescribed guidelines for adoption of zero liquid discharges (ZLD) for major water polluting industries. Details of Common Effluent Treatment Plants in the country are enclosed (**Annexure IV**)

3.0 Legal and Institutional Provision to Control Pollution

Government of India has enacted various Acts and assigned functions to Ministries of Water resources, Urban Development and Environment, Forest & Climate Change to achieve sustainable consumptions and usage of water resources. The Water

(Prevention and Control of Pollution) Act, 1974 specifies provision for prevention and control of water pollution and maintaining or restoring of wholesomeness of water. The Water Act also confers the powers and functions to Central and State Pollution Control Boards to achieve the objective.

The Water Act mandates the Boards to plan and execute nationwide programme for prevention, control or abatement of pollution, disseminate information and knowledge by publishing technical documents and lay down standards for regulatory purpose.

Water quality of natural environment (river, lakes and other water bodies) are mandated under the provisions of environmental acts. The Water (Prevention & Control of Pollution) Act, 1974 has elaborated on the restoration and maintenance of wholesomeness of water. The wholesomeness has been defined for practical purposes by CPCB in the form of designated best uses of water with a set of parameters and their limits. The water quality assessment and its interpretation have highlighted the compliance of water for designated uses and the exceedance of one or more parameter have been defined as polluted. The regulatory provisions under The Water Act, 1974 are enshrined in section 18 for the Central Govt. Water being the state subject, the enforcement is largely confined to the State Govt. Authorities (i.e. SPCB/PCC).

The legal and institutional provisions are provided in Water (Prevention and Control of Pollution) Act 1974 wherein standards are developed and enforced for treatment of municipal wastewater by Pollution Control Boards. There are provisions for tightening of standards by State Pollution Control Board for site specific requirements, in view of low flow or no flow in stretches of rivers or streams and for critically polluted areas in view of high concentration of pollution loads in a specific area. The need based directions for zero discharge are prescribed for grossly polluting industrial units however such enforcements are non-implementable in case of municipal bodies. The concept of delinking of sewer to river is gaining momentum in river conservation plans and may bring visible improvement in water quality of recipient's water bodies. There is however a need of making the rivers and streams perennial by introduction of minimum/environmental/ecological flows for maintaining the biodiversity and sustainable ecosystem of aquatic resources through institutional provisions.

4.0 Restoration of Polluted River Stretches

Plan for restoration of polluted river stretches can be executed through two fold concepts. One concept may target for enhancement of river flow through interventions on the water sheds/catchment areas for conservation and recharge of rain water for subsequent releases during lean flow period in a year. This concept will work on dilution of pollutants in the rivers and streams to reduce concentration to meet desired level of water quality. Other concept of regulation and enforcement of standards in conjunction with the available flow in rivers /streams and allocation of discharges with stipulated norms.

4.1 Plan for Water Shed Management to Conserve Water & Augment Flows

The water quality assessment of aquatic resources on long term basis provided information on the segments of rivers that are not meeting water quality criteria and have been identified as polluted. Assessment studies carried out on the sources of pollution in the rivers has highlighted the need for creation of infrastructure facilities (STPs /CETPs/ETPs) for management of wastewater in line with low flow or no flow of fresh water in the rivers and streams; and waste water flows make the river perennial.

In order to have a practical solution to augment non-monsoon availability of water, it is necessary to go through four phases for full scale water shed management in the upper reaches of catchment of the rivers and streams. The suggested phases for water shed management may be (1) Recognition phase (2) Restoration phase (3) Protection phase (4) Improvement phase as detailed below:

Recognition Phase Identification and recognition of the problem, analysis of the cause of the problem and its effect and development of alternative solutions of problem.

Restoration Phase includes two main steps viz. Selection of best solution to problems identified and application of the solution to the problems of the land.

Protection Phase takes care of the general health of the watershed and ensures normal functioning. The protection is against all factors which may cause detrimental in watershed condition.

Improvement phase deals with overall improvement in the watershed and all land is covered. Attention is paid to agriculture and forest management and production, forage production and pasture management, socio economic conditions to achieve the objectives of watershed management.

Various initiatives have been taken by CPCB to reduce water demand from industry by promoting/stipulating ZLD, water conservation and recycling/reuse/recovery measures. The response and results of such measures have been encouraging. In Ganga basin, 35 Distilleries have achieved ZLD, and in Paper & Pulp sector about 30% of water consumption has reduced. Measures to minimize the water discharge from sugar industries have been also identified and based on the feasibility, sugar industries were directed to reduce water consumption to 220 l/ton of cane crushed.

All CETPs (Textile and Tanneries) in Tamil Nadu are either in the process of and/or are operating on ZLD system. The recovered water from the ZLD system suffices water demand of industries at cheaper cost.

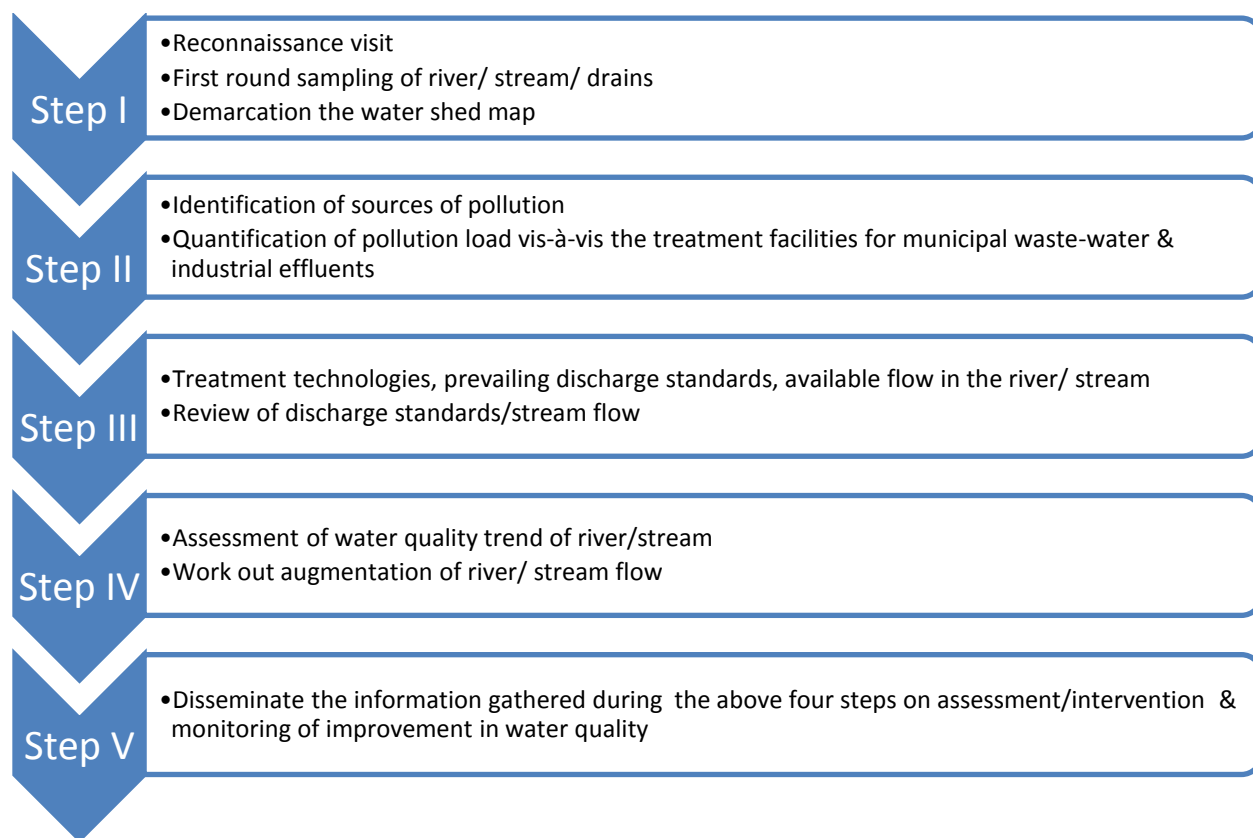
4.2 Plan for Restoration of Water Quality-Promotional and Statutory intervention

Polluted river stretches throughout the country have been identified for restoration of water quality through identification of sources of pollution and interventions through treatment for the municipal as well as industrial effluents.

The river restoration action plans are designed for control of pollution and to restore the water quality of the rivers. The infrastructure development for treatment of sewage always remains short of the waste water generation. The ever growing population and increasing water use in the urban centers has outpaced the plan for creation of infrastructure. The river action plans although have not improve the quality of the water resources however in absence of such plans, the quality of aquatic resources would have been further deteriorated.

4.2.1 Restoration Plan- Promotional Intervention

The restoration plan may have a number of steps as detailed below



Above stated broad concept shall be followed in the development of water quality management plan for polluted rivers and the respective stretches of the rivers

4.2.2 Restoration Plan: - Statutory Intervention

Water quality management through setting up of standards for discharge of municipal wastewater and industrial effluents are enforced through the Water Act in the form of consent to establish and consent to operate require a fresh look in view of ambient water quality requirements of aquatic resources. The prevailing standards prescribed in the consent to industrial sector and general discharge standards adopted for sewage treatment require change in approach from consumption to disposal to treat, recycle, reuse and discharge to aquatic system if matches with the norms of water quality of aquatic resources.

Polluted river Hindon stretches have been targeted for restoration of water quality through identification of sources of pollution and interventions through treatment for the municipal as well as industrial effluents.

5.0 Identification of Water Shed for Experimentation

The river Hindon is one of the polluted river identified through National Water Quality Monitoring Programme and for restoration of its quality, it is proposed to begin with the reconnaissance survey from its origin (Shivalik foot hills) to its confluence with river Yamuna. The proposed activity shall be carried out in association with the SPCB of U.P. The available information in CPCB with respect of sewage generation and sewage treatment capacity shall be verified. The information in respect of industrial units will be gathered from regional offices of U.P.PCB.

The monitoring will be carried out for detailed assessment of sources of pollution and to explore the possible options to improve the river water quality. A preliminary report will be prepared for embarking on the second step of the plan activity.

Water Quality Assessment activities have provided base line information in respect of water bodies covered under the network locations. The monitoring locations not meeting the water quality criteria have been identified as polluted and the sources of pollution are identified for intervention to contain the discharges. The river action plans are formed on the basis of source identification and enforcement of discharge standards.

Among the polluted rivers, river Hindon has been taken up as a model for preparation of plan for restoration of water quality (**Annexure-V River Hindon-Restoration Plan**).

River Hindon in the upper reach from its origin till it enters the plains in Saharanpur District in U.P. thus may be considered for water shed development to augment the flow of its origin through respective State Department of Forest, Agriculture, Irrigation and Flood Control, Soil Conservation and State Pollution Control Board.

Step taken for improvement of water quality are provided herewith;

1. Directions issued to SPCB under Section 18 (1) (b) for planning and execution of facilities by municipal authorities to develop infrastructure for Sewage treatment.
2. Directions issued to Municipal Corporation, Ghaziabad under Section 5 of E(P) Act 1986 for planning and execution of facilities by municipal authorities to develop infrastructure for Sewage treatment.
3. Directions on polluted river stretches (including River Hindon) issued to UP PCB for assessment of sources of pollution and to plan and execute enforcement of standards for treatment of municipal sewage and industrial establishments to consent management.
4. Directions issued for setting up of online monitoring system in the industrial units for enforcement of prescribed standards.
5. Directions issued for ZLD in respect of distillery units and specific plan is under implementation with respect to industrial sectors such as Pulp & Paper, Textile and Sugar.

6.0 Time Targeted Management Plan

1. Review the consent conditions for the industrial units and suggest the parameters in compliance to water quality requirement viz. discharge of BOD not more than 10mg/l, COD 50 mg/l and Suspended Solids 10 mg/l.
2. Review the design standards for STPs and suggest the parameters in compliance to Water Quality requirement viz. pH 6.5 -9.0; BOD-20 mg/ (metro cities and as mentioned in the notification) and 30 mg/l (areas /regions other than mentioned in the notification); Total Suspended Solids <50 mg/ (metro cities and as mentioned in the notification) and <100 mg/l (areas /regions other than mentioned in the notification) and Faecal Coliform (MPN/100ml)<1000 mg/l (anywhere in the country).
3. Explore possibility to create storages in the water shed of River for release of water during non-monsoon period.
4. A sample timeline is prepared for implementation of model restoration plan. The suggested parameters may be implemented within a time frame of one year.
(Annexure VI)

The main components of the plan are (i) Recognition Phase for gathering of information on identified polluted river stretch, reconnaissance survey sampling of river and assessment of water quality; (ii) Restoration Phase for preparation of detailed project report, identification of sources of pollution and in-situ bioremediation of drains; (iii) Protection Phase on assessment of treatment technologies, available river flow, prevailing discharge standards, setting up of Sewage Treatment Plants (STPs)/Effluent

Treatment Plants (ETPs), setting up tertiary level sewage treatment facilities for grossly polluted stretches devoid of perennial fresh water flow and (iv) Improvement Phase to augment river flow.

7.0 Cost Component Involved in the Restoration of Polluted Stretch

Cost component shall be an integral part of Detailed Project report. Most of the cities and towns are deficient in treatment of its total sewage generated. In order to cater each identified town on the bank of polluted rivers and gaps observed between total sewage generated and treatment capacity needs to be considered for planning. Cost component shall invariably depend towards construction, operation and maintenance of sewage treatment plant. On an average Rs 2.50 Crore has been estimated as Capital cost (for primary, secondary and tertiary treatment) excluding Operation and maintenance cost for all the available conventional and recent technologies. In some cities and towns developed capacity of STP is fully or partially underutilized due to inadequate sewerage network and other perpetual issues.

As per the study conducted in the year 2015, the sum total of sewage generation from 659 towns is 30042 MLD and available treatment capacity is 16846 MLD along the rivers. The gap of 13196 MLD needs to be catered under restoration plan to maintain the water quality of the recipient rivers for prevention and control of pollution. Total estimated cost shall be Rs. 32990 Crore to bridge the gap of sewage treatment in the identified cities and towns along the river.

8.0 Conclusion and Outlook for 2017-22

River restoration plans are formulated for controlling pollution and maintaining the water quality of rivers. Therefore, polluted stretches have been targeted by identifying the sources of pollution and their treatment for municipal and industrial effluents using conventional as well as advanced techniques.

8.1 Reduction of Water Consumption & Policies for Wastewater Treatment

There is need to limit water consumption from all available resources including wastewater by recycling, reuse, recharging and storages, which includes operating on site treatment generators and its reuse. There is urgent need to plan strategies and give thrust to policies giving equal weight age to augmentation of water supplied and development of wastewater treatment facilities.

8.2 Infrastructure for Collection, Treatment and Disposal of Treated Sewage

Municipal wastewater collection, treatment and disposal are still not a priority by the municipalities/ state governments as compared to water supply. In absence of sewer lines, untreated wastewater is flowing in the storm water drain and poses health hazards to citizen inhabited near the drain.

8.3 Operation and Maintenance of STPs/ ETPs

The operation and maintenance of STPs/ETUs are not satisfactory due to uninterrupted power supply/ backup power supply is not ensured, municipal authorities do not have the adequate funds for spares, payment of electricity bills, lack of skilled manpower and most of the plant is underutilized due to lack of sewer lines. The sludge generated from STPs/ETPs is required to be treated and disposed off in accordance with the provisions of E (P) Act 1986. Even the possibility of recovery of methane should be considered wherever possible by adopting environmental friendly technology.

8.4 Enhancement in Existing Treatment Capacity and Commissioning of New STPs Wherever Required

Although municipal waste water treatment is given impetus under National River Conservation Plan (NRCP) of Ministry of Environment, Forest and Climate Change, Government of India to provide sewage treatment plant to cities discharging wastewater in rivers, there is a huge gap between wastewater generation and its treatment.

8.5 Adoption of Suitable Treatment Technologies

There are various issues with treatment technology in addition to management aspects. The primary requirement of treatment aspect is adequate and intermitted supply of electricity which is a deterrent in the present context in almost all the States of the country. The treatment technology selection for different sizes of urban settlement is another issue due to constraint of land availability.

The waste stabilization ponds (oxidation pond, maturation pond and duckweed pond) are most appropriate and rugged systems for small towns having land availability for treatment plant and use of treated wastewater in agriculture land. In large urban settlements having land scarcity for establishment of sewage treatment plant and application of treated sewage for farm application, mechanical treatment systems viz. activated sludge process, trickling filter, up flow anaerobic sludge blanket (UASB), and aerated lagoons are appropriate and produce good results. There are success stories of treatment plants producing reasonably good quality water which is being used in the industrial sector for process as well as cooling purposes thereby reducing demand for fresh water.

8.6 Plan to Deal with Polluted River Stretches

The identified polluted river stretches are classified in five groups based on concentration of organic matter and bacterial pollution present in the water (measured as BOD and Faecal Coliform)

Among the five groups, approach of highest pollution levels in rivers grouped in Priority One (number of polluted stretches- 48) may be taken up wherein big urban

agglomeration (metropolitan cities etc.) require advanced sewage treatment facilities. The large volume of sewage in the big cities along these stretches requires huge sum of financial resources. Accordingly, allocation of funds to address the problem of these polluted stretches requires to be assessed based on detailed studies (DPR)

In the down up approach wherein polluted river stretches in Priority Five (number of polluted stretches-118), and priority four can be taken up with relatively smaller volume of municipal waste water contribution having very less concentration of organic pollution load. These stretches may be addressed through the non-conventional treatment technologies requiring less expenditure and less operation and maintenance cost. Choice of approaches can be taken up based on the availability of resources.

ANNEXURE- I

Table 1: PRIORITY WISE DETAIL OF POLLUTED RIVER STRETCHES& TOWNS

Priority Class	Polluted River Stretches	No. of Towns
I	48	110
II	21	55
III	78	171
IV	52	116
V	118	207
TOTAL	317	659

ANNEXURE- I

Table 2 – Rivers identified Polluted in Stretches

LIST OF POLLUTED RIVERS (293)															
1	AMBA	41	BRAHMAPUTRA	81	GHAGHARA	121	KARMANA	161	MAHANANDA	201	PANAM	241	SIKRANA	281	VENNA
2	AMLAKHADI	42	BUDHABALANGA	82	GHATPRABHA	122	KAROLA	162	MAHE	202	PANCHAGANGA	242	SILABATI	282	VINDYADHARI
3	AMRAVATI (Cauvery)	43	BURHI GANDAK	83	GHOD	123	KARUVANNUR	163	MAHI	203	PANCHNAI	243	SINA	283	WAGHUR
4	AMRAVATI (TAPI)	44	BURHIDIHING	84	GIRI	124	KATHAJODI	164	MALPRABHA	204	PANZARA	244	SINQUERIM	284	WAINGANGA
5	ANAS	45	CAUVERY	85	GIRNA	125	KATHAKAL	165	MAMOM	205	PARVATI	245	SIRSA (BIH)	285	WARDHA
6	ARASALAR	46	CHALAKUDY	86	GODAVARI	126	KAVERI	166	MANAS	206	PATALGANGA	246	SIRSA (HP)	286	WENA
7	ARKAVATHI	47	CHALIYAR	87	GOHAD	127	KEECHERI	167	MANDOVI	207	PAWANA	247	SONAI	287	YAGACHI
8	ASANGI NALLA	48	CHAMBAL	88	GOMAI	128	KERANDI	168	MANER	208	PEDHI	248	SONE	288	YAMUNA
9	ASHWANI	49	CHAMLA	89	GOMTI	129	KHAN	169	MANIMALA	209	PEHLAR	249	SUBANSIRI	289	ZUARI
10	ASSONORA	50	CHANDRABHAGA	90	GOUR	130	KHANDEPAR	170	MANJEERA	210	PENGANGA	250	SUBARNAREKHA	290	RANGIT
11	AYROOR	51	CHAPORA	91	GUMTI	131	KHARASROTA	171	MANUSMAR	211	PENNAR	251	SUKHANA	291	NAMBUL
12	BAGMATI	52	Chathe	92	HAORA	132	KHARKHLA	172	MAPUSA	212	PERIYAR	252	SURYA	292	RANICHU
13	BAITARNI	53	CHENAB	93	HARBORA	133	KHARSANG	173	MATHA BHANGA	213	PILKHAR	253	SUSWA	293	IMPHAL
14	BALESHWAR KHADI	54	CHILLAR	94	HASDEO	134	KICHHA	174	MAYURAKSHI	214	POONPUN	254	SWAN		
15	BANAS	55	CHITTHRAPUZHA	95	HEMAVATI	135	KIM	175	MEENACHIL	215	PURNA (Godavari)	255	TALPONA		
16	BANGANGA	56	CHOUPAN	96	HINDON	136	KINNERSANI	176	MORA BHARALI	216	PURNA (Tapi)	256	TAMBIRAPARANI		
17	BARAK	57	CHUNTKOL	97	HIWARA	137	KOEL	177	MORNA	217	RAM REKHA	257	TANSA		
18	BARAKAR	58	CHURNI	98	IB	138	KOHORA	178	MUCHKUNDI	218	RAMGANGA	258	TAPI		
19	BASANTER	59	CORAPUZHA	99	INDRAYANI	139	KOLAK	179	MULA	219	RANGA	259	TAWI		
20	BEKI	60	DAHA	100	JAI BHARALI	140	KOLAR	180	MULA-MUTHA	220	RANGAVALI	260	TEESTA		
21	BETWA	61	DAMANGANGA	101	JALANGI	141	KOLONG	181	MUSI	221	RAPTI	261	TEL		
22	BHADAR	62	DAMODAR	102	JHANJI	142	KONAR	182	MUTHA	222	RIHAND	262	THIRUMANIMUTHAR		
23	BHADRA	63	DARNA	103	JHELUM	143	KORAYAR	183	MUVATTAPUZHA	223	RUPNARAYAN	263	THIRUR		
24	BHALLA	64	DAYA	104	JUMAR	144	KOSHI	184	MYNTDU	224	RUSHIKULYA	264	TIRACOL		
25	BHARALU	65	DEEPAR BILL	105	KABBANI	145	KOSI	185	NAGAVALLI	225	SABARI	265	TITUR		
26	BHARATHAPUZHA	66	DEVAK	106	KADALUNDY	146	KOYNA	186	NAKKAVAGU	226	SABARMATI	266	TONS (MP)		
27	BHATSA	67	DHADAR	107	KADAMBAYAR	147	KRISHNA	187	NANDAUR	227	SAI	267	TUNGABHADRA		
28	BHAVANI	68	DHANSIRI	108	KAGINA	148	KSHIPRA	188	NARMADA	228	SAL	268	TUNGHA		
29	Bhima	69	DHELA	109	KALINADI (E)	149	KUAKHAI	189	NEELASWARAM	229	SANKH	269	ULHAS		
30	BHOGDOI	70	DHOUS	110	KALJANI	150	KUNDA	190	NEWAJ	230	SANKHA	270	UMKHRAH		
31	BICHIA	71	DIGBOI	111	KALLAI	151	KUNDALIKA	191	NIRA (Godavari)	231	SANKOSH	271	UMSHYRPI		
32	BICHOLIM	72	DIKHOW	112	KALNA	152	KUNDLI	192	NIRA (KRISHNA)	232	SARABANGA	272	UMTREW		
33	BIHAR	73	DISANG	113	KALONG	153	KUNDU	193	NONBAH	233	SARYU	273	URMODI		
34	BINDUSAR	74	DWARAKESHWAR	114	KALU	154	KUSEI	194	PABBAR	234	SATLUJ	274	VAITARNA		
35	BIRUPA	75	DWARKA	115	KAMALA	155	KUSHAWATI	195	PAGLDIA	235	SAVITRI	275	VALVANT		
36	BOGINADI	76	Dzu	116	KAN	156	KUSHIARA	196	PALAR	236	SERUA	276	VAMSHADHARA		
37	BOKARO	77	FARMAR	117	KANHAN	157	LAKSHMANTIRTHA	197	PAMBA	237	SHANKNI	277	VARUNA		
38	BORAK	78	GANDAK	118	KANSI	158	LUKHA RIVER	198	MITHI	238	SHEDHI	278	VASHISTI		
39	BORI	79	GANGA	119	KAPILI	159	MADAI	199	MOGRAL	239	SHIMSHA	279	VASISTA		
40	BRAHMANII	80	GHAGGAR	120	KARAKAVAGU	160	MAHANADI	200	MOR	240	SHIVNA	280	VEL		

ANNEXURE- I

Table 3: -State wise status of Polluted River Stretches and towns identified

State Name	Number of stretches	No. of Towns
Andhra Pradesh	5	10
Assam	31	50
Bihar	15	22
Chhattisgarh	3	11
Daman, Diu, Dadra Nagar Haveli	1	2
Delhi	1	1
Goa	15	21
Gujarat	14	27
Haryana	2	7
Himachal Pradesh	6	10
Jammu & Kashmir	7	16
Jharkhand	6	10
Karnataka	16	23
Kerala	23	34
Madhya Pradesh	20	41
Maharashtra	56	170
Manipur	3	4
Meghalaya	7	7
Nagaland	3	4
Odisha	18	31
Puducherry	1	1
Punjab	2	5
Rajasthan	1	5
Sikkim	3	9
Tamil Nadu	8	24
Telangana	9	19
Tripura	2	4
Uttar Pradesh	13	36
Uttarakhand	9	11
West Bengal	17	44
Total	317	659

Table 4: State wise list of Polluted River Stretches

State Name	Priority I	Priority II	Priority III	Priority IV	Priority V	State Wise
Andhra Pradesh	-	-	-	-	5	5
Assam	6	-	8	6	11	31
Bihar	1	-	3	6	5	15
Chhattisgarh	-	-	-	-	3	3
Daman, Diu, Dadra Nagar Haveli	1	-	-	-	-	1
Delhi	1	-	-	-	-	1
Goa	1	-	10	1	3	15
Gujarat	2	1	1	2	8	14
Haryana	1	-	1	-	-	2
Himachal Pradesh	-	1	2	1	2	6
Jammu & Kashmir	-	1	-	2	4	7
Jharkhand	-	-	-	1	5	6
Karnataka	2	-	2	1	11	16
Kerala	1	1	-	-	21	23
Madhya Pradesh	2	2	-	6	10	20
Maharashtra	1	4	26	13	12	56
Manipur	-	-	-	1	2	3
Meghalaya	2	-	-	3	2	7
Nagaland	-	1	2	-	-	3
Odisha	5	3	10	-	-	18
Puducherry	-	-	-	-	1	1
Punjab	1	1	-	-	-	2
Rajasthan	-	-	1	-	-	1
Sikkim	-	-	-	-	3	3
Tamil Nadu	3	1	-	1	3	8
Telangana	1	2	3	2	1	9
Tripura	-	-	-	-	2	2
Uttar Pradesh	5	-	2	5	1	13
Uttarakhand	3	2	2	-	2	9
West Bengal	9	1	5	1	1	17
	48	21	78	52	118	317

Table 5: DETAILS OF PRIORITY CLASS STRETCH AND TOWNS

NAME OF WATER BODY	TOTAL PRIORITY	STRETCH	TOWNS
GODAVARI	V	RAYANPETA TO RAJAHMUNDRI	RAJAHMUNDRI, RAYANAPETA
KRISHNA	V	AMRAVATHI TO HAMSALA DEEVI	VIJAYWADA
KUNDU	V	NANDYAL TO MADDURU	NANDYAL
PENNNAR	V	TADPATRI TO NELLORE	JAMMALAMADUGU, PRODDATUR, KADAPA
VAMSHADH ARA	V	KOTTURU TO SRIKAKULAM	KOTTURU, PALAKONDA, SRIKAKULAM
BARAK	IV	PANCHGRAM TO SILCHAR	BADARPUR, KANCHANPUR, SILCHAR, TARAPUR
BEKI	V	BARPETA ROAD TO JYOTI GAON	BARPETA
BHARALU	I	GUWAHATI TO CHILARAI NAGAR	SANTIPUR, ULUBARI
BHOGDOI	I	JORHAT TO DULIAGAON	JORHAT
BOGINADI	V	LAKHIMPUR TO DIBRUGARH	LAKHIMPUR
BORAK	V	SILCHAR	SILCHAR
BRAHMAPUT RA	I	KHERGHAT TO DHUBRI	GUWAHATI, DIBRUGARH, SIVASAGAR, JORHAT, TEZPUR, BARPETA, GOLPARACHAPAR
BURHIDIHIN G	I	MARGHERITA TO TINSUKIA	MARGHERITA, NAHARKATIA, DULIAJAN
DEEPAR BILL	I	DEEPAR BILL TO GUWAHATI	DEEPAR BILL
DHANSIRI	III	GOLAGHAT TO KATHKETIA	GOLAGHAT
DIGBOI	I	LAKHIPATHE, RESERVE FOREST	LAKHIPATHE
DIKHOW	V	SIVASAGAR	SIVASAGAR
DISANG	III	DILLIGHAT TO GUNDAMGHAT	TEZPUR
JAI BHARALI	V	SONITPUR TO PANIGAON	TEZPUR
JHANJI	III	JORHAT TO CHAWDANG	JHANZI
KALONG	III	NAGAON TO MORI KALONG	KACHALUKHOWA
KAPILI	IV	NAGAON TO KAMPUR TOWN	KALAIKHOWA
KATHAKAL	IV	HAILAKANDI TO MATIJURI	SUDORSHONPUR, DAKHIN, SONAPUR
KHARSANG	IV	ASSAM-ARUNANCHAL BORDER TO LONGTOM-1	SINGMAO, ONGMAN, NEW LONGKEY
KOHORA	III	KOHORA TO MOHPARA	KAZIRANGA, BOGORIJURI
KOLONG	IV	NAGAON	NAGAON
KUNDLI	V	SAPAKHOWA TO SADIA	LAKHIMI PATHAR, SHANTIPUR
KUSHIARA	IV	KARIMGANJ TO SARISA	ZAKIGANJ, KALACHERRA
MANAS	V	BARPETA TO CHILAPARA	JYOTIGAON, BADARPUR
MORA BHARALI	V	TEZPUR TO UDMARI GAON	TEZPUR
PAGLDIA	V	NALBARI TO KHUDRA SANKARA	BIDYAPUR, SANTIPUR
PANCHNAI	V	ORANG TO BORSALA	PAKARIBARI, GARUBANDHA, KHANKHALA
RANGA	V	DOIMUKH TO NAHARLAGUN	RONO BASTI, YUPIA,
SANKOSH	III	DHUBRI TO GOLAKGANJ	SANTI NAGAR, BIDYAPARA,
SONAI	III	SONAI TO DAKSHIN MOHANPUR	MAJHIRGRAM, KAPTANPUR
SUBANSIRI	III	GEREKAMUKH TO LAKHIMPUR	CHETIA GOAN, HINDU GAON, BHIMPARA
BAGMATI	V	SITAMARHI TO SEOHAR	SITAMARHI, SEOHAR
BURHI	IV	AKHARAGHAT TO SRIRAMNAGR	SRIRAMNAGR

NAME OF WATER BODY	TOTAL PRIORITY	STRETCH	TOWNS
GANDAK			
DAHA	IV	SIWAN TO SASAMUSA	SIWAN , SASAMUSA
DHOUS	III	MADHUBANI	MADHUBANI
FARMAR	IV	JOGBANI	JOGBANI
GANDAK	V	SONEPUR TO GOPALGANJ	SONEPUR, GOPALGANJ
GANGA	I	BUXAR TO BHAGALPUR	BUXAR, PATNA, BHAGALPUR
HARBORA	IV	SWADESHI SUGAR MILLS TO NARKATIAGANJ	NARKATIAGANJ
KAMALA	V	DARBHANGA TO JAYNAGAR	DARBHANGA, JAYNAGAR
KOSHI	V	KURSELA TO BEERPUR (NEPAL BORDER)	KURSELA
MANUSMAR	IV	MOHANIAMNDALTO RIGA (SITAMARHI)	SITAMARHI
POONPUN	V	KINZER ROAD BRIDGE TO FATUHA	FATUHA
RAM REKHA	III	HARINAGAR TO RAMNAGAR	RAMNAGAR, HARUNAGAR
SIKRANA	IV	SUGAR MILL CHANPATIYA TO LAURIYA (HARINGAR)	CHANPATIYA, LAURIYA (HARINGAR)
SIRSA (BIH)	III	RUXOL TO KOIREA TOLA (RAXAUL)	RAXAUL
HASDEO	V	KORBA TO URGAR	RUMGARA, SONPURI, KORBA
MAHANADI	V	ARRANG TO SIHAWA	RAIPUR, NAWAPARA NAGAR, DHAMTARI, RUDRI, KANKER, RAJIM
SHANKNI	V	DANTEWADA TO ANWARABHATA	DANTEWADA, ANWARABHATA
DAMANGAN GA	I	SILVASSA TO DAMAN JETTY, MOTI DAMAN	DAMAN, SILVASSA
YAMUNA	I	WAZIRABAD TO ASGARPUR	DELHI
ASSONORA	IV	ASSONORA TO SIRSAIM	ASSONORA
BICHOLIM	III	BICHOLIM TO CURCHIREM	BICHOLIM
CHAPORA	III	PERNEM TO MORJIM	CHIKHLI, SIOLIM
KALNA	III	CHANDEL TO ALORNA	CHANDEL, ALORNA
KHANDEPAR	V	PONDA TO OPA	PONDA
KUSHAWATI	III	XELVONA TO CAVORIM	XELVONA, CAVORIM
MADAI	III	DABOS, VELGEUM	DABOS, VELGEUM
MANDOVI	III	MARCELA TO VOLVOI	MARCELA, VOLVOI
MAPUSA	III	MAPUSA TO BRITONA	MAPUSA
SAL	I	KHAREBAND TO MOBOR	MARGAO
SINQUERIM	III	SINQUERIM TO CANDOLIM	SINQUERIM, CANDOLIM
TALPONA	V	CANCONA TO TALPONA BEACH	CANCONA
TIRACOL	V	ARONDA TO TIRACOL	ARONDA, TIRACOL
VALVANT	III	SANKLI TO BICHOLIM	BICHOLIM
ZUARI	III	BORIM BRIDGE TO MARCAIM JETTY	BORIM, MARGAO
AMLAKHADI	II	PUNGUM TO BHARUCH	PUNGAM, GADKHOL
ANAS	V	DAHOD TO FATEHPURA	DAHOD
BALESHWAR KHADI	V	PANDESARA TO KAPLETHA	PANDESARA, UDHNA
BHADAR	I	JETPUR VILLAGE TO SARAN VILLAGE	UPLETA, DHORAJI, JETPUR

NAME OF WATER BODY	TOTAL PRIORITY	STRETCH	TOWNS
DAMANGAN GA	IV	KACHIGAON TO VAPI	KANCHIGAM, VAPI
DHADAR	III	KHOTDA TO CHANDPURA	KHOTDA
KAVERI	V	BILLIMORA TO SAI NATH NAGAR	BILIMORA
KIM	V	SAHOL BRIDGE TO HANSOL	SAHOL
KOLAK	V	KIKARLA TO SALVAV	KIKARLA, BAGWADA
MAHI	V	SEVALIA TO BAHADARPUR	SEVALIYA, VADODARA
PANAM	V	LUNAWADA TO THANA SAVALI	LUNAWADA
SABARMATI	I	KHEROJ TO VAUTHA	GANDHINAGAR, AHMEDABAD
SHEDHI	IV	DHAMOD TO KHEDA	DHAMOD
TAPI	V	KHADOD (BARDOLI) TO SURAT	BARDOLI, UKAI, MANDVI, SAMPURA, KAMREJ, SURAT
GHAGGAR	I	RORKI TO SIRSA	RORKI, SIRSA
YAMUNA	III	PANIPAT TO SONEPAT	PANIPAT, SONIPAT, FARIDABAD, BALLABHGARH, PALWAL
ASHWANI	III	D/S YASHWANT NAGAR	YASHWANT NAGAR
GIRI	IV	D/S YASHWANT NAGAR TO SATAUN	YASHWANT NAGAR , SATAUN
PABBAR	V	ROHRU TO ARAKOT	ROHRU, ARAKOT
SIRSA (HP)	III	NALAGARH TO SOLAN	SORI, RADYALI
SUKHANA	II	SUKHNA TO PARWANOO	BHAGWANPURA, KISHANGARH
SWAN	V	UNA TO SANTOKHGARH	ARNIALA, PREMNAGAR
BANGANGA	V	PONY SHED TO BATHING GHAT	KATRA
BASANTER	V	SAMBA TO CHAKMANGARAKWAL	MANANUN, BALOUR, PAREI, BEDI, PALTH
CHENAB	V	JAL PATAN TO PARGAWAL	AKHNOOR, MUTHI, PARGAWAL
CHUNTKOL	IV	MAULANA AZAD BRIDGE TO KANIKADAL	SRINAGAR, FATEH KADAL, MAHARAJGANJ
DEVAK	II	GARIGARH TO UTTARBEHANI	JAMMU, TRIKUTA NAGAR, CHAK RAKWALAN
JHELUM	V	CHATTABAL WEIR TO ANANTNAG	SRINAGAR, KARAN NAGAR
TAWI	IV	SURAJNAGAR TO BELICHARANA	JAMMU, CHAK RAKWALAN
BARAKAR	V	U/S OF MAITHAN DAM	MAITHAN DAM
BOKARO	V	BILYOTARA TO JARANDI	BILYOTRA, GUMIA
DAMODAR	V	PHUSRO ROAD BDG TO TURIO	PHUSRO, BHANDARIDAH, DHANBAD
JUMAR	V	KANKE DAM TO KADAL	RANCHI, MORABADI
KONAR	V	BOKARO TO TILAYA DAM RESERVOIR	BOKARO
SUBARNARE KHA	IV	HATIA DAM TO JAMSHEDPUR	RANCHI, NAMKUM
ARKAVATHI	I	HALLI RESERVOIR TO KANAKAPURA TOWN	BENGALURU, BHADRAVATHI
ASANGI NALLA	V	D/S ASANGI VILLAGE	ASANGI
BHADRA	V	HOLEHUNNUR TO BHADRAVATHI	CHIKKODI, KOPA
BHIMA	V	GHANAPUR TO YADGIR	JEVARGI
CAUVERY	V	RANGANATHITTU TO SATHYAMANGALAM BRIDGE	SRIRANGA PATNA
GHATPRABH A	V	GOKAK TO CHIGADOLLI	GOKAK
HEMAVATI	V	HOLENARASIPURA TO GUNJE	HOLENARASIPURA

NAME OF WATER BODY	TOTAL PRIORITY	STRETCH	TOWNS
KABBANI	V	NANJANAGUD TO HEJJIGE	BASAVANAPURA, CHIKKAIHACHATRA
KAGINA	V	SHAHABAD TO HONGUNTA	BHANKOOR
KRISHNA	V	YADURWADI TO TINTINI BRIDGE	UGARKHURD, CHIKKODI, NARAYANPURA
LAKSHMANT IRTHA	III	KATTEMALAVADI TO HUNSUR	UNDAVADI
MALPRABHA	IV	KHANAPUR TO DHARWAD	M.K HUBLI, KADROLLI
SHIMSHA	I	YEDIYAR TO HALAGUR	THATTEKERE, MALLUR
TUNGABHAD RA	III	HARIHAR TO KORLAHALLI	ULLANUR, HARIHAR
TUNGHA	V	SHIVAMOGA TO KUDLI	SHIVAMOGA
YAGACHI	V	YAGACHI NEAR HASSAN CITY	HASSAN
AYROOR	V	D/S AYROOR	AYROOR
BHARATHAP UZHA	V	PATAMBI TO KUTTIPURAM	PATAMBI,VELANCHERRY, KUDDALUR, KUTTIPURAM
CHALAKUDY	V	CHALAKUDY TO KALLUR	CHALAKUDY
CHALIYAR	V	KOOLIMADU TO CHALIYAR MUKKU	NILAMBUR
CHITTHRAPU ZHA	V	IRUMPANAM TO KARINGACHIRA	CHITTETHUKARA
CORAPUZHA	V	KAPPAD TO KOZHIKODE	KOZHIKODE
KADALUNDY	V	KADALUNDY TO HAZIRAPALLY	KADALUNDY
KADAMBAYA R	V	MANCKAKADAVU TO BRAHMAPURAM	KAKKATTIKARA, THENGUMTHURUTHU
KALLAI	II	THEKEPURAM TO ARAKKINAR	KOZHIKODE, MANANCHIRA
KARMANA	I	MALEKKDU TO THIRUVALLAM	TRIKKANAPURAM
KARUVANNU R	V	KARUVANNUR BRIDGE TO PADIYAM	PADIYAM
KEECHERI	V	PULIYANNOR TO KECHERY	THRISSUR
KORAYAR	V	KANJIKODE D/S	KANJIKODE D/S
MAHE	V	MAHE	MAHE
MAMOM	V	PALAMOODU TO MAMOM	PALAMOODU , MAMOM
MANIMALA	V	KALLOOPARA TO THONDRA	MALLAPPALLY, VAIPUR
MEENACHIL	V	PALA TO KIDANGOOR	KIDANGOOR
MOGRAL	V	KANNUR TO MOGRALPUTHUR	KANNUR , MOGRALPUTHUR
MUVATTAPU ZHA	V	CHALIKKADAVU	CHALIKKADAVU
NEELASWAR AM	V	NAMBIARKAL DAM TO HOSDURG	PUTHUKAI
PAMBA	V	NEELASWARAM	NEELASWARAM
PERIYAR	V	ALWAYE-ELOOR TO KALAMASSERY	MUTTINAKAM, EDAMPAADAM
THIRUR	V	NADUVILANGADI TO THALAKKADATHUR	CHEMBRA, THAZHEPALAM, MANGALAM THIRUTHUMMAL
BICHIA	IV	SILPARI TO GADHAWA	REWA
BIHAR	V	REWA	REWA
CHAMBAL	I	NAGDA TO RAMPURA	NAGDA, RAMPURA
CHAMLA	IV	BARNAGAR TO GARAKHEDI	BARNAGAR, GARAKHEDI, PADUNIYALODHA
CHILLAR	V	SHAJAPUR TO MURADPURA	SHAJAPUR, DANSIPURA, MURADPURA
CHOUPAN	V	RUTHIYAI TO BHULAY	RUTHIYAI, BHULAY, RAGHOGARH -VIJAYPUR

NAME OF WATER BODY	TOTAL PRIORITY	STRETCH	TOWNS
GOHAD	V	GOHAD DAM TO GORMI	BANIPURA, GOHAD, GORMI
GOUR	V	JABALPUR TO SALIWADA	JABALPUR
KHAN	I	KABIT KHEDI TO KHAJRANA	INDORE
KSHIPRA	II	SIDDHAWAT TO TRIVENISANGAM	UJJAIN
KUNDA	IV	KHARGONE TO KHEDI KHURD	KHARGONE
NARMADA	IV	MANDALA TO BHEDA GHAT & SETHANI GHAT TO NEMAWAR	NEMAWAR, JABALPUR, HOSHANGABAD
NEWAJ	V	SHUJALPUR	SHUJALPUR
PARVATI	V	BATAWADA TO PILUKHEDI	BATAWADA, PILUKHEDI, NARSINGHGARH
SANKH	V	TIGHRA RESERVOIR	GWALIOR
SHIVNA	V	MANDSAUR TO MALAYA KHEDI	MANDSAUR
SONE	IV	CHACHAI TO AMLAI	BURHAR, CHACHAI, AMLAI, DEORI
TONS (MP)	IV	CHAKGHAT TO CHAPPAR	GARGATA, CHAKGHAT, CHHAPAR
WAINGANG A	V	CHINDWARA TO BALAGHAT	CHHAPARA, BALAGHAT, JABALPUR, SEONI
BETWA	II	BHOJPUR TO VIDISHA	BHOJPUR, RAISEN, VIDISHA, BHOPAL
AMBA	V	BENSE TO ROHA	POYNAD, BENSE, ROHA
AMRAVATI (TAPI)	III	KOPARLI TO BETWAD	KOPARLI, DONDAICHA
BHATSA	V	SHAHAPUR TO BHADANE	SHAHAPUR, BHATSA, BHADANE
BHIMA	II	VITHALWADI TO TAKLI	KOREGAON, PARGAON, NIRA, NARASINGPUR, TAKALI
BINDUSAR	III	SWARAJ NAGAR TO SNEHNAGAR	SWARAJ NAGAR, BEED, KADAMWADI, MOMINPURA
BORI	IV	AMALNER	AMALNER, PAROLA
CHANDRABH AGA	III	PANDHARPUR TO SHEGAON DHUMALA	PANDHARPUR, NAGPUR, AMRAVATI
DARNA	III	IGATPURI TO SANSARI	NASHIK, IGATPURI, BHAGUR
GHOD	III	ANNAPUR TO SHISHUR	ANNAPUR, SHIRUR, PUNE, KATHAPUR, FAKATE
GIRNA	IV	MALEGAON TO JALGAON	GULSHANABAD, AGHAR
GODAVARI	III	SOMESHWAR TEMPLE TO RAHED	SAYKHEDA, GANGAPUR, KAYGAON, PAITHAN, DHELGAON, NANDED, RAHER, NASHIK
GOMAI	IV	LONKHEDA TO SHAHDA	LONKHEDA, SHAHDA, DAMARKHEDA
HIWARA	III	PACHORA TO NIMBORA	PACHORA, NIMBORA
INDRAYANI	III	MOSHIGAON TO ALANDIGAON	DEHU, MOSHI, ALANDI, PIMPRI- CHINCHWAD
KALU	III	ATALE VILLAGE, KALYAN	ATALE VILLAGE, KALYAN
KAN	V	KAVATHE TO SAKARI	KAVATHE, SAKARI
KANHAN	III	BHANDARA TO NAGPUR	NAGPUR, KHANDALA, BHANDARA
KOLAR	III	KAMPTEE	KAMPTEE
KOYNA	IV	KARAD TO PAPDARDE	KARAD, PATAN, PADARDE, TAMBAVE
KRISHNA	III	SHINDI TO KURUNDWAD	WAI, KARAD, URAN ISLAMPUR, SANGLI, SHIROI, KSHETRA MAHULI
KUNDALIKA	III	SALAV TO ROHA	SUNDARNAGAR, ASHTAMI, ROHA
MITHI	I	POWAI TO DHARAVI	MUMBAI
MOR	IV	JALGAON TO AMODA	TAMBAPURA, FAIZPUR, AMODA, MAROOL, NHA VI

NAME OF WATER BODY	TOTAL PRIORITY	STRETCH	TOWNS
MORNA	III	AKOLA TO TAKALIJALAM	AKOLA
MUCHKUNDI	V	VAKED	VAKED, VILAVADE
MULA	III	BOPODI TO AUNDH GAON	BOPODI,AUNDH
MULA-MUTHA	III	THEUR TO MUNDHWA BRIDGE	THEUR,MUNDHWA
MUTHA	II	SHIVAJI NAGAR TO KHADAKWASLA DAM	SHIVAJI NAGAR,SHIVANE
NIRA (GODAVARI)	III	WARDHA	WARDHA
NIRA (KRISHNA)	III	SANGAVI TO SHINDEWADI	SAKHARWADI, SAROLA, SHINDEWADI
PANCHAGAN GA	V	SHIROL TO KOLHAPUR	SHIROL, ICHALKARANJI
PANZARA	IV	VARKHEDE TO DHULE	VARKHEDE,DHULE,KUNDANE,
PATALGANG A	IV	KHADEPADA TO KOPOLI	KHOPOLI,KHARPADA,KHALAPUR,APTA
PAWANA	III	DAPODI TO RAVET	DAPODI, RAVET, KASARWADI, PIMPRI-CHINCHWAD, LONAVALA, DEHU, LAVALE
PEDHI	III	NARAYANPUR TO BHATKULI	BHATKULI,NARAYANPUR,AMRAVATI,WADWA D
PEHLAR	V	PELHAR DAM TO GOLANI NAKA	GOLANI NAKA, VASAI, THANE
PENGANGA	III	MEHKAR TO UMARKHED	UMARKHED,JAGAPUR,MEHKAR,GARKHEDA,J UMDA,RITHAD
PURNA (GODAVARI)	III	DHUPESHWAR TO ASEGAON	AMRAVATI, ACHALPUR,SHINGNAPUR,HIWARA,BAJITPUR, MARKANDA,SONARKEHDA
PURNA (TAPI)	III	NANDURA	NANDURA
RANGAVALI	IV	TINTEMA TO NAVAPUR	NAVAPUR,DHAJ,UCHCHHAL
SAVITRI	V	DADLI TO MUTHAVALI	DADLI,MUTHAVALI,RAJEWADI,KEMBURLI
SINA	IV	SOLAPUR TO BANKALAGI	SOLAPUR,BANKALAGI,LAMBOTI,RIDHORE,MU NGASHI
SURYA	IV	DHAMNI DAM TO PALGHAR	DHARAMPUR,HARANWALI,PALGHAR
TANSA	V	WADA	WADA
TAPI	II	RAVER TO SHAHADA	NANDURBAR, BHUSAWAL, NANDURBAR
TITUR	V	CHALISGAON	CHALISGAON
ULHAS	V	KALYAN TO BADLAPUR	KHADAKPADA, ULHAS NAGAR, DOMBIVALI, KALYAN
URMODI	IV	DHANGARWADI TO NAGTHANE	NAGTHANE,DHANGARWADI,VECHALE,UPALI, PARALI (SAJJANGAD)
VAITARNA	V	GANDHRE TO SARASHI	GANDHRE, SARASHI,PIMPROLI,KOYNA
VASHISTI	V	KHERDI TO DALVATNE	KHERDI,DALVATNE,CH IPLUN
VEL	III	NHAVARE TO SHIKARPUR	SHIKRAPUR,MUKHAI,PARHADWADI,KANHERS AR
VENNA	IV	MAHABALESHWAR TO MAHULI	MAHULI,VARYE,SATARA
WAGHUR	IV	SUNASGAON TO SAKEGAON	NASIRABAD,BHUSAWAL
WAINGANG A	II	TUMSA TO ASHTI	TUMSA, ASHTI, KANHAN, BRAHMAPURI, BHANDARA

NAME OF WATER BODY	TOTAL PRIORITY	STRETCH	TOWNS
WARDHA	III	GHUGHUS TO RAJURA	GHUGUS, RAJURA, BALHARSHAH, CHANDRAPUR
WENA	III	KAWADGHAT TO HINDANGHAT	JAWADE, WANI
BARAK	V	TAMENGLONG TO SENAPATI	KARONG, SENAPATI
IMPHAL	IV	KANGLA MOAT TO SAMUROU	IMPHAL
NAMBUL	V	SINGDA DAM TO BISHNUPUR	SENAPATI, IMPHAL, BISHNUPUR
KHARKHLA	IV	SUTNGA TO KHLIERIAT	SUTNGA, KHLIEHRIAT
LUKHA RIVER	V	MYNDIHATI TO SHYMLONG	KHLIEHRIAT
MYNTDU	IV	JOWAI TO PAMHADEM	JOWAI
NONBAH	V	NANGSTOIN TO WAHRIAT	NONGSTOIN
UMKHRAH RIVER	I	MAWLAI TO SHILLONG	MAWLAI-MAWĠONG, SHILLONG
UMSHYRPI RIVER	I	UMSHYRPI BRIDGE TO DHANKETI	SHILLONG
UMTREW	IV	BYRNIHAT TO MORANG DALA	BYRNIHAT
CHATHE	III	MEDZIPHEMA TO, DIMAPUR	MEDZIPHEMA, CHUMUKEDIMA, DIMAPUR
DHANSIRI	II	CHECK GATE TO DIPHU BDG	DIMAPUR
DZU	III	KOHIMA TO DZUKO VALLEY	KOHIMA
BAITARNI	I	JAIPUR-KUAKHIA RD TO DHAMRA	JAIPUR
BIRUPA	III	CHOUDWAR	CHOUDWAR, JAGATPUR
BRAHMANI	I	ROURKELA TO BIRITOL	ROURKELA, BANKI, TALCHER TOWN, BIRITOL
BUDHABALA NGA	II	MAHULIA TO BARIPADA	BARIPADA
DAYA	I	BHUBANESWAR TO BARAGARH	BHUBANESHWAR
IB	III	SUNDARGARH TO BRAJRAJNAGAR	BRAJRAJNAGAR, JHARSUGUDA, SUNDARGARH, RAMAPUR
KATHAJODI	III	CUTTACK TO URALI	CUTTACK, URALI
KERANDI	III	SUNABEDA	SUNABEDA
KHARASROT A	III	JAIPUR TO AUL	JAIPUR, AUL
KOEL	III	DALKI TO PARLIPOS	DALKI
KUAKHAI	I	URALI TO BHUBANESWAR	BHUBANESHWAR
KUSEI	III	DEOGAON TO ANANDPUR	DEOGAON, ANANDPUR
MAHANADI	I	SAMBALPUR TO PARADEEP	SAMBALPUR, CUTTACK, PARADEEP
NAGAVALLI	II	JAYKAYPUR TO RAYAGADA	JAYKAYPUR, RAYAGADA
RUSHIKULYA	III	PRATAPPUR TO GANJAM	ASKA, PITTAL, PURUSOTTAMPUR, GANJAM
SANKHA	III	D/S OF MANDIRA DAM	ROURKELA
SERUA	II	KHANDAETA TO SANKHATRASA	KHANDAETA
TEL	III	BALANGIR TO SONPUR	BALANGIR, SONPUR
ARASALAR	V	KARAIKAL	KARAIKAL
GHAGGAR	I	SARDULGARH TO MUBARAKPUR	SARDULGARH
SATLUJ	II	RUPNAGAR TO HARIKA BRIDGE	RUPNAGAR, LUDHIANA, JALANDHAR, PHAGWARA
BANAS	III	ALONG BISALPUR DAM, SWAROOPGANJ, NEWTA DAM	BISALPUR, SIROHI, SWAROOPGANJ, TONK, BHILWARA
RANGIT	V	DAM SITE (NHPC) TO TREVENI	LEGSHIP, JORETHANG, TRIVENI

NAME OF WATER BODY	TOTAL PRIORITY	STRETCH	TOWNS
RANICHU	V	NAMLI TO SINGTAM	RANIPOOL, NAMLI, SINGTAM, GANGTOK
TEESTA	V	MELLI TO CHUNGTHANG	MELLI, RANGPO
AMRAVATI (CAUVERY)	V	MADHUTHUKKULAM	MADHUTHUKKULAM
BHAVANI	IV	SIRUMUGAI TO KALINGARAYAN	SIRUMUGAI, SATHYAMAGALAM, BHAVANI
CAUVERY	II	METTUR TO MAYILADUTHURAI	METTUR, BHAVANI, KOMRA, VAIRAPALAYAM, ERODE, VELUR, PUGALUR, NAMAKKAL, TIRUCHIRAPPALLI
PALAR	V	VANIYAMBADI TO MINNUR	VANIYAMBADI, VELLORE
SARABANGA	I	THATHAYAMPATTI TO T.KONAGAPADI	THATHAYAMPATTI, OMALUR, T.KONAGAPADI
TAMBIRAPA RANI	V	PAPPANKULAM TO ARUMUGANERI	PAPPANKULAM, TIRUNELVELI, SRIVAIKUNTAM
THIRUMANI MUTHAR	I	SALEM TO PAPPARAPATTI	SALEM
VASISTA	I	MANIVILUNDHAN TO THIYAGANUR	MANIVILUNDHAN, THALAIVASAL, THIYAGANUR
GODAVARI	IV	BASAR TO KHAMMAM	BASAR, MANCHERIAL, RAMAGUNDAM, MANTHAN, KAMALAPUR, BOORGAMPAHAD
KARAKAVAGU	IV	PALWANCHI	PALWANCHI
KINNERSANI	III	PALWANCHI TO BHOORGAMPAHAD	PALWANCHI, BHOORGAMPAHAD
KRISHNA	II	THANGADIGI TO WADAPALLY	THANGADIGI, GUNTUR
MANER	V	WARANGAL TO SOMNAPALLI	WARANGAL, KARIMNAGAR
MANJEERA	III	GOWDICHARLA TO NAKKAVAGU	GOWDICHARLA
MUSI	I	HYDRABAD TO NALGONDA	HYDERABAD, RANGAREDDY, NALGONDA
NAKKAVAGU	II	GANDILACHAPET TO SEVALAL THANDA	MEDAK, BACHUGUDAM
SABARI	III	KHAMMAM TO KUNNAPURAM	KHAMMAM
GUMTI	V	TELKAILA TO AMARPUR	UDAIPUR, BAMPUR, AMARPUR
HAORA	V	AGARTALA TO BISHRAMGANJ	AGARTALA
BETWA	IV	HAMIRPUR TO WAGPURA	HAMIRPUR, JHANSI
GANGA	III	KANNAUJ TO VARANASI	KANNAUJ, KANPUR, ALLAHABAD, MIRZAPUR, VARANASI
GHAGHARA	IV	BARHALGANJ TO DEORIA	AYODHYA, TANDA, DEORIA
GOMTI	I	SITAPUR TO VARANASI	SITAPUR, LUCKNOW, SULTANPUR
HINDON	I	SAHARANPUR TO GHAZIABAD	SAHARANPUR, MUZAFFARNAGAR, MEERUT, GHAZIABAD
KALINADI (E)	I	MUZAFFAR NAGAR TO GULAOCHI TOWN	MEERUT, HAPUR, GULAOCHI, BULANDSHAHR
RAMGANGA	IV	MURADABAD TO KANNAUJ	MORADABAD, BAREILLY, FARRUKHABAD
RAPTI	IV	DOMINGARH TO RAJGHAT	GORAKHPUR
RIHAND	V	RENUKUT TO PIPARI	OBRA, RENUKOOT, PIPARI
SAI	III	UNNAO TO JAUNPUR	RAEBARELI, BELA PRATAPGARH, JAUNPUR
SARYU	IV	AYODHYA TO ELAFATGANJ	FAIZABAD, AYODHYA
VARUNA	I	VARANASI	VARANASI

NAME OF WATER BODY	TOTAL PRIORITY	STRETCH	TOWNS
YAMUNA	I	ASGARPUR TO ETAWAH & SHAHPUR TO ALLAHABAD (BALUA GHAT)	GAUTAM BUDDHA NAGAR (NOIDA & GREATER NOIDA), VRINDAVAN, MATHURA, AGRA, SHAHPUR
BHALLA	I	KASHIPUR TO RAJPURA ATNDA	KASHIPUR
DHELA	I	KASHIPUR TO GARHUWALA, THAKURDWARA	KASHIPUR, THAKURDWARA
GANGA	V	HARIDWAR TO SULTANPUR	RISHIKESH, HARIDWAR
KICHHA	II	KASHIPUR	KASHIPUR
KOSI	III	SULTANPUR TO PATTIKALAN	SULTANPUR
NANDAUR	V	SITARGANJ	SITARGANJ
PILKHAR	III	BILASPUR	BILASPUR
SUSWA	I	MOTHRWALA TO RAIWALA	DEHRADUN
YAMUNA	II	LAKHWAR DAM-DAK PATHAR	LAKHWAR, KALSI, DAKPATHAR
BARAKAR	III	KULTI TO ASANSOL	CHITTARANJAN, KULTI, BURNPUR, ASANSOL
CHURNI	I	SANTIPUR TOWN TO MAJHADIA	RANAGHAT
DAMODAR	I	DURGACHAKM TO DISHERGARH	UDAYANARAYANPUR, BAGNAN, DURGAPUR, ASANSOL
DWARAKESH WAR	V	BANKURA TO KUSHTIA	BANKURA
DWARKA	I	TARAPITH TO SADHAK BAMDEB GHAT	CHANDIPUR, TARAPITH, MARGRAM
GANGA	I	TRIBENI TO DIAMOND HARBOUR	KANCHRAPARA, HOOGHLY, NAIHATI, CHANDANNAGAR, BHATPARA, BARRACKPORE, BARANAGAR, KOLKATA, HOWRAH, ,BERHAMPORE, PALTA, DAKSHINESWAR, ULUBERIA
JALANGI	I	LAAL DIGHI TO KRISHNA NAGAR	KRISHNANAGAR, CHAPRA
KALJANI	III	BITALA TO ALIPURDWAR	HAMILTONGANJ, ALIPURDUAR
KANSI	III	MIDNAPORE TO RAMNAGAR	MEDINIPUR
KAROLA	III	JALPAIGURI TO THAKURER KAMAT	JALPAIGURI
MAHANANDA	I	SILIGURI TO BINAGURI	SILIGURI
MATHA BHANGA	I	MADHUPUR TO GOBINDAPUR	MAJHDIA, KRISHNAGANJ, DURGAPUR, SWARNAKALI
MAYURAKSHI	IV	SURI TO DURGAPUR	SURI, SAINTHIA
RUPNARAYAN	I	KOLAGHAT TO BENAPUR	BAGNAN, KOLAGHAT, TAMLUK
SILABATI	II	GHATAL TO NISCHINDIPUR	GHATAL, NISCHINDIPUR
TEESTA	III	SILIGURI TO PAHARPUR	JALPAIGURI, SILIGURI
VINDYADHARI	I	HAROA BRIDGE TO MALANCHA BURNING GHAT	HAROA, MINAKHAN, MALANCHA

ANNEXURE- II

State Wise (River Specific), Sewage Generation and Treatment Capacity

STATE	RIVER	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)
ANDHRA PRADESH	GODAVARI	30	60
ANDHRA PRADESH	KRISHNA	101.27	544
ASSAM	BRAHAMPUTRA	0.21	154
BIHAR	GANGA	120.55	463
DELHI	YAMUNA	2693.7	4399
GOA	SAL, ZUARI	27.5	13
GUJARAT	MAHI	276.5	432
GUJARAT	SABARMATI	1283	1647.77
GUJARAT	TAPI	1017.5	1261
HARYANA	YAMUNA	263	442
HIMACHAL PRADESH	SIRSA	3.6	6
HIMACHAL PRADESH	SWAN	10.22	3
JAMMU & KASHMIR	BANGANGA	2.5	1.4
JAMMU & KASHMIR	CHUNT KOL, JHELAM	194.24	304
JAMMU & KASHMIR	DEWAK, TAWI	68	101
JHARKHAND	KONAR	33.572	63
KARNATAKA	ARKAVATHI	726.83	2204
KARNATAKA	CAUVERY	1.39	4.17
KARNATAKA	YAGACHI	10	26
KERALA	KALLAI, KORAYAR, CORAPUZHA	13.5	89
KERALA	MOGRAL	0.5	15
MADHYA PRADESH	BETWA	80.48	431
MADHYA PRADESH	GOUR, NARMADA, WAINGANGA	150	249
MADHYA PRADESH	KHAN	90	450
MADHYA PRADESH	KSHIPRA	105	82
MADHYA PRADESH	SANKH	50	259
MAHARASHTRA	CHANDRABHAGA, KANHAN	100	562
MAHARASHTRA	CHANDRABHAGA, PEDHI, PURNA	74.5	102
MAHARASHTRA	DARNA, GODAVARI	200.5	370
MAHARASHTRA	GHOD	362	743
MAHARASHTRA	GODAVARI	117	90

STATE	RIVER	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)
MAHARASHTRA	KRISHNA	48.96	79
MAHARASHTRA	MITHI	2600.9	2772
MAHARASHTRA	PAWNA, INDRAYANI	338	426
MAHARASHTRA	PELHAR	252	454
MAHARASHTRA	SINA	55	146
MAHARASHTRA	ULHAS	28	84.3
MAHARASHTRA	ULHAS, KALU	153	307
MAHARASHTRA	WARDHA	70	49
MEGHALAYA	UMKHAIRAH, UMSHYRPI	1	24
ODISHA	BRAHAMANI, SANKHA	21.24	33
ODISHA	DAYA, KUAKHAI	175.5	149
ODISHA	KATHAJODI, MAHANADI	85	95
PUNJAB	GHAGGAR	4	3
PUNJAB	SATLUJ	751.5	539
RAJASTHAN	BANAS	17.016	301.8
SIKKIM	RANGIT	1.7	1.5
SIKKIM	RANICHU	25.12	24.9
SIKKIM	TEESTA	1.44	2.1
TAMIL NADU	CAUVERY	145.86	176
TAMIL NADU	PALAR	10.72	28
TAMIL NADU	TAMBIRAPANI	24.2	74
TELANGANA	GODAVARI	24.5	48
TELANGANA	MUSI	657.3	854
TRIPURA	HAORA	0.045	80
UTTAR PRADESH	GANGA	717	983
UTTAR PRADESH	GANGA, VARUNA	101.8	226/180
UTTAR PRADESH	HINDON	986.5	634
UTTAR PRADESH	KALINADI	2.555	38
UTTAR PRADESH	KALINADI, HINDON	88	309
UTTAR PRADESH	RAMGANGA	80.7	194
UTTAR PRADESH	YAMUNA	628.34	565
UTTARAKHAND	GANGA	75.5	48
UTTARAKHAND	SUSWA	50.13	94
WEST BENGAL	GANGA	416.9	4856.2
	Total	16846.488	30042.14

ANNEXURE-III

STPs ALONG TOWNS ASSOCIATED WITH POLLUTED RIVER STRETCHES

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
Andhra Pradesh (6)	GODAVARI	RAJAMUNDRY	Rajamundry, EG district	30	30	60	30
	KRISHNA	VIJAYWADA	Azithsinghnagar	27.27	101.27	544	101.3
			Azithsinghnagar	40			
			Auto Nagar	10			
			Ramalingeswara Nagar	10			
			Poornanadampet	14			
		2	6	131.27	131.27		
Assam (1)	BRAHAMPUTRA	GUWAHATI	GMDA truck yard near IBP petrol pump NH-37	0.21	0.21	154	0.21
		1	1	0.21	0.21		
Bihar (5)	GANGA	PATNA	Saidpur STP Old Unit ,Patna	4.55	109.55	400	113.5
			Saidpur STP New Unit, Patna	45			
			Beur STP, Patna, Bihar	35			
			Pahari, Patna-7	25			
	GANGA	BHAGALPUR	Bhagalpur STP	11	11	63	11
		2	5	120.55	120.55		
Chhattisgarh	NO STP						
Daman and Diu	NO STP						
Delhi (35)	YAMUNA	DELHI	STP Akshardham	4.5	2693.7	4399	2694
			STP Kondli phase-I	45			
			STP Kondli Old Phase-II	112.5			
			STP Kondli Phase-III	45			
			STP Kondli New Phase-IV	202.5			
			STP Papankalla	90			
			STP Nazafgarh	22.5			
			Yamunavihar Phase - I	45			
			Yamunavihar Phase - II	45			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
			Rithla Old	180			
			Rithla New	180			
			Rohini Sec-25	67.5			
			Okhla Phase - I	135			
			Okhla Phase - II	54			
			Okhla Phase-III	202.5			
			OkhlaPase-IV	166.5			
			Okhla Phase-V	72			
			Okhla Phase-VI	135			
			KeshopurNilothi-I	54			
			KeshopurNilothi-II	90			
			KeshopurNilothi-III	180			
			Nilothi-IV	180			
			Coronation Pillar-I	45			
			coronation Pillar-II	90			
			Narela-I	45			
			Narela-II	27			
			Vasant Kunj-I	22.5			
			Vasant Kunj-II	9.9			
			Vasant Kunj-III	13.5			
			Dr. Sen Nursing Home Nalla	9.9			
			Delhi Gate Nalla	9.9			
			Mehrauli	22.5			
			Ghitorni	22.5			
			Timarpur	27			
			Chilla	40.5			
		1	35	2693.7	2693.7		
Goa (2)	SAL, ZUARI	MARGAO	Navelim	7.5	27.5	13	27..5
			NavelimShirvodem	20			
		1	2	27.5	27.5		
Gujarat (33)	SABARMATI	GANDHI NAGAR	STP of Capital Project, Jaspur, Gandhinagar	76	88	48.77	-
			Basan STP, S No. 218,219, Near IIT, Palaj-Basan road, Basan. Tal. & Dist. Gandhinagar	2			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
	MAHI	VADODRA	Sargasan Sewage Treatment Plant S. No. 111, Sargasan, Tal. & Dist. Gandhinagar	10	276.5	432	276.5
			STP of VMSS, Atladara-I	43			
			STP of VMSS, Tarsali	52			
			STP of VMSS, Gajrawadi	66			
			STP of VMSS, Atladara-II	43			
			STP of VMSS, Kapurai	43			
			STP of VMSS, Sayaji Garden	8.5			
			STP of VMSS, Chhani	21			
	SABARMATI	AHMEDABAD	S. No. 93,10,113,115,117(P),118,119,92, 104,105,109,111,112,116,120 near Vinobabhavenagar, Vill. Vinzol, Ahmedabad	70	1195	1599	1283
			Old Pirana Sewage Treatment Plant, Pirana Road, Behrampura	106			
			Pirana Sewage Treatment Plant 60 MLTD in compund of 106 MLD STP, Pirana Road, Behrampura	60			
			New Pirana Sewage Treatment Plant, PiranaOctroi Naka, Pirana Road, Ahmedabad	182			
			New Pirana Sewage Treatment Plant (180MLD), Near 182 MLD STP, Pirana, Ahmedabad	180			
			Old Vasna Sewage Treatment Plant Near V.N. Bridge, NarolSarkhej High Way	126			
			Vasna STP-135, between V.N. Bridge and Toll from Sabarmati, Vasna	35			
			New Vasna STP, Narol-Sarkhej High Way	76			
			Vasna STP, 97/A/1, at Sabarmati River, Vasna	240			
			AMC, Jalvihar, Old Vadarj	60			
			AMC, Jalvihar, Near Bhavans College, Khanpur	60			
	TAPI	SURAT	Block No. 1/P, 11/P 13to19 at Asarma, Ta. Choryasi, Dist. Surat	15	1017.5	1261	847.5
			Near Anand Park Society, Opp. AkhandAnand College	155			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
			City S. No. 10 Paiky 11& 13 Paiky14, Final Plot 119	82.5			
			Survey No. 46, Vadod	100			
			Bhatar, SMC, Surat	162			
			S. No. 44,45,51, 56-62	100			
			Moje. Dindoli	66			
			Karanj, SMC, Surat	142			
			Vill. Khajod, Ta. Choryasi, Dist. Surat	25			
			Block No. 128, KosadAmroli Road, Kosad	84			
			SandhporePardi, Valsad	16			
			Jamnagar Municipal Corporation, Jamnagar	70			
		4	33	2577	2577		
Haryana (8)	YAMUNA	SONIPAT	Shiv road	35	35	48	35
	YAMUNA	PANIPAT	STP PanipatDodala road, Siwah	45	70	46	70
			Jattal Road	25			
	YAMUNA	FARIDABAD	Badshapur	45	158	348	140
			Mirjapur	45			
			Pratapgarh	50			
			Palwal	9			
			Hodal	9			
		3	8	263	263		
Himachal Pradesh (8)	SWAN	ARNIALA, PREMNAGAR (UNA)	STP Sujanpur Zone-I	1.5	10.22	3	7.8
			STP, Santokhgarh, Distt. Una zone- II	1.65			
			STP,Una zone- A	2.53			
			STP Garget	3.14			
			STP Una zone D	0.63			
			STP Mehatpur ABC	0.77			
	SIRSA	SORI,RADYALI (SOLAN)	STP Solan Zone B	2.9	3.6	6	3.6
			STP Arki	0.7			
		2	8	13.82	13.82		
Jammu & Kashmir (19)	DEWAK, TAWI	JAMMU	Bhagwati Nagar	10	68	101	68
			MPD/CPWD Satwari	1			
			Bhagwati Nagar	27			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
	BANGANGA	KATRA	Bhagwati Nagar	30	2.5	1.4	2.5
			KatraBhawan	2			
			Katra Basement, near Gita Mandir	0.5			
	CHUNT KOL, JHELAM	SRINAGAR	Hazratbal –Srinagar	7.5	194.24	304	194.2
			Habak	3.2			
			Nishat	4.5			
			Srinagar Barinambal	17.1			
			SKIMS Srinagar	2.4			
			Nallah Amir khan Srinagar	5.4			
			Barinbal Srinagar	16.1			
			Barinbal Srinagar	7			
			Noor Bagh	60			
			Alochibagh	50.24			
			Parimpora	11.98			
			Mujgund	3.82			
			B.D.Cantt Srinagar	5			
		3	19	264.74	264.74		
Jharkha nd (7)	KONAR	BOKARO	IEL Gomia Township	1.6	33.572	63	33.5
			BSL Township(a) Sector 12	10.4			
			(b) Sector 6	5.85			
			(c) Sector 11	2.57			
			(d) Dhandabara	11.4			
			(e) Camp II	0.582			
			(f) BGH	1.17			
		1	7	33.572	33.572		
Karnata ka (19)	ARKAVATHI	BANGALUR U	Nayandanahalli -I	180	721	2182	721
			Nayandanahalli -I	75			
			Kempambudhi	1			
			Nagasandra-Yemalur post, Chalaghatta Village-STP-I	163			
			Nagasandra-Yemalur post, Chalaghatta Village-STP-II	55			
			Nagasandra-Yemalur post, Chalaghatta Village-STP-III	30			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
			Kadabeesanahalli	50			
			Madiwala	4			
			Nagasandra	20			
			Hebbal	60			
			Yelahanka	10			
			Jakkur	10			
			Rajacanal	40			
			K.R. Puram	20			
			Cubbon Park	1.5			
			Labagh	1.5			
	CAUVERY	SRIRANGAPATANA (MANDHYA DIST.)	Srirangapatana	1.39	1.39	4.17	-
	ARKAVATHI	BHADRAVATI	Bhadravati	5.83	5.83	22	5.83
	YAGACHI	HASSAN	Hassan	10	10	26	10
		4	19	738.22	738.22		
Kerala (2)	KALLAI, KORAYAR, CORAPUZHA	KOZHIKODE	Karimpanampalam	13.5	13.5	89	13.5
	MOGRAL	KANNUR	Thaliparamba	0.5	0.5	15	0.5
		2	2	14	14		
Madhya Pradesh (13)	KSHIPRA	UJJAIN	Ujjain	52	105	82	105
			Sadaval	53			
	KHAN	INDORE	Kabithkedi	78	90	450	90
			Kabithkedi	12			
	GOUR NARMADA WAINGANGA	MC JABALPUR	Gwarighat	150	150	249	150
	BETWA	MC Bhopal	MaholiDhamkheda	25	80.48	431	80.48
			Badwai	17			
			Gondermau	2.36			
			KotraSinghpur	10			
			(NRCP) Ekant Park	8			
			Bawadia Kalan	13.56			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
			Bio-Filtration Mata Mandir	4.56			
	SANKH	GWALIOR	Laltipara	50	50	259	50
		5	13	475.48	475.48		
Maharashtra (58)	CHANDRABHAGA, PEDHI, PURNA	AMRAVATI	Lalkhedi Amravati	30.5	74.5	102	74.5
			Lalkhedi Amravati	44			
	WARDHA	CHANDRAPUR	Pathanpura	25	70	49	70
			Rahamat Nagar	45			
	ULHAS, KALU	KALYAN DOMBIVALI	Adharwadi	16	153	307	153
			Motagaon	14			
			Barave	15			
			Adharwadi	25			
			Chinchpada	40			
			Motagaon	40			
			Titwala east	2			
			Titwala west	1			
	MITHI	GREATER MUMBAI	Colaba	41.1	2600.9	2772	2601
			Love Grove, worli	756.9			
			Bandra	796.9			
			Versova	180			
			Malad	240			
			Bhandup	280			
			Ghatkopar	300			
			Charkop	6			
	CHANDRABHAGA, KANHAN	NAGPUR	Bhandewadi	100	100	562	100
	GODAVARI	NANDED WAGHELA	Bondar	87	117	90	117
			Elichpur	30			
	DARNA, GODAVARI	NASHIK	Tapovan 1	78	200.5	370	200.5
			Tapovan 2	52			
			Panchak 1	7.5			
			Panchak 2	21			
			Chehadi 1	22			
			Chehadi 2	20			
	PAWNA,	PIMPRI-	Chikali Phase-I	16	338	426	338

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
	INDRAYANI	CHINCHWAD	Chikali Phase-II	16			
			Chinchwad Phase I	30			
			Chinchwad Phase II	30			
			Kasarwadi Phase I	40			
			Kasarwadi Phase II	40			
			Kasarwadi Phase III	40			
			Sangvi Phase I	15			
			Sangvi Phase II	20			
			PimpaleNilakh	20			
			Ravet	20			
			Charoli	21			
			Akurdi	30			
	GHOD	PUNE	Erandawane	50	362	743	362
			Bopodi	18			
			Bahiroba	130			
			Tanajiwadi	17			
			Vitthalwadi	32			
			Baner	30			
			Mundhava	45			
			Kharadi	40			
	KRISHNA	SANGLI MIRAJ KUPWAD	Sangli 100 Ft road	12.76	48.96	79	48.96
			Bedag road , Miraj	9.2			
			Dhulgaon	27			
	SINA	SOLAPUR	Solapur	55	55	146	55
	PELHAR	THANE	Kopri	120	252	454	283.5
			Kalwa	100			
			Mumbra	32			
	ULHAS	ULHASNAGAR	KhandeGolivali	28	28	84.3	-
		13	58	4399.86	4399.86		
Manipur	NO STP						
Meghalaya (1)	UMKHRAH, UMSHYRPI	SHILLONG	NEIGRIHMS, Mawdiandiang, East Khasi Hills District	1	1	24	1
		1	1	1	1		

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
Nagaland	NO STP						
Odisha (9)	BRAHAMANI, SANKHA	ROULKELA STEEL TOWNSHIP	STP-I: Steel Township sector-14	18	21.24	33	21.24
			STP-II: Steel Township Sector-22	3.24			
	KATHAJODI, MAHANADI	CUTTACK	Mattagajpur	33	85	95	85
			Mattagajpur	16			
			Bidanasi	36			
	DAYA, KUAKHAI	BHUBANESWAR	Rokta	48	175.5	149	175.5
			Meherpalli	56			
			Kochilaput	43.5			
			Basuaghai	28			
		3	9	281.74	281.74		
Punjab (18)	SATLUJ	LUDHIANA	Bhattian	111	466	376	466
			Bhattian	50			
			Jamalpur	48			
			Baloke	152			
			Baloke	105			
	GHAGGAR	SARDULGARH	Nagar Panchayat, Sardulgarh	4	4	3	4
	SATLUJ	PHAGWARA	Phagwara	20	36	14	36
			Phagwara	8			
			Phagwara	8			
	SATLUJ	JALANDHAR	Jalandhar Pholriwal	100	235	140	230
			Pholriwal	25			
			Pholriwal	25			
			STP on Kapurthala Road, Jalandhar	50			
			Jaitewali, Hoshiarpur Road, Jalandha	25			
	SATLUJ	ROOPNAGAR	STP at Bhambiwali, G.T Road, Jalandhar	10	14.5	9	16.2
			VillBadi Haveli	10			
			VillSadabarat	2			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
			VillRasoolpur	2.5			
		5	18	755.5	755.5		
Rajasthan (4)	BANAS	BHILWARA	Bhilwara Sewage	4.5	10	59	10
			Bhilwara Sewage	5.5			
	BANAS	SIROHI	Mont Abu	6	6	6	6
	BANAS	TONK	Tonk	1.016	1.016	236.8	-
		3	4	17.016	17.016		
Sikkim (10)	RANICHU	GANGTOK	Adampool	5	24.46	24	24.46
			Adampool	8			
			Adampool	4.69			
			Lower Sichey	3.9			
			Rainpool	1.27			
			Lower Syari	1.6			
	RANICHU	SINGTAM	Singtam	0.66	0.66	0.9	0.66
	TEESTA	RANGPO	Rangpo	0.96	0.96	1.7	-
	RANGIT	JORETHANG	Jorethang	1.7	1.7	1.5	-
	TEESTA	MELLI	Melli	0.48	0.48	0.4	-
		5	10	28.26	28.26		
Tamil Nadu (6)	CAUVERY	ERODE	UASB Sewage Treatment Plant, Vairapalayam, Erode District	5.17	55.72	36	55.72
			Erode City Municipal Corporation. Sewage Treatment Plant, Peelamedu Village, Erode	50.55			
	CAUVERY	NAMAKKAL	Namakkal municipality	1.5	1.5	8	1.5
	PALAR	VELLORE	Vellore City Corporation STP	10.72	10.72	28	10.72
	CAUVERY	TIRUCHIRAPALLI (TRICHY)	Trichy Corporation Sewage treatment Plant	88.64	88.64	132	88.6
	TAMBIRAPANI	TIRUNELVELI	Tirunelveli City Municipal Corporation STP	24.2	24.2	74	24.2
		5	6	180.78	180.78		
Telangana (17)	MUSI	HYDRABAD (GREATER)	Amberpet	339	657.3	854	657.3
			Attapur	51			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
		HYDRABAD)	Durgamcheruvu	5			
			Kattendan, RR District	4			
			Kukatpally	12			
			Langar house	1.2			
			Miralam tank	10			
			Nagole	172			
			Nallacheruvu (Uppal)	30			
			Necklace road (Khairtabad)	20			
			Peddachruvu (Nacharam)	10			
			Safilguda	0.6			
			Saroornagar	2.5			
	GODAVARI	RAMAGUNDAM	Malkapur, Godavarikani	14	18	36	18
			Ramagundam	4			
	GODAVARI	MANCHERIAL	Reddy colony	4	6.5	12	6.5
			Saikunta	2.5			
		3	17	681.8	681.8		
Tripura (1)	HAORA	AGARTALA	Indian Check Post, Akhaura Border, Agartala	0.045	0.045	80	0.045
		1	1	0.045	0.045		
Uttar Pradesh (69)	YAMUNA	AGRA	BoodhiKaNagla	2.25	240.75	381	220.8
			Pilakhar	10			
			Dhandhupura	78			
			Jaganpur, Sikandarpur	14			
			BhimNagri, Devri Road.	12			
			Sadarwan (Bichupri)	40			
			Sadarwan (Bichupri) New	36			
			Dhandhupura New	44			
			KalindiVihar	4.5			
	YAMUNA	MATHURA, VRINDAVAN	Kalidah, Vrindavan	0.5	32.59	55	32.5
			Vrindavan Near Pagal Baba Mandir	4			
			Masani	13.59			
			Trans Yamuna, Jamunapar	14.5			
	GANGA, VARUNA	VARANASI	Dinapur	80	101.8	226/180	101.8
			Bhagwanpur	9.8			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
			DLW, maduadih	12			
	YAMUNA	NOIDA	Sector-50	34	355	129	218
			Sector-54	27			
			Sector-54	9			
			Sector-50	25			
			Sector-123	35			
			Sector-91	5			
			Sector-54	33			
			Sector-168	50			
			Kansa, Greater Noida	137			
	HINDON	SAHARANPUR	Malhipur	38	38	125	38
	HINDON	MUZAFFARNAGAR	Muzaffarnagar	32.5	32.5	63	32.5
	GANGA	ALLAHABAD	STP Naini, Allahabad	80	254	273	254
			Salori	29			
			Rajapur, Allahabad	60			
			Pongahat, Allahabad	10			
			Numayadahi, Allahabad	50			
			Kodra, Allahabad	25			
	GANGA	MIRZAPUR	PakkaPokhara, Ramai Patti	14	18	37	18
			WSB STP, Vindhyanchal	4			
	RAMGANGA	FARRUKHABAD	Farrukhabad	2.7	2.7	44	2.7
	GANGA	KANPUR	STP Jajmau	5	445	628	440
			STP Jajmau	130			
			Bingava Kanpur(JNNURM)	210			
			Jajmau (JNNURM)	43			
			Sajari Kanpur	42			
			Baniyapur Kanpur	15			
	HINDON	GHAZIABAD	Indirapuram Trans Hindon	56	916	446	916
			Dudahera, Vijay Nagar, Sis Hindon	70			
			Indirapuram Trans Hindon	56			
			Dudahera, Vijay Nagar, Sis Hindon	56			
			Indirapuram Trans Hindon	74			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
			Govindpuram Sis Hindon	56			
			Sadullabad, Loni	30			
			MadhubanBabudhamYojna GZB. Sis Hindon	56			
			Morti Ghaziabad Sis Hindon	56			
			Doulatganj	56			
			Bharwara	345			
			STP Near HathiyaNalaSultanpur	5			
	KALINADI	BULANDSAHAR	Ahara Road, Zone-A, Anupshar	0.805	2.555	38	2.5
			Ahara Road, Zone-B, Anupshar	1.75			
	KALINADI, HINDON	MEERUT	MDA STP Ganganagar	10	88	309	88
			MDA STP, Shradhapuri, Phase-II	6			
			MDA STP Rakshapuram, Meerut	6			
			MDA STP Sports Complex, Delhi Road, Meerut	7			
			MDA STP Sports Vedvyaspuri, Meerut	15			
			MDA STP Pallavpurm-I	7			
			MDA STP, Shradhapuri-I, Phase-II	6			
			MDA STP Shatabdinagar	15			
			MDA STP Lohia Nagar, Hapur Road, Meerut	10			
			MDA STP Pandavnagar, Meerut	1			
			MDA STP Pallavpurm-II, Meerut	5			
	RAMGANGA	MORADABAD	Rampur Road Near Hanuman MurtiTiraha, Gulabbari	58	78	150	78
			Mordabad Delhi Road,VikasPradhikaran, MDA	20			
		14	69	2604.9	2604.895		

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
Uttarakh and (13)	GANGA	RISHIKESH	Lakkarghat	6	12.5	10	9
			SwargashramVedNiketan	3			
			Tapovan (Tehri)	3.5			
	GANGA	HARIDWAR	Jagjeetpur	18	63	38	63
			Jagjeetpur	27			
			Sarai, Jawalapur	18			
	SUSWA	DEHRADUN	Indira Nagar	5	50.13	94	50.13
			Mothorowala	20			
			Jakhan	1			
			Vijay Colony	0.42			
			Salawala	0.71			
			Mothorowala	20			
			Kaulagarh	3			
		3	13	125.63	125.63		
West Bengal (28)	GANGA	BARRACKP ORE (TITAGARH, BANDIPUR)	Titagarh	4.5	23	25.4	-
			Titagarh	4.5			
			Bandipur	14			
		BHATPARA	Jagaddal Bhatpara New	10	38.5	64.3	-
			Jagaddal Bhatpara Old	8.5			
			Jagaddal Bhatpara	10			
			Kankinara STP, madrail,bhatpara	10			
		HOOGHLY (BAIDYABAT I, KONNAGAR, BANSBERIA, BHADRESW AR)	Baidyabati	6	35.9	919.4	-
			Konnagar	22			
			Bansberia	0.3			
			Bhadreswar	7.6			
		HOWRAH	Kona, Chakpara (Anandanagar gram Panchayet)	30	75	291	75
			Howrah	45			
		CHANDANN AGAR	Chandannagar, Khalisani, Chinsurah-Highly	18.16	22.7	27.8	-
			Chandannagar, Khalisani, Chinsurah-Highly	4.54			

STATE	RIVER	TOWNS	STPs	Installed Capacity STP (MLD)	Installed Treatment Capacity along River (MLD)	Sewage Generation (in MLD)	Updated Total Sewage Treatment Capacity of Town(in MLD)
		KOLKATA	Kamarhati, Mathkol, near Belgachia Metro Car Shed	40	206.54	3461	328.2
			Garulia	7.9			
			Garden Reach	47.5			
			Mahestala, Nungi	4			
			Serampore, at Jannagar Road, SeramporeGarulia	18.89			
			Budge Budge	4.25			
			Panihati (Natagarh)	12			
			CossiporeChitpore	45			
			STP Kalyani - I	11			
			STP Kalyani - II	6			
			STP Nabadwip	10			
		NAIHATI	Naihati	11.56	11.56	36.3	-
		BERHAMPORE	Berhampore	3.7	3.7	31	3.7

ANNEXURE - IV
Details of Common Effluent Treatment Plant

State Sl. No.	State	State/City Sl. No.	State/City	Capacity MLD
1	HARYANA	1.	AMBALA CANTT.	5.5
		2.	FARIDABAD	0.35
		3.	GURGAON	55.2
		4.	JIND	0.1
		5.	PANCHKULA	0.5
		6.	PANIPAT	21
		7.	SONIPAT	17.2
		8.	ROHTAK	10
2	HIMACHAL PRADESH	9.	HIMACHAL PRADESH	25
3	J&K	10.	J&K	0.6
4	PUNJAB	11.	PUNJAB	117.25
5	UTTAR PRADESH	12.	UTTAR PRADESH	23.9
6	UTTRAKHAND	13.	UTTRAKHAND	34
7	DELHI	14.	DELHI	211.8
8	MADHYA PRADESH	15.	MADHYA PRADESH	0.9
9	RAJASTHAN	16.	ALWAR	6
		17.	BARME	84.5
		18.	JODHPUR	20
		19.	JAIPUR	12.9
		20.	PALI	58.68
10	ANDHRA PRADESH	21.	ANDHRA PRADESH	4.87
11	KARNATAKA	22.	KARNATAKA	6.095
12	KERALA	23.	KERALA	2.3
13	TAMIL NADU	24.	TAMIL NADU	149.865
14	GUJARAT	25.	AHMEDABAD	28.05
		26.	BHARUCH	62.8
		27.	GANDHINAGAR	0.4
		28.	JAMNAGAR	0.04
		29.	JUNAGARH	5
		30.	SURAT	357.75
		31.	RAJKOT	40.125
		32.	VADODARA	11.3
		33.	VALSAD	67.5
		34.	KUTCH	2.5
15	MAHARASHTRA	35.	MAHARASHTRA	212.55
16	JHARKHAND	36.	JHARKHAND	
17	WEST BENGAL	37.	WEST BENGAL	20
18	TELENGANA	38.	TELENGANA	
Total				1676.525

Water Quality Management Plan River Hindon

CENTRAL POLLUTION CONTROL BOARD

DECEMBER 2016

Water Quality Management Plan- River Hindon

1.0 Background

The Water Quality Assessment of river Hindon and its tributary streams has provided information on the status and magnitude of pollution with respect to desired water quality. The long term trends of water quality assessment have formed the basis for identification of river Hindon as polluted in its entire length.

2.0 Municipal Sewage Generation and Treatment

The water quality deterioration is caused by discharge of sewage from the townships of Saharanpur, Muzaffarnagar, Ghaziabad, Noida and Greater Noida. The tributary stream river Kali West pass through the sub urban areas of Muzaffarnagar and Meerut whereas tributary stream Krishni pass through the sub urban areas of Saharanpur, Shamli, Bagpat and Barnawa. As per the information provided by UP Jal Nigam sewage generated in the townships of Saharanpur, Muzaffarnagar, Budhana, Bagpat, Meerut, Ghaziabad, Noida putting together amounts to 1215.43 mld. Out of which 450MLD treatment capacity have been established and 765.43MLD untreated sewage is discharged in river Hindon. The town wise sewage generation and treatment capacity developed so far is provided in **Table-1**.

Table-1 Status of Domestic Pollution in River Hindon

Sl. No.	District	Total Sewage Generation MLD	Total Capacity of Sewage treatment MLD	Details of STP
1.	Saharanpur	125	38	
2.	Muzaffarnagar	63	32.50	
3.	Meerut	209	88	
4.	Baghpat	8	Nil	
5.	Ghaziabad	446	368	1. 74 MLD SBR, Indrapuram 2. 56 MLD SBR, Indrapuram 3. 56 MLD UASBR, Indrapuram 4. 56 MLD SBR, Dhudaheda, Vijay Nagar 5. 70 MLD, UASBR, Dhudaheda, Vijay Nagar 6. 56 MLD, SBR, Govindpuram 7. 56 MLD, BapuDham (No Sewage at Present) 8. 56 MLD Morti (sewer line not connected) 9. 30 MLD, Sadulhabad, Loni(Not in operation at present)
6.	Gautambudh Nagar (a)Noida	35 MLD 3.8 MLD (From NTPC)	35 3.8 MLD	1. 01 STPs of 35 MLD capacity 2. 01 STP of 3.8 MLD capacity (At NTPC)
	b)Greater Noida	35-40 MLD	137MLD	01 STP of 137 MLD

3.0 Status of Industrial effluent and treatment facilities

The industrial units discharging in the river Hindon and tributary stream are primarily distillery, Pulp & Paper, Sugar, Tannery and Textile etc. The category wise number of industrial units are distillery-8, Pulp & Paper-41, Sugar-15, Tannery-5, Textile-92, Others- 142 in U.P. Out of 316 industrial units, 264 units have provided Effluent Treatment Plant. 43 industrial units have been closed by UPPCB and 4 units are non-polluting. In Uttarakhand, 7 industrial units viz. 5 Pulp & Paper and 2 Sugar Units are discharging in river Sheela in Haridwar District which ultimately meets river Hindon. The Distillery units are maintaining zero liquid discharge whereas Pulp & Paper Units have provided online monitoring system on the treated effluent streams. Textile and Tannery units have been asked to follow the charter and to attain zero liquid discharge by December, 2016. The category wise status of industries provided in **Table-2**

Table -2 River-Wise Industries - Water Shed of River Hindon/Tributaries

Sl. No.	Category	Hindon (U.P.)	Kali (West) (U.P.)	Krishni (U.P.)	Shila (Uttarakhand)	No. of total industries	No of industries closed	Polluting process stopped	Distillation process stopped
1	Sugar	7	5	2	2	16	1	0	0
2	Distillery	5	1	2	0	8	0	0	2
3	Pulp and Paper	10	29	2	5	46	5	0	0
4	Straw Board	16	0	0	0	16	9	1	0
5	Slaughter House	5	1	0	0	6	0	0	0
6	Frozen meat packaging	5	0	0	0	5	0	0	0
7	Dairy	3	0	1	0	4	1	0	0
8	Tannery	5	1	0	0	6	1	0	0
9	Textile	105	0	0	0	105	13	2	0
10	Thermal Power plant	1	0	0	0	1	0	0	0
11	Electroplating/ Phosphating/ Galvanizing	39	0	0	0	39	1	0	0
12	Others/Misc	68	3	0	0	71	10	1	0
Total		269	40	7	7	323	41	4	2

4.0 Drain out-falling in River Hindon

There are 16 drains discharging in river Hindon. There are 3 drains in Saharanpur, 4 in Muzafarnagar, 3 in Meerut, 1 in Bagpat, 2 in Ghaziabad and 3 in Gautambudh Nagar. The names of drains in each town and discharge volume is provided in **Table-3**. The status of water quality of major drains is provided in **Table-4**. The sub tributary drains meeting to major drains in each township is provided in **Table-5**.

Table-3 – Particulars of Drains Falling into River Hindon

S.No.	Location	Name of Inletting River/Drain	Discharge (Cusec)		Length (Km)	Width (M)	Depth (M)	Gradient of the river (Cm/Km)
			Max.	Min.				
1	Saharanpur	Nagdev Rao	20000	20	25.00	35.00	2.00	120
2	Saharanpur	Local drain	80	20	8.00	5.00	1.20	--
3	Saharanpur	Paondhoi & Dhamola River	20000	100	25.00	35.00	2.00	60
4	Muzaffarnagar	Titawi Sugar Mill drain	100	20	6.00	6.00	1.00	30
5	Muzaffarnagar	Budhana Sewage Drain	200	50	5.50	5.00	1.00	--
6	Muzaffarnagar	Budhana Sewage Drain Baparasi	230	20	10.00	6.00	1.20	--
7	Muzaffarnagar	Kali River (West)	10000	170	90.00	40.00	2.50	20
8	Meerut	Sardhana Paper Mill	100	20	7.00	5.00	1.00	--
9	Baghpat	Krishni River	5000	51	130.00	30.00	2.20	20
10	Meerut	Kinauni Suger Mill Drain	100	20	4.80	5.00	1.40	--
11	Meerut	Jani Escape	4000	1110	13.20	26.00	2.50	30
12	Ghaziabad	Hindon barrage D/S	100000	1601-1500 =101	--	--	--	--
13	Ghaziabad	Indirapuram drain	100	20	8.00	5.00	1.50	30
14	Gautambudh Nagar	Dasna-Shahberi drain	415	100	19.31	13.70	1.78	20
15	Gautambudh Nagar	Hawalia Drain	1700	100	14.00	17.50	2.30	20
16	Gautambudh Nagar	Before Yamuna	100000	621	--	--	--	--

Table -4 Status of Water Quality in Major Drains

Regional Office	Major Drain	BOD(mg/l)	COD(mg/l)
Saharanpur	Dhamola Drain	N.A.	N.A.
Muzaffarnagar	Nagarpalika Drain (Near Shamshan Ghat Muzaffarnagar)	110	496
	Nagarpalika Drain (Near Shamli Road Bridge Muzaffarnagar)	107	480
	Kukra Drain(Bridge Jansath-MZN road)	104	448
	Deoband Drain	86	416
	Dhandera Drain	80	400
Meerut	Kinauni Drain(Before meeting Hindon)	30	120
	Sardhana Drain(Before meeting Hindon)	60	272
Ghaziabad	Jawli Drain after meeting C.E.T.P. Drain at Chandipur Road.	127.0	271.0
	Karheda Drain, Loni, Road	126.0	306.0
	Hindon Vihar Drain	121.0	376.0
	Meerut Road+Kaila Bhatta Drain at Shamshanghat	105.6	214.0
	Arthla Drain	114.0	372.0
	Pratap Vihar Drain	148.0	350.0
	Indira Puram Drain	87.0	520.0
	Dasna Drain	118.0	232.0
GautamBudh Nagar	Dasna drain	102.00	544.00
	Sec-123 STP drain	18.00	92.00
	Hawaliya drain	72.00	368.00

Table 5-Quantity of effluent in sub tributary drains meeting to major drains

SL. No.	Distt.	Name of the Drain	Place where drains join with river	Quantity of effluent (MLD)	Remarks
1	2	3	4	5	6
1	Saharanpur	Chilkana Nala (Dhobighat Tubewell)	Treated effluent from STP & Drains discharge in River Dhamola which joins river Hindon.	12.5	Out of total discharge of 77 mld, 38 mld is being treated in existing STP and rest is going to river without treatment.
2		Jamshed Nai (Dhobighat)		0.06	
3		Jawahar Nagar, Bansal Publisher		0.4	
4		Jawahar Nagar (Khurana Niwas)		0.65	
5		Kalyani Sales		0.45	
6		Swami Dental Clinic		0.5	
7		Braj Tansport		12.5	
8		Aggarwal Dharamshala		0.7	
9		Aggarwal Dharamshala		0.15	
10		Near Janak Hotel		1.2	
11		Khumran Pul Rikshwa Stand		0.5	
12		Sharab Theka ke Samne		0.75	
13		Natraj Drycliners		0.45	
14		Sabzi Mandi Pul		0.7	
15		Rajdhani Plywood		0.6	
16		State Bank of Patiyala		0.45	
17		Khumran Pul Mandi Ke Pas		0.75	
18		Ashu Sharma		0.25	
19		Daal Mandi Pumping Station Ke Samne		1.25	
20		Machhali Bazar		0.6	
21		Jogiyaan Pul		0.6	
22		Taj Nala		16.4	
23		Satyug Aashram		0.7	
24		Pthanpura - Ajmer Niwas		0.7	
25		Govind Nagar - Shri Hiramal Niwas		0.4	
26	Saharanpur	Govind Nagar - Shri Ganga Devi Niwas		0.45	
27		Govind Nagar - Shri Mohan Niwas		0.55	
28		Railway Drain		0.45	
29		Karliya Sahayak Chhetra Parbandhak U.P. Rajya Sadak Parivahan		0.55	
30		Gil Colony Charch Ke Pas		0.45	
31		Chawla Property Dealer - Hathi Gate		12	
32		Bharti Dairy Court Road		0.65	
33		Parmesti Das Jewellers - Court Road		0.55	
34		Police Up-Mahaniraksh Niwas		0.45	
35		Karchari Rajya Bima Nigam Jain College Road		0.45	
36		Pratap Clinic Jain College Road		0.4	
37		Baba Deep Garment Jain College Road		0.55	
38		Jai Laxmi Furniture House Malhipur Road		0.45	
39		Hakikat Nagar Tiraha		0.55	
40		Shiv Mandir (Dr. Mehta)		0.3	
41		Sadar Thane Ke Pichhe		0.25	
42		Hanuman Mandir Ghantaghar		0.2	
43		Numaish Camp Risksha Stand		0.35	
44		Numaish Camp Aarti Tant House		0.2	
45		Punjabi Barat Ghar		0.1	
46		Bhagat Singh Chowk Ke Samne		0.25	
47		Jai Jomal Store Link Road		0.3	
48		Pahlwan Pulia		0.33	
49		Mayur Service Center Link Road		0.55	
50		Vardan Hospital Link Road		0.45	
51		Dhamola Nadi Ka Pul Sapna Takies		0.55+0.46	
TOTAL				77.00	

SL. No.	Distt.	Name of the Drain	Place where drains join with river	Quantity of effluent (MLD)	Remarks
1	2	3	3	4	5
52	Muzaffarnagar	South Khala Par	Treated effluent from STP & Drains discharge in River Kali west that goes to River Hindon.	22	Out of total discharge of 60 mld, 32.5 mld is being treated in existing STP and rest is going to river without treatment.
53		Prempuri - 1		14	
54		Prempuri - 2		3	
55		Gaushala		4.5	
56		Niyajupura		1.5	
57		Ramleela Kila		15	
TOTAL				60.00	
58	Baghpat	Khas Nala, Down Stream of Baraut	Baghpat	5	Preparation of DPR for sewerage is under consideration.
59		Baghpat Nala, Down Stream of Baraut		4	
60		Basai Drain, Near Tronica City, Ghaziabad		3	
TOTAL			12.00		
61	Ghaziabad	Hindon Vihar Drain	Hindon Ghaziabad	5	Out of total discharge of 223 mld, 196 mld is being treated in STP and Only 27 mld untreated discharge will flow to River Hindon
62		Karheda Drain		5	
63		Meerut Road/Kailabhatta Drain		10	
64		Arthala Mohan Nagar Drain		3	
65		Indirapuram Drain		56 (Treated) (STP at Indirapuram THA GZB)	
66		Pratap Vihar Drain	4		
67		Vijay Nagar, B.S.Road, Dasana Drain	70 (Treated) STP at Dundaheera CHA GZB)		
68		Sahibabad Drain	Chilla Regulator Delhi	70 MLD (STP 74 MLD at Indirapuram THA GZB)	
TOTAL			223.00		
GRAND TOTAL			372.00		

5.0 Status of Water Quality

Water Quality of River Hindon is assessed at three locations viz. Saharanpur downstream, village Baparsi-Sardhana Budhana Road and Ghaziabad downstream under NWMP. It is observed that Dissolved Oxygen range between Nil-1.8 mg/l putting together data of three years (2014-2016) which is not meeting the criteria limit of at least 4 mg/l. The Bio-chemical Oxygen Demand (BOD) varies between 24-180 mg/l for similar years which is exceeding the desired level of 3 mg/l. The Chemical Oxygen Demand (COD) values ranged between 59.9-612 mg/l indicating higher level of pollution. The Faecal and Total Coliform numbers respectively for the years referred are in the range of 3300-2,20,000 MPN/100ml and 4300-3,20,000 MPN/100ml indicating significant contribution of untreated sewage. The details of parameter specific concentration are provided in Table 6.

Table 6- Status of Water Quality of River Hindon

Year	LOCATIONS	DO (mg/l)		pH		BOD (Mg/l)		COD (mg/l)		Fecal Coliform (MPN/100ml)		Total coiform (MPN/100ml)	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
2014	HINDON AT SAHARANPUR D/S	0	1.8	7.2	7.55	24	28	192	212	3300	7500	4300	12000
2015		0	0	7.4	7.5	42	44	220	246	14000	21000	28000	39000
2016		0.0	0.0	7.3	7.5	36.0	48.0	242.0	248.0	15000	15000	21000	21000
2014	HINDON AT	0	0	7.4	7.6	42	52	224	288	4000	94000	110000	170000

2015	SARDHANA BUDHANA ROAD, VILLAGE BAPARSI, MEERUT	0	0	7.3	7.7	48	60	240	330	79000	110000	94000	170000
2016		0.0	0.0	7.2	7.7	44.0	62.0	210.0	320.0	79000	130000	120000	170000
2014	HINDON AT GHAZIABAD D/S	0	1.1	7	7.6	42	180	104	612	160000	190000	220000	310000
2015		0	0.83	6.3	7.5	24.5	61	59.9	150	160000	220000	240000	320000
2016		0.0	0.0	6.7	7.4	31.7	78.1	108.8	269.0	160000	220000	280000	320000

6.0 Plan for Restoration of Water Quality

Polluted river Hindon stretches have been targeted for restoration of water quality through identification of sources of pollution and interventions through treatment for the municipal as well as industrial effluents.

The river action plans are designed for control of pollution and to restore the water quality of the rivers. The infrastructure development for treatment of sewage always remains short of the waste water generation. The ever growing population and increasing water use in the urban centers has outpaced the plan for creation of infrastructure. The river action plans although have not improve the quality of the water resources however in absence of such plans, the quality of aquatic resources would have been further deteriorated.

Step taken for improvement of water Quality are provided herewith;

- Directions issued to SPCB under Section 18 (1) (b) for planning and execution of facilities by municipal authorities to develop infrastructure for Sewage treatment.
- Directions issued to Municipal Corporation Ghaziabad under Section 5 of EPA for planning and execution of facilities by municipal authorities to develop infrastructure for Sewage treatment.
- Directions on polluted river stretches (River Hindon) issued to UP PCB for assessment of sources of pollution and to plan and execute enforcement of standards for treatment of municipal sewage and industrial establishments to consent management.
- Directions issued for setting up of online monitoring system in the industrial units for enforcement of prescribed standards.
- Directions issued for ZLD in respect of distillery units and specific plan is under implementation with respect to Pulp& Paper Sector, Textile Sector and Sugar Sector

7.0 Time Targeted Management Plan

- Review the consent conditions for the industrial units and suggest the parameters in compliance to water quality requirement viz. discharge of BOD not more than 10 mg/l, COD 50 mg/l and Suspended solids 10 mg/l.

- Review the design standards for existing STPs and suggest the parameters in compliance to ambient water quality requirement viz. discharge of BOD not more than 10mg/l, COD 50 mg/l and Suspended solids 10 mg/l.
- Natural in situ treatment system (Bioremediation-Root Zone-Sponge Based) shall be established on all the drains having more than 1.00 MLD flow. The natural system may be a combination of inert material such as boulders, gravels pebbles and synthetic sponges embedded with root zones of plants.
- Explore possibility to create storages in the water shed of River Hindon and its tributaries for release of water during non-monsoon period.
- The plan may be implemented in a time bound manner by fragmenting activities as
 - (i) modification of consent conditions,
 - (ii) surveillance of sources of pollution in contrast to the norms,
 - (iii) assessment of water quality of river Hindon, tributaries and drains after three months on round the clock basis for three days in a month viz. 1st, 11th and 21st day for nine months and
 - (iv) Convene monthly meeting of stakeholder organizations viz. U.P Jal Nigam, Deptt of Industries, Electricity supply agency, Regional Offices of U.P Pollution Control Board, Central Pulp and Paper Research Institute, Distillery Association, Sugar Mill Association, U.P. Irrigation Deptt under the Chairmanship of Commissioner/District Magistrate at District Level in Saharanpur, Muzaffarnagar, Ghaziabad and Gautam Budh Nagar.
 - (v) Convene quarterly meeting of stakeholder organizations under the Chairmanship of Chief Secretary.

The suggested plan may be implemented within a time frame of one year.

TIMELINES FOR IMPLEMENTATION OF MODEL RESTORATION PLAN

Activities /Year	2017	2018	2019	2020	2021	2022
Reconnaissance Survey						
Water Quality Sampling						
Preparation of DPR						
Execution (Setting up of STPs, CETPs)						
Augmentation of River Flow if any and restoration of water quality						

Note: Subject to availability of Funds & Manpower