

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

Principal Bench, New Delhi

In

Original Application No. 95 of 2018

In the Matter of: -

Aryavart Foundation

Applicant(s)

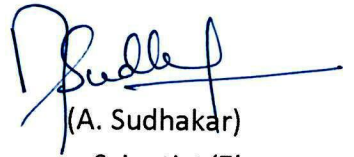
Vs.

M/s Vapi Green Enviro Ltd. & Ors.

Respondent(s)

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2.	Annexure-I: A copy of Hon'ble NGT order dated 11.01.2019.	
3.	Annexure-II: A copy of Hon'ble NGT order dated 28.08.2019.	


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Scientist 'E'

Central Pollution Control Board
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Place: Delhi

Date: 30.09.2020

REPORT OF THE PERFORMANCE AUDIT OF STATE POLLUTION CONTROL BOARDS / POLLUTION CONTROL COMMITTEES

**Prepared in compliance to the Orders of
Hon'ble National Green Tribunal dated 28.08.2019
in the matter of Original Application No. 95 of 2018**

18th September 2020

**CENTRAL POLLUTION CONTROL BOARD
(MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE)
'PARIVESH BHAWAN',
EAST ARJUN NAGAR,
DELHI – 110032**

EXECUTIVE SUMMARY

In 2017, Hon'ble Supreme Court of India has made the following observations in the matter of *Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors.* (supra) "One of the principal attributes of good governance is the establishment of viable institutions comprising professionally competent persons and the strengthening of such institutions so that the duties and responsibilities conferred on them are performed with dedication and sincerity in public interest. This is applicable not only to administrative bodies but more so to statutory authorities – more so, because statutory authorities are the creation of a law made by a competent legislature, representing the will of the people."

"State Pollution Control Boards (or SPCBs) constituted under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 fall in this category but many of them possess only a few or sometimes none of the above attributes of good governance and again a few or none of them are adequately empowered. This is a serious problem haunting the SPCBs for at least two decades (if not more)."

"One of the earliest communications on our record encouraging professionalism in the SPCBs with a view to empowering them is a letter of 26th September, 1997 addressed by the Secretary in the Ministry of Environment and Forests (MoEF) of the Government of India to the Chief Secretary of every State highlighting the importance of the SPCBs, the fact that their activities are science and technology based and the necessity of taking relevant factors into consideration while making appointments to the SPCBs."

"The State Pollution Control Boards / Pollution Control Committees in Union Territories have been assigned an important role for prevention and control of pollution from different sources. In recent years, additional responsibilities have been assigned to them for enforcement of various statutes. Hence, these organizations need to be suitably strengthened so that they can cope up with the tasks. In fact, the Hon'ble Supreme Court has also had occasion to observe on the unsatisfactory performance of State Boards in discharging their functions."

A letter was addressed by the Secretary in the MoEF to the Chief Secretary of every State on 3rd July, 2001

"In the National Conference of Ministries of Environment and Forests held at Coimbatore on January 29-30, 2001, several important recommendations were made regarding effective functioning of the State Pollution Control Boards / Committees."

These include the following:

- (i) Induction of academicians, legal professionals, health experts and technologists as members of the Boards / Committees.*
- (ii) Appointment of multi-disciplinary staff.*
- (iii) Ban on recruitment shall be relaxed for the posts of scientists and engineers in the Pollution Control Boards / Committees.*
- (iv) Training of personnel, for which programme shall be drawn up by the Central Pollution Control Board.*

- (v) *Streamlining of Consent / Authorization procedures.*
- (vi) *Inventorization of polluting sources and pollution load.*
- (vii) *Formulation of Annual Action Plans.*
- (viii) *Publication of annual State Environment Report.*
- (ix) *Strengthening and upgrading of water and air quality monitoring and laboratory facilities.”*

The observations of Hon'ble Court were also reflected in order of Hon'ble National Green Tribunal, while examining the Original Application No. 95/2018 (M.A. No. 1029/2018) (Aryavart Foundation Applicant(s) Versus M/s Vapi Green Enviro Ltd. & Ors. Respondent(s)) on 11.01.2019 (a copy of said Order is given at **Annexure I**) as:

“.....54(iv) The regulatory regime in the form of SPCBs has not been as effective as expected as noted by the Hon'ble Supreme Court in the matter of Techī Tagī Tara Vs. Rajendra Singh Bhandari & Ors. (supra). This is partly on account of appointments not being upto the mark as well as absence of audit of performance and monitoring mechanism. This needs to be remedied in light of performance audit and study by an Expert Committee.”

Central Pollution Control Board has been directed to conduct Performance Audit of the State Pollution Control Boards on issues such as adequacy with regard to environmental monitoring, efficacy of regulatory setup / mechanisms, staffing both technical and scientific manpower, scientific equipments, logistics support, competence, etc. CPCB with its Group of Officers discussed the methodology / mechanism to be followed for the preparation of the state-wise reports based on:

- (i) the functions of the SPCBs / PCCs notified under the different Acts / Rules,
- (ii) the major environmental issues of audit concern in each of the states / UTs including those cited in the orders of the Hon'ble NGT dated 11.01.2019 and 28.08.2019,
- (iii) the 35 reports of the audits conducted by the CPCB teams in May-June 2019, and
- (iv) the supplementary information / data received from the SPCBs / PCCs under various directions and judicial cases.

The Performance Audit of each State Pollution Control Board contained three sections. The first part shows about general information, State's potential in terms of resources, environmental factors and performance with reference to other indices. The second part is the summary of the audit findings mainly dealing with infrastructure, monitoring, regulatory and other actions with recommendations. Third part contains information at a glance on all environmental aspects.

Serious concerns were mentioned regarding the infrastructure in the form of manpower, laboratories and other facilities available at State Pollution Control Boards and Pollution Control Committees. The information is collected from the States on the aspects related to infrastructure were detailed in the report.

MANPOWER: It has been reported from time to time that shortage of manpower is the chief cause for under performance of State Pollution Control Boards. CPCB requested all SPCBs / PCCs to provide the Scientific, Technical and Administrative manpower details w.r.t. Group A, B, and C in prescribed format.

Category	Group A	Group B	Group C	Total
Sanctioned	1,749	2,629	5,060	9,438
In Place	1,092	1,591	2,413	5,096
Vacancy	657	1,038	2,647	4,342

- It is evident that about 46 % posts are vacant and need to be filled up urgently.
- North Eastern States and UTs have skeleton staff attending urgent matters only.
- Six Boards namely Andaman & Nicobar (05), Arunachal Pradesh (56, including 49 Group C), Daman, Diu & Dadra and Nagar Haveli (10), Mizoram (11), Nagaland (14) and Sikkim (19) have filled all sanctioned posts.
- Arunachal Pradesh, Delhi, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Meghalaya, Punjab, Sikkim Board had administrative staff more than Scientific & Technical manpower.

LABORATORIES: The strengthening of laboratories at SPCBs is one of the major concerns and expected regular upgradation and establishment of analytical facilities to meet the regulatory and research requirements. Shortage of funds was not a reason for most of the Boards. Similarly, there are no reasons for the State Boards for not obtaining the recognition of their laboratories under E (P) Act. NABL Accreditation is recommended for all laboratories and followed up by CPCB with moderate success. The shortage of scientific manpower, procurement delays in instruments, equipment, & consumables and need for quality control are important aspects identified during the audit process.

- Six Central Laboratories at SPCBs had valid recognition as Environmental Laboratories.
- Two applications are under process for renewal of recognition at MoEF&CC.
- Three regional laboratories had valid recognition as Environmental Laboratories.
- Five Laboratories have obtained accreditation for four major group of parameters.
- Eight SPCBs have accreditation for more than two groups of parameters.
- Five SPCBs notified adequate number of Board Analysts.
- Twelve Boards have notified more than one Analyst at Laboratories.
- Thirteen SPCBs / PCCs have not notified any Analysts.

The two short comings related to recruitment and procurement need urgent attention all the SPCBs and if needed, professional services in private sector may be hired for effective and timely actions.

PERFORMANCE: After examining the performance of SPCBs during the audit process, short-comings noted are mentioned here. Some of these shortcomings are prevailing in well-structured Boards also.

- (i) Many States / UTs have not yet felt the need for state specific Environment Policy. The existing Environment Policies at other States need a review in view of new thrust areas are related to the civic issues and waste management practices.
- (ii) There are many SPCBs / PCCs who have not yet prepared the Environment Status Reports. There is a strong need of preparing such reports regularly incorporating the inventory of wastes and management regulations revised in the year 2016.
- (iii) Most of the SPCBs / PCCs (exceptions NE States and UTs such as Lakshadweep) do not have any kind of financial constraints and the budget utilization is mostly for the non-plan activities. There are many SPCBs which have built reserves funds.
- (iv) A number of States still do not have the industrial siting policy / criteria. It is very important step in regulating industrial growth, specially for the hilly states in view of the very sensitive ecology.
- (v) The Boards and Committees have not met regularly to review the functioning and provide much needed direction & vision.
- (vi) The SPCBs / PCCs are not submitting annual reports as per the timelines specified in the various rules. This in-turn affects the timely compilation and preparation of the National Status Report by CPCB. Considerable improvement in compliance with reference to the submissions was seen after 2018.
- (vii) Many SPCBs / PCCs are yet to adopt to the practice of issuing the integrated / consolidated consents and conducting regular inspections of the industries for timely identification and action against the defaulters.
- (viii) Many SPCBs having CETPs have not yet prescribed the inlet standards. This implies that the uncertainty, of the member industries discharging their effluents into the CETP not complying these standards, continues to prevail.
- (ix) The quantity of the hazardous waste shown as 'sent to the TSDF' pose risk in the absence of effective verification and tracking.
- (x) The present implementation status of Bio-Medical Waste Management Rules 2016, is reasonably satisfactory, while the compliance with reference to Batteries Management Rules, 2001 is very poor.
- (xi) The present network of the Air / Water Quality Monitoring Stations provides representative Air / Water Quality of the State only for selected areas and water bodies. The Class II towns and stagnant water bodies in States need to be included in monitoring networks.
- (xii) Majority of the SPCBs / PCCs are not well-equipped for the quality assurance in the analysis & data generation at their laboratories. Representative analysis data is essential for the preparation of action plans for abatement and control of pollution.
- (xiii) The monitoring network of coastal waters is very small and practically insignificant. The recent data from coastal districts show serious issues of sewage and solid waste management.

- (xiv) Many SPCBs expressed the need for technical guidance and regular professional trainings in effective discharge of their functions.
- (xv) SPCBs have challenges in their working because of geographical & climatic conditions and different procedures and processes followed for implementation of Rules.

Compliance Status: The State Boards are deploying most of the resources in consent management and finally at compliance of industrial operations. The performance of SPCBs is expected to be better in the segment of Regulatory in view of time and resources spent. During audit exercise, the compliance outcome is categorised in 17-categories of industries, Grossly Polluting Industries (GPI), Water Polluting industries needed ETPs, Sewage Treatment Plants and CETPs.

Compliance	17-Cat. of industries	Grossly Polluting Industries	Industries discharging Trade Effluent	Common ETPs	Sewage Treatment Plants
Gross Total	4,359	2,747	64,001	189	1,122
Functional	3,813	2,500	62,174	189	1,114
Complying with standards	3,497	2,225	60,980	132	878
Percentage of non-compliance	8.3	11	1.9	30	21
Actions taken against non-complying Industries (%)					
Show-cause notice	55	27	55	30	40
Closure direction	33	52	13	9	0
Legal case	2	1	1	14	5
Pending action	10	20	31	47	55

- (i) There are 4,359 Industries of 17-Categories identified by the States and 546 of these were closed down on their own. The overall compliance of the industries is 91.7 %, 3,497 industries are complying with the prescribe standards. The states Tamil Nadu, Odisha, Kerala, Uttar Pradesh, Bihar, Madhya Pradesh and Haryana have shown better compliance.
- (ii) Gujarat, West Bengal, Jharkhand and Puducherry have recorded less than 80 % compliance, while Rajasthan, HP, Assam and Uttarakhand have reported less than national average compliance percentage of 91 %.
- (iii) The non-complying industries, 316 are mostly located in Gujarat (97), Maharashtra (40), UP (25), West Bengal (24) and Rajasthan (20).
- (iv) The SPCBs generally issue Show-Cause Notices (SCNs), then closure and finally file legal cases. There were only 6 legal cases filed by States, 4 by Telangana, while 105 units were issued Closure directions and 174 were issued SCNs.
- (v) The water polluting industries with discharges to a water course having BOD of 100 kg/day and / or handling hazardous substances are categorised as Grossly Polluting Industries. The inventory of these units was not updated by many States.

- (vi) There were 2,747 GPI units identified in the country and 247 of these were found closed on their own. Most of the operating GPIs are located in Uttar Pradesh (1,079) followed by Haryana (638) Andhra Pradesh (193) and Gujarat (178).
- (vii) The overall compliance percentage was 89 and Gujarat, West Bengal, Jharkhand, Uttarakhand, Uttar Pradesh and Arunachal Pradesh have reported lesser compliance than the national average.
- (viii) The non-complying units are located in UP, Gujarat, Jharkhand and Arunachal Pradesh. UP has issued closure directions to 84 units out of 143 in the country and also the state was in the process of taking required action against 39 non-complying industries. Only three legal cases are filed against the non-complying units, two in Jharkhand and one in UP.
- (ix) In the country; 64,001 industrial units were identified Generating Trade Effluents & Requiring ETPs from 32 States and UTs. Uttar Pradesh has not provided the details and there were no units reported in Manipur and Lakshadweep.
- (x) It was identified that 1,827 units were operating without functional ETPs. Assam has maximum of 795 units followed by J & K (212), Karnataka (156) and Gujarat (117). SPCBs have issued closure directions to 804 and Show-Cause Notices (SCN) to 842 units. Legal cases were filed against 6 units, while action was pending for remaining 164 industries.
- (xi) The 60,980 industrial units having functional ETPs complied with prescribed standards and the remaining 1,194 units failed to comply. Closure directions were issued to 163 units, SCNs to 652, 13 legal cases filed and action was pending against 366 non-complying units. The non-complying units were located in Assam (237), Maharashtra (208), Punjab (143) and Rajasthan (120).
- (xii) Nineteen States have reported 189 Common Effluent Treatment Plants (CETPs) operating in the country and most of these are located in Tamil Nadu (36), Gujarat (34), Maharashtra (26) and Haryana (19).
- (xiii) The compliance status of CETPs is very poor at 70 %, mainly because of undisciplined member units. Some of the agencies involved in management of CETPs were unprofessional and found lacking required skilled manpower.
- (xiv) SPCBs have issued closure directions to five CETPs and filed legal cases against eight CETPs. The non-complying CETPs were reported in Gujarat (15), Tamil Nadu (9), Rajasthan (9) and Delhi (8).
- (xv) The sewage generation from urban population in the country was estimated as 70,089 MLD and the treatment capacity was reported as 27,240 MLD in 2018. After 2018, the States have calculated the gap in generation and installed capacity to create additional capacity needed for treatment.
- (xvi) The total operating STPs reported in the country were 1,122 and 236 of these STPs were not complying with discharge standards. These STPs are located in Punjab (47), West Bengal (42), Karnataka (31), Rajasthan (30) and Uttar Pradesh (22).
- (xvii) Most of the SPCBs preferred issuing SCNs (98) to non-complying STPs and only 13 legal cases were filed. The action needed against the defaulters was delayed in 137 cases, mostly in Punjab, Rajasthan and UP.

- (xviii) As per the information furnished by SPCBs / PCCs, about 10.71 Million MT of hazardous waste was generated during 2018-19 by 69,054 units. About 45 % of waste is utilized / recycled and about 31 % of waste is disposed through TSDFs / SLFs.
- (xix) There are 42 Common HW Treatment, Storage and Disposal Facilities (TSDFs) available in 18 States / UT, which includes 18 integrated TSDFs, having both Secured Landfills and Incinerators. In remaining 17 States / UTs the generated waste is mostly stored at occupier's premises.
- (xx) About 1,050 applications for utilization of different categories of HW under Rule 9 of HOWM Rules, 2016 have been received at CPCB. Upon technical examination and evaluation followed by successful trial runs, 54 SOPs for utilization of 40 different categories of HW have been developed and circulated to all SPCBs / PCCs. Gujarat is in forefront in utilising the hazardous wastes in industrial processes.
- (xxi) As per compiled information from the Annual Reports of 2018, there were 2,70,416 Health Care Facilities (HCFs) reported in the country, 97,382 of HCFs bedded and 1,73,831 non-bedded. About 41 % of HCFs, 1,10,356 HCFs have obtained authorization under BWWM Rules, 2016.
- (xxii) About 615 TPD of biomedical waste was generated by the HCFs and 534 TPD of waste is treated and disposed. There were 200 Common Biomedical Waste Treatment Facilities (CBWTFs) and 12,326 captive treatment facilities installed by HCFs for the treatment & disposal of biomedical waste. In addition, 28 CBWTFs were under construction.
- (xxiii) All States / UTs; except Arunachal Pradesh, Goa, Jharkhand, Kerala and Uttarakhand had granted more than 75 % authorizations to the Health Care Facilities (HCFs), applied for authorization under the Bio-Medical Waste Management Rules.
- (xxiv) Municipal Solid Waste generation in the country was reported as 1,62,836 TPD. About 92 % (1,49,346 TPD) of waste is collected and 37 % (60,683 TPD) of the collected waste is treated. About 27 % (44,835 TPD) of total waste is landfilled in 3,115 dumpsites. The remaining 43,828 TPD of solid waste was unaccounted, littered and dumped in drains, canals and low-lying areas.

Overall Recommendations: Based on the information gathered through questionnaires, visits of the Expert Teams for auditing and interactions, the following general recommendations are made:

- (i) The State Governments should allow the recruitment of the staff required by the respective SPCB and if needed, comprehensive assessments may be carried out for building suitable infrastructure for effective and improved performance.
- (ii) Based on the information collected on manpower at SPCBs, it was observed that large number of sanctioned posts are still vacant. It is recommended that recruitment process may be outsourced availing professional services, wherever internal shortcomings were observed.

- (iii) The State should prepare / revisit their Environmental Policies incorporating all the current aspects concerning the sustainability of the development, conservation of the resources and the objectives of the Environment Legislation of the country.
- (iv) The State Environmental Status Reports should be prepared / updated by the SPCBs incorporating the aspects of environmental quality parameters.
- (v) The States should prepare / update their industrial siting policies / criteria and regulated strictly as per the criteria.
- (vi) The SPCBs should ensure preparation and submission of their annual reports with complete inventory details as per the timelines specified under the rules.
- (vii) All the SPCBs should ensure issuing the consolidated consents & authorization from the year 2021 by processing all applications online in transparent manner.
- (viii) The SPCBs should prepare / update the protocols for regular inspection of the polluting industries for timely identification of & action against the defaulters.
- (ix) The Online CEMS data generated from the system should be used for surveillance and monitoring for identifying habitual and frequent violators.
- (x) The SPCBs / PCCs should prescribe the inlet standards for CETPs for compliance of member industries.
- (xi) The States and UTs should adopt 'Online Tracking' for all wastes from generation point to final disposal point. A national tracking system initiated by CPCB may be shared with SPCBs.
- (xii) The SPCBs should ensure 100 % compliance of the Batteries Management Rules, 2001 and submission of the report to CPCB by December, 2020.
- (xiii) The SPCBs should develop & upgrade their laboratories and obtain the NABL Accreditation and MoEF&CC recognition on top priority by 2021.
- (xiv) The SPCBs should identify air & water quality monitoring locations covering the district headquarters, minor rivers, ponds, lakes and other important water bodies of the State / UT.
- (xv) The SPCBs / PCCs, situated along the main coastline, should establish a representative number of stations / locations for the monitoring of coastal waters in the range of 80 to 150 stations.

It is expected that the State Pollution Control Boards and Pollution Control Committees prepare comprehensive plans for strengthening the organisations and also incorporate short-term & long-term actions for abatement and control of pollution with budgetary estimates and obtain required approvals from the respective departments under State Government and UT Administration.

*

Abbreviations

BAT	Best Available Techniques
BEP	Best Environmental Practices
BMW	Bio-medical Waste
BOD	Biochemical Oxygen Demand
BPO	Business Process Outsourcing
CAAQMS	Continuous Ambient Air Quality Monitoring Station
CAMPA	Compensatory Afforestation Fund Management and Planning Authority
CBMWTF	Common Bio-Medical Waste Treatment Facility
CCA	Consolidated Consent and Authorisation
C&D	Construction and Demolition
CEPI	Comprehensive Environmental Pollution Index
CETP	Common Effluent Treatment Plant
CO	Carbon Monoxide
COD	Chemical Oxygen Demand
CPCB	Central Pollution Control Board
CPCC	Chandigarh Pollution Control Committee
Cr	Crore
CRZ	Coastal Regulation Zone
CSAMP	Common Spent Acid Management Project
CSE	Centre for Science and Environment
CTE	Consent to Establish
CTO	Consent to Operate
CWMI	Composite Water Management Index
DCB	Delhi Cantonment Board
DD&DH	Daman Diu and Dadra Nagar Haveli
DO	Dissolved Oxygen
DPCC	Delhi Pollution Control Committee
DST	Department of Science and Technology
EC	Environmental Compensation

ENVIS	Environmental Information System
E (P) Act	Environment (Protection) Act, 1986
EPIC	Energy Policy Institute of University of Chicago
ETP	Effluent Treatment Plant
E-Waste	Electronic Waste
FC	Faecal Coliforms
FDs	Fixed Deposits
FDS	Fixed Dissolved Solids
FY	Financial Year
GDP	Gross Domestic Product
GPI	Grossly Polluting Industries
GRAP	Graded Response Action Plan
GSDP	Green Skill Development Programme
Ha	Hectare
HCFs	Health Care Facilities
HP	Himachal Pradesh
HW	Hazardous Waste
ICZMP	Integrated Coastal Zone Management Project
IIT	Indian Institute of Technology
IT	Information Technology
kg	Kilogram
km	Kilometre
km ²	Square kilometre
KSPCB	Karnataka State Pollution Control Board
KW	Kilowatt
LPCC	Lakshadweep Pollution Control Committee
MA	Miscellaneous Application
MCD	Municipal Corporation of Delhi
Mg	Milligram
MLD	Million Litres Per Day
MoEF&CC	Ministry of Environment, Forest & Climate Change
MoHFW	Ministry of Health and Family Welfare

MP	Madhya Pradesh
MPCB	Maharashtra Pollution Control Board
MSW	Municipal Solid Waste
MT	Metric Tonne
MTA	Metric Tonnes Per Annum
MV	Marine Vessel
NA	Not Applicable
NAAQS	National. Ambient Air Quality Standards
NABL	National Accreditation Board for Testing and Calibration Laboratories
NAMP	National Air Quality Monitoring Programme
NDMC	New Delhi Municipal Council
NE	North-Eastern
NEERI	National Environmental Engineering Research Institute
NGT	National Green Tribunal
NITI	National Institution for Transforming India
NOx	Oxides of Nitrogen
NWMP	National Water Quality Monitoring Program
OA	Original Application
OCEMS	Online Continuous Emission and Effluent Monitoring System
OECD	Organisation for Economic Co-operation and Development
OHSMS	Occupational Health and Safety Management Systems
Ors	Others
PAPA	Pollution Abating Plants Abhiyan
PCB	Pollution Control Board
PCC	Pollution Control Committee
PM	Particulate Matter
POP	Plaster of Paris
PRS	Polluted River Stretches
PTZ	Pan-Tilt-Zoom
QCI	Quality Council of India
R&D	Research and Development
RRC	River Rejuvenation Committee

RTWQMS	Real Time Water Quality Monitoring System
SAMP	State Air Quality Monitoring Programme
SDGs	Sustainable Development Goals
SEZ	Special Economic Zone
SLF	Secured Landfill
SMEs	Small and Medium Scale Enterprises
SO ₂	Sulphur Dioxide
SOP	Standard Operating Procedure
SPCB	State Pollution Control Board
STP	Sewage Treatment Plants
SWMP	State Water Quality Monitoring Program
TC	Total Coliforms
TDS	Total Dissolved Solid
TERI	The Energy and Research Institute
TKN	Total Kjeldahl Nitrogen
TNPCB	Tamil Nadu Pollution Control Board
TPA	Tonnes Per Annum
TPD	Tonnes Per Day
TSDF	Treatment Storage and Disposal Facility
TS	Total Solids
TSS	Total Suspended Solids
ULBs	Urban Local Bodies
UNESCO	United Nations Educational, Scientific and Cultural Organization
UP	Uttar Pradesh
UPPCB	Uttar Pradesh Pollution Control Board
US EPA	United States Environmental Protection Agency
UTs	Union Territories
ZLD	Zero Liquid Discharge

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28.08.2019 in the matter of Original Application No. 95 of 2018**

1.0 INTRODUCTION:

Hon'ble National Green Tribunal, while examining the Original Application No. 95/2018 (M.A. No. 1029/2018); Aryavart Foundation Versus M/s Vapi Green Enviro Ltd. & Ors. on 11.01.2019, the following observations were made:

45. In Techī Tagī Tara Vs. Rajendra Singh Bhandari & Ors., the Hon'ble Supreme Court noted that the State Pollution Control Boards (SPCBs) continued to be manned by persons not having expertise or professional experience. The State Governments were not able to appoint qualified, impartial, and politically neutral persons of high standing to the crucial regulatory posts. Political appointments were being made in blatant violation of Apex Court guidelines to debar favourable persons being appointed. The appointments being made did not inspire the confidence of the people. The Hon'ble Supreme Court directed all the States to frame guidelines and recruitment rules within six months. It may be pertinent to lay emphasis on the following observations of the Hon'ble Supreme Court in the aforesaid judgment:

“Unless corrective measures are taken at the earliest, the State Governments should not be surprised if petitions are filed against the State for the issuance of a writ of quo warranto in respect of the appointment of the Chairperson and members of the SPCBs. We make it clear that it is left open to public spirited individuals to move the appropriate High Court for the issuance of a writ of quo warranto if any person who does not meet the statutory or constitutional requirements is appointed as a Chairperson or a member of any SPCB or is presently continuing as such.”

The judgment takes into consideration various Committees appointed laying down guidelines for the functioning of SPCBs viz.,

(a) *Bhattacharya Committee (1984)* proposed that the structural organization of SPCBs should consist of technical services, scientific services, planning, legal services, administrative services, accounts, training cell and research and development.

(b) *The Bellappa Committee (1990)* - Recommended (i) introducing elaborate monitoring, reporting and organizational systems at the national level along with four regional centres and one training cell in each Board, (ii) effecting suitable changes in the Boards recruitment policy to enable them induct persons with suitable academic qualifications, and (iii) ensuring that the Chairman and Member-Secretary are appointed for a minimum of three years.

(c) *The Administrative Staff College of India (1994)* - Recommended, inter alia, that (i) the SPCBs be reoriented for implementing the instrument mix of legislation and

regulation, fiscal incentives, voluntary agreements, information campaigns and educational programmes.

(d) The Menon Committee – Recommending that the State Governments should not interfere with recruitment policies of the SPCBs, especially where the Boards are making efforts to equip their institutions with more and better trained engineering and scientific staff.

53. There is, thus, urgent need to review the qualification and appointment procedure so as to realistically comply with the mandate of the judgment of the Hon'ble Supreme Court. There is also need to carry out performance audit of functioning of all the Pollution Control Boards and Pollution Control Committees in the country and to identify remedial steps required in manning and functioning of SPCBs and PCCs or otherwise. Unless strong effective regulatory regime is in place, and shortcomings identified and remedied to expect clean environment would be unrealistic and merely a dream.

The observations lead to conclude further as:

54(iv) The regulatory regime in the form of SPCBs has not been as effective as expected as noted by the Hon'ble Supreme Court in Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors. (supra). This is partly on account of appointments not being upto the mark as well as absence of audit of performance and monitoring mechanism. This needs to be remedied in light of performance audit and study by an Expert Committee.

With the observations and conclusions, the following direction is issued for Central Pollution Control Board for filing a report in six months by July, 2019.

55. (vi) The CPCB may conduct Performance Audit of all the SPCBs and Pollution Control Committees (PCCs) within six months by constituting appropriate expert inspection teams and furnish a report to this Tribunal. The CPCB may consider making Performance Audit at suitable intervals a regular feature of its working.

ASSESSMENTS MADE IN PAST:

Various agencies and committees have assessed the performance of the pollution control boards in the past. Some of the Committees are mentioned above in the order of Hon'ble NGT. Centre for Science and Environment published a report in 2009 titled '*Turnaround: Reform Agenda for the Environment Regulators of India*', highlighting the capacity gaps prevailing at State Pollution Control Boards (SPCBs). Planning Commission has made similar assessment in 2001-02.

Some of the International organisations have also prepared the following reports:

- a) Organisation for Economic Co-operation and Development, OECD (2003), Environmental Compliance and Enforcement in India, Rapid Assessment
- b) U.S. EPA (2005): Report on Environmental Compliance and Enforcement in India, December 2005
- c) The World Bank (2006): India: Strengthening Institutions for Sustainable Growth, Country Environmental Analysis, October 2006

Centre for Science and Environment, New Delhi in its 2009 report **TURNAROUND REFORM AGENDA FOR INDIA'S ENVIRONMENTAL REGULATORS** made the following observations:

The pollution control boards are the frontline agency for environmental protection in the country. Their performance will largely determine how successfully India is able to overcome its environmental challenges. But a well-performing board requires a well-designed institutional structure, clearly defined powers and responsibilities, and adequate resources (financial as well as human) to discharge its responsibilities.

However, providing powers and resources alone will not transform the nation's pollution control boards into effective and efficient organisations. Accountability for non-performance, openness and transparency, and a willingness to involve and engage with the public are the other parts of the package that should constitute the next generation reform agenda for India's pollution control boards.

There is no standard definition, guidelines or manual for what constitutes compliance and enforcement in the country. For instance, different state boards have different interpretations of what constitutes a proper compliance inspection and how frequently should it be conducted. The fact is that statutes / regulations are notified by the Central government without comprehensive guidance on how to implement them. SPCBs, therefore, interpret statutes / regulations and design implementation guidance as they see fit.

It is quite clear that compliance and enforcement package of small-scale industries will be different from those applied to large- and medium-scale industries. It will include compliance assistance, technology support and financial incentives, as also credible deterrence for non-compliance. The entire compliance and enforcement mechanism in India is based on the concept of 'legal' sample. Large amounts of self-monitored data on pollution and resource consumption are demanded and collected by the SPCBs, but these are not used for enforcement. Because the self-monitored and self-reported data is not used, they lack integrity.

There is little state-wide or nation-wide data on the status of compliance in the country. The data that is available lacks reliability. In fact, many SPCBs have reported that they measure compliance in terms of the availability of 'appropriate' pollution control equipment; companies not having such equipment are termed as non-compliant. Few SPCBs reported that they measure non-compliance based on inspection and monitoring. The legal route of enforcement action is not working in the country. In other words, there is a lack of credible deterrence for non-compliance.

Many countries have established a civil administrative authority and have given powers to their environmental regulators to set compliance schedules and to directly impose penalties on companies for certain categories of violation. In case the industry is not satisfied with the verdict of the civil administrative authority, it can challenge it in a court of law. This mechanism provides an effective enforcement tool to the regulators.

There are no success or failure standards / indicators for SPCBs. In many developed countries, success or failure standards for regulators are defined in terms of ambient environmental quality. If the pollution level in an area is increasing, the responsibility of the same lies with the regulators.

The issues hampering the performance related to manpower, finance and other factors were reported.

Recruiting and retaining trained and qualified personnel is important for the success of any organisation – more so for technical regulatory bodies like SPCBs. Most SPCBs today lack such staff. Unattractive pay packages and incentives and career stagnation keeps potential candidates away. The skill sets of the SPCBs remain traditional' at best. It is important to understand that environmental management has moved beyond engineering and environmental sciences and now encompasses multi-disciplinary solutions.

A discussion paper on STRENGTHENING ENVIRONMENTAL GOVERNANCE was published by CSE in 2014 wherein it was mentioned that CSE analysed the laws and grouped the responsibilities of SPCBs in four major areas -- regulatory, advisory role, data management and capacity building of stakeholders, and research and development. The functional areas were further analysed with respect to the capacity gaps existing at the individual, organisational and system / policy level to comprehend why it is difficult for SPCBs to fulfil their mandate.

Planning Commission report, 2001 brought out the issues effecting the efficacy of functional tools employed by SPCBs and constraints to their effective functioning. The 5-year study period was taken from 1992-93 to 1997-98. The report said that Non-filling of the sanctioned strength is one of the predominant factors behind the widely varying per unit staff ratios across SPCBs. The absence of any norm for staffing may also have contributed to this. In Andhra Pradesh one technical person has to monitor hundred units, whereas Kerala and Himachal Pradesh have fourteen and twelve persons, respectively for the same task.

All State Boards of the North East (with the possible exception of Assam) are crippled with gross inadequacies of manpower. Some of them are unable to perform even basic functions like inventorisisation of polluting units.

There are wide variations across State Boards in the ratio of technical to non-technical staff. The highest ratios are with the State Boards of Punjab and Bihar while very low ratios are associated with those of Haryana, Himachal Pradesh and Goa.

The primary functional tool deployed by SPCBs in controlling pollution is the inspection of polluting units. Due to shortage of staff all scientific, engineering and laboratory staff are being deployed for this purpose to meet the norms fixed by the CPCB.

The Organisation for Economic Co-operation and Development (OECD) report titled ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT IN INDIA: RAPID ASSESSMENT in preparing the assessment, a team of consultants, including experts from The Energy and Resources Institute (TERI, India) worked with the CPCB and selected SPCB officials to assemble the information via a survey questionnaire and follow-up interviews.

The questionnaire was designed to identify program strengths and weaknesses, priority reform areas and opportunities for strategic interventions in eight principal areas:

- Legal enforcement authority;
- Institutional arrangements and capacity building;
- Compliance monitoring: policies and procedures on inspections, self-monitoring and permitting;
- Enforcement response;
- Compliance assistance and data management;
- Economic and other incentive-based instruments;
- Indicators to evaluate program success; and
- Public participation in environmental compliance and enforcement.

Participating states were Gujarat, Maharashtra, West Bengal, Andhra Pradesh, Uttar Pradesh, Himachal Pradesh, Jammu and Kashmir, and Chhattisgarh. The findings were presented in 2006 and report was published referring the two reports from the US EPA and the World Bank.

As indicators of program success, presently some SPCBs track activity levels: the numbers of inspections, corrective actions, closures, bank guarantees imposed, court cases filed and won, monetary value of fines per year, even the amount of funds collected through water cess and administrative fees. At the same time, CPCB reports try to measure success against a few critical environmental quality indicators, which are not tied to any enforcement activity.

Overall, SPCBs lack a standard set of indicators to evaluate their respective programs. However, in a recent positive development, the Maharashtra PCB has drafted a comprehensive set of indicators to assess the performance of the board that could be potentially replicated in other states. It comprises the following five components:

- Approvals: number of different consents and authorizations issued and renewed, environmental clearances granted, and public hearings held;
- Pollution: total emission / effluent loads per key parameters, waste generation and management;
- Environment and Monitoring: number of locations monitored, ambient quality of air, surface freshwater, groundwater, and surface waters, and noise levels;
- Enforcement: number of complaints files, show cause notices, notices of violation and directives issued, prosecutions launched and convictions secured; and
- Infrastructure: staff numbers and breakdown, training, laboratory equipment, number of environmental infrastructure projects.

Indicators are also an instrument to facilitate short and long-term planning. The Gujarat PCB was one of the first to prepare a vision document entitled “Vision 2010-2015 and Strategy Planning” which was released in June, 2006. The vision document is a positive step towards a proactive, integrated, target oriented framework for environmental compliance and enforcement activities.

Based on the findings from the rapid assessment, a number of short-term and medium-term recommendations are proposed in conjunction with those already advanced in the

recent US EPA and World Bank reports. The short-term recommendations (with a time horizon of 2-3 years) deal primarily with urgently needed measures to improve the application of a number of compliance and enforcement instruments (self-monitoring, fines, bank guarantees) and to build PCB capacity by establishing standardized policies and procedures and conducting extensive training programs. Another major direction for improvement in the short-term perspective is to focus more attention on SMEs, both in terms of compliance monitoring and financial assistance. The medium-term recommendations (in a 5-7 year perspective) target improvements in the overall management capacity of PCBs which will require more substantial programmatic development efforts and resources.

Short-term Recommendations

- Establish a system of administrative fines and streamline the system of criminal fines
- Overcome legal limitations on using self-monitoring information as evidence in court or other Proceedings
- Establish and disseminate comprehensive standard compliance monitoring and enforcement policies and procedures, and develop and deliver related training programs
- Increase the emphasis on compliance monitoring and enforcement and prioritize inspection efforts based on environmental risk
- Develop more balanced compliance monitoring and compliance promotion programs by extending them to SMEs
- Develop a uniform, effective bank guarantee system

Medium-Term Recommendations

- Increase direct central and state government funding levels to PCBs
- Establish a public information disclosure program
- Upgrade and expand capabilities and capacity in information management
- Create performance management systems and nationwide performance indicators

The report has also cited the recommendations made by US EPA in its assessment and these are mentioned here:

- Recommendation 1: Advocate for more resources, and streamline current practices to maximize currently available resources.
- Recommendation 2: Develop policies and implementing guidance to assist the zonal offices and SPCBs in implementing compliance and enforcement programs. As these policies and guidance are developed, effective organization will necessitate that a system for cataloguing and distributing the guidance in a timely manner also be developed.
- Recommendation 3: Establish the authority to use self-monitoring, self-recordkeeping, and self-reporting as direct evidence of a violation in the courts (and administratively should such a process be established); develop and distribute the necessary policies and implementing guidance; and provide training to SPCBs.
- Recommendation 4: Establish opacity standards and test methods for emissions from stacks; develop implementing policies and guidance; and establish the necessary training infrastructure.

- Recommendation 5: Develop national guidance on minimum inspector training requirements; develop and fund a compliance and enforcement training program to implement the requirements; and ensure that all SPCBs are aware of the program and the schedule of courses.
- Recommendation 6: Develop a policy and provide implementing guidance that requires regulated industries to provide bank guarantees for negotiated compliance schedules incorporated in directives issued by the Boards.
- Recommendation 7: Utilize current statutory provisions to establish civil administrative authority; establish the infrastructure for managing administrative cases; develop the necessary enforcement response and penalty policies; and provide training for the states.
- Recommendation 8: Develop educational materials and compliance assistance tools for the regulated community, especially small businesses, and distribute the materials to all regulated sources.
- Recommendation 9: Develop measures of success for the compliance and enforcement program utilizing a variety of parameters, and communicate these measures and the rationale for why they are needed to SPCBs, the regulated community, and the public.
- Recommendation 10: Develop a uniform computerized system for collecting, maintaining and utilizing compliance and enforcement data at the national as well as the state level; develop the necessary implementing policies and guidance; and ensure that the SPCBs are aware of them.
- Recommendation 11: Establish a support organization to facilitate communication among SPCBs on important environmental compliance and enforcement issues, and between CPCB and the Boards.

If implemented, all of the recommendations would greatly improve compliance with India's environmental statutes, regulations, and permit conditions. However, two recommendations, Recommendations 3 and 7, would have the most significant, immediate, and far reaching effect if implemented. The recommendations may be implemented independent of each other, but the success of Recommendation 3 would be substantially enhanced by the implementation of Recommendation 7.

Most of the findings are similar and the common observations for poor performance of the SPCBs are lack of trained manpower, financial constraints, lengthy legal processes, weak penal provisions, overlapping responsibilities, multiple agencies involvement, lower priority from State governments and non-transparent functioning.

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2.0 CPCB REPORT 2019

Central Pollution Control Board constituted a Core Team at Head Office to discuss and finalise the modalities to conduct the Audit. The Team with varying experience at Central and State Boards has designed a format to address broadly the following five functional areas with the weightage mandated under Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981 and Environment (Protection) Act, 1986:

- (i) Environmental Quality Monitoring
- (ii) Regulatory Actions
- (iii) Data Management & Public Outreach
- (iv) Advisory for Decision Making
- (v) Research & Development and Training

The consulted and final questionnaire was shared with Regional Directorates of CPCB with instructions to conduct meetings with SPCBs explaining the process. As mentioned earlier, the process has an objective to find remedy for non-performance of the Boards. The expert teams are advised for evaluating the states based on clear objectives. There was no intention of fault-finding with any Boards and teams having vast experience struck to their tasks and conducted the audit without any bias.

The audit process, a first exercise of this magnitude, looked at all the Boards and Committees in the country. While states got an opportunity to retrospect and assess their work, CPCB came to know many initiatives taken by Boards, mostly from Smaller Boards and Committees.

Expert Teams have conducted the audit through the questionnaire and took evidence for each of the questions. Most of the states have provided the supporting documents to the team, while some could not. The teams have assessed the strengths & weaknesses and listed the challenges for the states visited. The basic information on infrastructure, including manpower and financial status was also collected.

All the filled-in formats were signed by the team members and got counter signed by the representative of the State Board. The supporting documents have been sent to CPCB, Delhi along with the filled-in formats.

The Core team has examined the information received and selected sixteen questions for document verification. Moderation based on supporting documents has been carried out. Similarly, information available with CPCB on mandatory submissions of Annual Reports made by the SPCBs was verified with the field data sheets to effect corrections.

The core team has also observed that the irrelevant questions in the questionnaire were not dealt uniformly by the teams. Moderation was applied to normalise the score by awarding marks to all those questions.

The assessment by various teams was completed in time-bound manner. Even though the questions and the associated instructions were clear, some inconsistencies were observed. These shortfalls could be addressed in future for better output.

The study has grouped the states into three – NE States & UTs, Low-income & Hill States and others. Accordingly, category and national ranks were given based on the scores obtained from the questionnaire.

CPCB Report Findings: The Core Team at CPCB, Delhi discussed the issues as information started flowing from Regional Directorates. The data compilation and analysis was done to eliminate errors. The segment-wise findings are discussed here.

Environmental Quality Monitoring (25 %)

- A smaller State, Goa performed best followed by Telangana and Kerala
- The national average was just 56 %
- Average performance was seen from Gujarat, Assam and M.P.
- SPCBs are primary data generators related to ambient air and water quality.
- Few boards took initiatives to use generated data for action plans, but majority have not.

Enforcement & Regulatory Actions (35 %)

- The National average of 54 % indicates only some boards have performed well, while majority of SPCBs and PCCs have not performed.
- Regulatory functions are taken more seriously and larger Boards performed better
- Telangana, Tamil Nadu and Madhya Pradesh performed better.
- Chhattisgarh, Kerala and Punjab States have not met the expected targets.
- Kerala and Punjab have done very well in monitoring segment and fell well short of mark in regulatory segment.
- Poor legal performance observed amongst all Boards.

Data Management & Public Outreach (20 %)

- Maharashtra performed best followed by Tamil Nadu and Gujarat
- The National average was better at 68 %.
- Most of the Boards provided their intent in reaching public through the reports, portals and websites.
- All Boards have indicated various mass awareness programmes.
- Andhra Pradesh, West Bengal and Assam not able to provide the expected outcome.

Advisory for Decision Making (10 %)

- Boards have shown more spirited performance in this segment, a national average of 67.9 %.
- The teams were liberal in awarding marks for the minor initiatives also.
- Top honours grabbed by Maharashtra, Tamil Nadu, Madhya Pradesh, Gujarat and Kerala.
- Smaller Boards, Jammu & Kashmir, Tripura, and Chhattisgarh have performed better than expected.
- Odisha, U.P and Karnataka could have performed better in this segment.

Research & Development and Training

- Some Boards only paid attention to these activities.
- Boards are only interested in showing some inconsequent results.

- Lack of consistency in pursuing R & D and basic training.
- Gujarat performed best followed by West Bengal and Kerala.
- Gujarat has introduced structured working on research activities by having tie-ups with Universities and institutes
- Delhi and H.P. have not performed well in this segment.
- The average performance at national level was 61 %.

The baseline and other information was collected by the expert teams. The Boards with higher percentage of technical & scientific manpower have performed better. Some of the Boards have minimum manpower to run the day-to-day activities. Lack of qualified and experienced scientific manpower was reported in many Boards. The need to upgrade the offices and laboratories was seen in the reports.

Many Boards have not allotted any funds for plan expenditure. A need for detailed examination of financial status is felt. Boards have stacked huge sums of money in banks in the form of Fixed Deposits (FDs). The urge to utilise the available resources for plan activities was not observed. State Boards appeared insecure for the availability of funds in future.

NGT Directions dated 28.08.2019: The Report dated 10.07.2019 from the CPCB on the subject of Performance Audit of the State PCBs / PCCs was taken on record and through proceedings on 28.08.2019 the following observations were made by Hon'ble NGT:

"...13. Report dated 10.07.2019 filed by the CPCB is on the subject of performance audit of the State PCBs/PCCs. The report merely ranks the PCBs/PCCs, without proper assessment of the functioning.

14. What is expected is performance audit on issues such as adequacy with regard to environmental monitoring, efficacy of regulatory setup/mechanisms, staffing both technical and scientific manpower, scientific equipments, logistics support, competence etc. rather than ranking the States. Let the same be done and state-wise reports submitted based on thorough analysis in terms of statutory functions. CPCB may devise an appropriate mechanism for the purpose.

We also direct that all vacant positions in the SPCBs/PCCs may be filled up at the within four months and the Chief Secretaries of the States/UTs may ensure that there is no embargo in doing so, so that effective steps for protection of environment can be taken.

It is also necessary to direct that the laboratories established by the SPCBs/PCCs, at headquarters as well as regional centers, are duly recognized for purposed of enforcement of environmental laws. The concerned authorities may take further steps accordingly. The CPCB may compile a report and file before the next date.

SPCBs/PCCs may utilize the funds available with them, under EC/Consents or other heads instead of approaching other authorities and on that pretext not performing their essential function. The MoEF&CC may consider constituting an appropriate authority for the purpose with 19 representatives from Central and State authorities on the pattern of Compensatory Afforestation Fund Management and Planning Authority (CAMPA) or otherwise. A compliance report be filed by the MoEF&CC before the next date."

A copy of Order dated 28-08-2019 is given at **Annexure – II**.

The Hon'ble Tribunal directed CPCB for state-wise reports along with recommendations based on thorough analysis in terms of statutory functions the performance audit with reference to issues such as adequacy with regard to environmental monitoring, efficacy of regulatory setup/ mechanisms, staffing both technical and scientific manpower, adequacy of laboratories and scientific equipments, logistics support, competence etc.

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3.0 PRESENT REPORT 2020

Central Pollution Control Board has reviewed all the data and documents collected during the auditing exercise done by the Expert Teams. The Core Team has compiled the information available at CPCB and updated data. In response to Hon'ble NGT direction in OA No. 681/2018, an exercise is done to determine the performance of the NAMP project at State level.

CPCB decided to form a group of officials for preparation of State-wise reports and specific recommendations. The committee comprised following members:

1. Shri A. Sudhakar, Scientist E
2. Dr. R. S. Mahwar, Former Additional Director, CPCB
3. Shri Sanjay Kumar, Scientist D
4. Shri G. Rambabu, Scientist D

Dr. R. S. Mahwar was part of the Expert Team involved in performance audits of Karnataka, Kerala and Tamil Nadu.

The committee was asked to go through included preparation of the state wise reports based on the Performance Audits conducted by the teams in May-June, 2019 and the supplementary information received from the SPCBs / PCC. Also, the preparation of these reports should cover the various aspects concerning the statutory functions of the SPCBs / PCCs with regard to the adequacy and efficacy of the environmental monitoring. Regulatory setup / mechanism, staffing (technical as well non-technical), scientific equipment, logistic support, competence, etc.

The committee in its meetings discussed the methodology / mechanism to be followed for the preparation of the state-wise reports based on:

- (i) the functions of the SPCBs / PCCs notified under the different Acts / Rules,
- (ii) the major environmental issues of audit concern in each of the states / UTs including those cited in the orders of the Hon'ble NGT dated 11.01.2019 and 28.08.2019,
- (iii) the 35 reports of the audits conducted by the CPCB teams in May-June 2019 and
- (iv) the supplementary information / data received from the SPCBs / PCCs under various directions and judicial cases.

3.1 Functions of the SPCBs / PCCs

The SPCB / PCCs are the statutory authorities initially constituted to implement the provisions of Water Act and made responsible for implementation of provisions of other Environmental Acts enacted subsequently. The environmental laws and rules largely provide them a predominant role in monitoring of compliance with the provisions of these laws and rules by industries, municipal authorities, hospitals, etc.

The Boards are responsible for collection and dissemination of information relating to pollution, planning comprehensive programmes and advising their respective State

Governments for prevention, control or abatement of pollution. To enable them to discharge their mandated functions effectively, the Boards have also been vested with powers to obtain information from the persons in charge of any establishment; inspect and collect samples of effluents / emissions, grant / reject / withdraw consent for establishment / operation of any industry, operation or process, to approach Courts for restraining persons causing pollution etc.

3.2 Regulatory Framework

The Water (Prevention and Control of Pollution) Act was enacted in 1974 paving way for constitution of Central and State Pollution Control Boards. The following are the Acts and Rules related to environmental conservation & protection and abatement & control of pollution:

- The Water (Prevention and Control of Pollution) Act, 1974
- The Air (Prevention and Control of Pollution) Act, 1981
- The Environment (Protection) Act, 1986
- The Wild Life (Protection) Act, 1972
- The Forest (Conservation) Act, 1980
- The Public Liability Insurance Act, 1991
- The Biological Diversity Act, 2002
- The National Green Tribunal Act, 2010
- The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
- The Solid Waste Management Rules, 2016
- The E-Waste Management Rules, 2016
- The Plastic Waste Management Rules, 2016
- The Bio-Medical Waste Management Rules, 2016
- The Construction and Demolition Waste Management Rules, 2016
- The Batteries (Management and Handling) Rules, 2001
- The Wetlands (Conservation and Management) Rules, 2010
- The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996
- The Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms Genetically engineered organisms or cells, 1989
- Regulation of Polychlorinated Biphenyls Order, 2016
- Regulation of Lead Contents in Household and Decorative Paints Rules, 2016
- Noise Pollution (Regulation and Control) Rules, 2000
- Coastal Regulation Zone Notification, 2019
- Environment Impact Assessment Notification, 2006

With more legislations and rules, the corresponding work load increased on State Boards and Central Board. The expectations from the public and other stakeholders have gone

up by many folds. Access to international data and rapid progress in technologies made the regulatory regime more accountable to its stakeholders and demand for voluntary disclosure of vital information increased. As observed in day-to-day life styles, public started demanding quick results in environmental conservation.

The following are the common challenges faced by the Boards and Committees:

- Infrastructural constraints in capacity
- Financial insecurity and no support from State Governments
- Different processes adopted in functioning of SPCBs
- Ineffective surveillance and enforcement
- Field offices overloaded for inspections, investigations and surveys
- Long-term Failures in urban or municipal areas with reference to management of noise control, sewage solid waste management
- Limited use of technology for efficiency and transparency at work place
- Total ban on recruitment of Staff or irregular or Ad-hoc appointments
- Absolutely no cadre management and career growth for engineers and scientists
- Public perception showing the SPCBs in poor light

The Performance Audit of State Pollution Control Boards and Pollution Control Committees was conducted by the Expert Teams as per the framework designed by CPCB. The detailed State-wise reports are provided in the report. Each of the State report contained three parts. The first part shows about general information, State potential in terms of resources and performance with reference to other indices.

The second part is the summary of the audit findings mainly dealing with infrastructure, monitoring, regulatory and other actions with recommendations. Third part contains information at a glance on all environmental aspects.

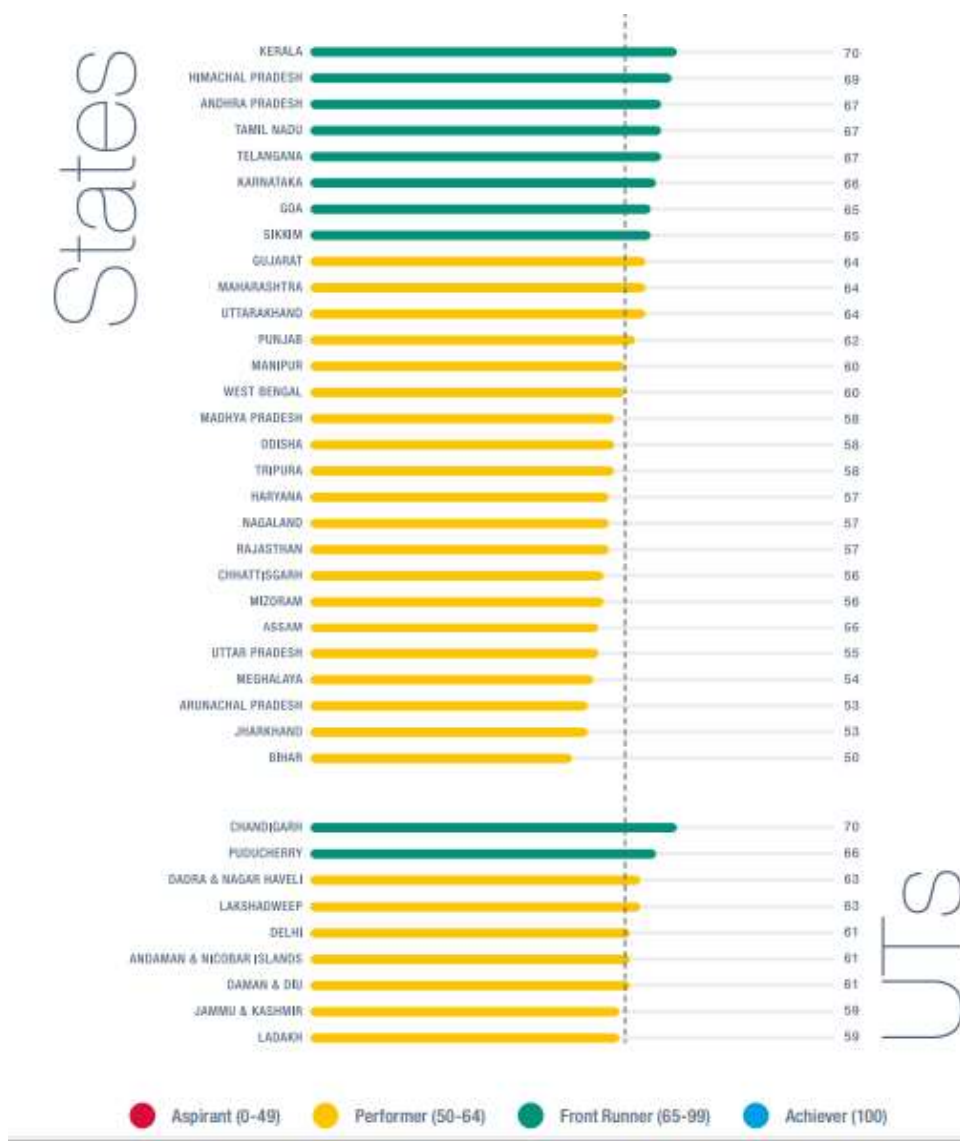
Three performance indices developed and published by Niti Aayog are provided in the report. The contents are reproduced from the Reports of Niti Aayog, along with relevant charts. These are SDG Index 2019, Health Index 2019 and Water Management Index 2019. The performance of States in these broader areas is also very important to note while assessing the performance in pollution control.

3.3 SDG India Index, 2019

The SDG India Index developed by Niti Aayog in 2018 was an attempt to present the achievements on the SDGs across the sub-national entities. While the SDG India Index 2018 was based on 13 Goals, the SDG India Index 2019 is a refinement covering all the 17 SDGs and is also better aligned with the SDG National Indicator Framework. The new Index 2019 presents a better framework for measuring the progress on SDGs. The score in the Index ranges between 0 and 100 percent. If a State achieves a score of 100 percent, it signifies that the State has achieved the national target set for 2030. The higher the score of a State, the greater the distance to target achieved.

Based on the score, the States and UTs were classified into four categories, namely Achiever, Front Runner, Performer and Aspirant. This criteria of classification are as follows:

- Achiever – when SDG India Index score is equal to 100
 - Front Runner – when SDG India Index score is between 65 and 100
 - Performer – when SDG India Index score is between 50 and 65
 - Aspirant – when SDG India Index score is less than 50
- Kerala retained its rank as the top State with a score of 70. Chandigarh too maintained its top spot among the UTs with a score of 70.



Source: "HEALTHY STATES, PROGRESSING INDIA" REPORT OF NITI AAYOG

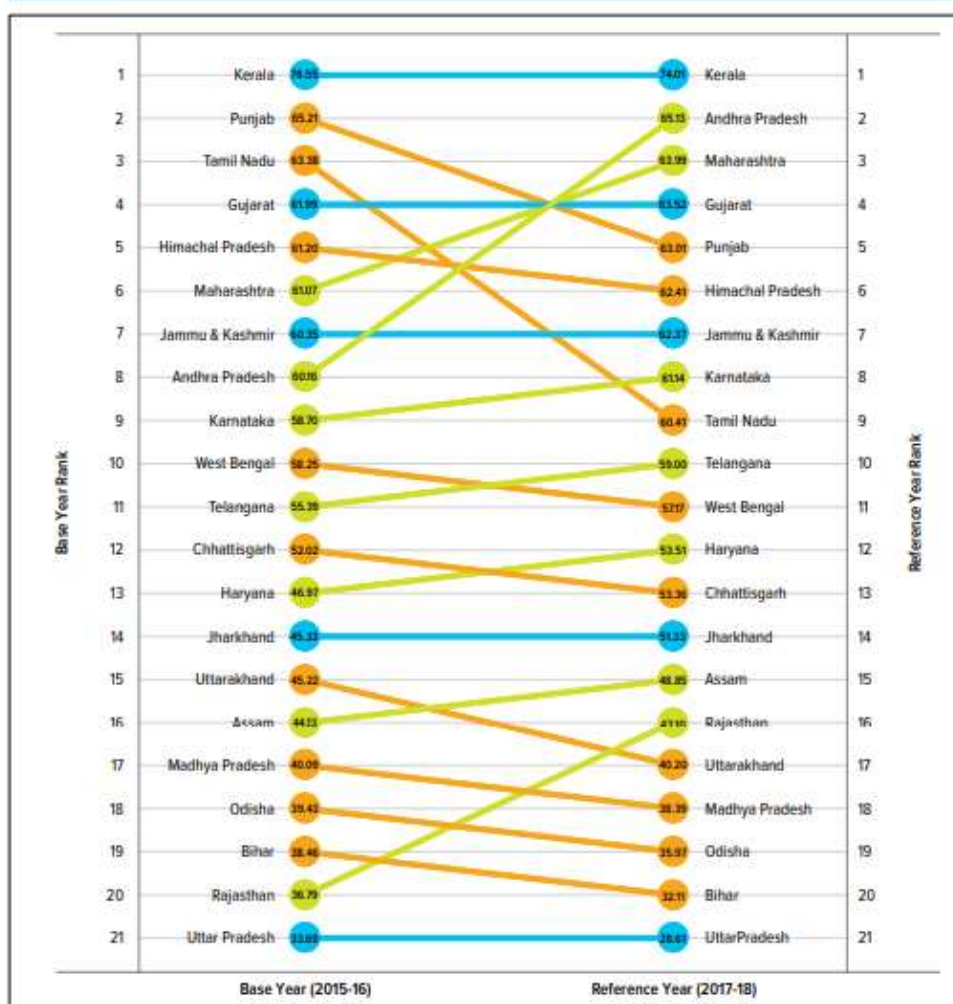
- Himachal Pradesh took the second spot while Andhra Pradesh, Tamil Nadu and Telangana shared the third spot on the table, respectively. While three out of five

States in the top three spots perform equal to or better than the country average on 12 goals, the other two States do the same on 11 goals.

- Uttar Pradesh has improved its overall score from 42 in 2018 to 55 in 2019, and is the highest gainer. The biggest improvement has been in goal 7 – affordable and clean energy, Odisha stands second in overall improvement, with an increase of 7 points, from 51 to 58. Goal 9 has contributed mostly to the rise with a jump of 40 points.
- Sikkim is the third best State in overall improvement: from a score of 58 to that of 65, indicating an increase by 7 points. The State has achieved commendable improvement in goal 7 where it has recorded an increase by 55 points.

3.4 Health Index, 2019

NITI Aayog in collaboration with the World Bank and the Ministry of Health and Family Welfare (MoHFW) embarked on a journey in 2017 to develop the first comprehensive State Health Index with base year 2015-16. The Health Index highlights the progress by the

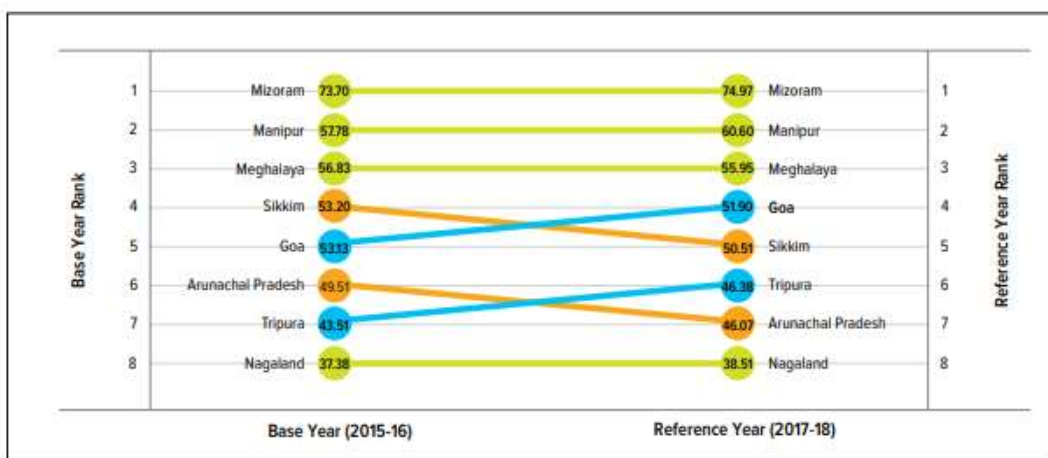


Source: "HEALTHY STATES, PROGRESSING INDIA" REPORT OF NITI AAYOG

individual States and UTs and is an important instrument in understanding the variations and complexity of the nation's performance in health.

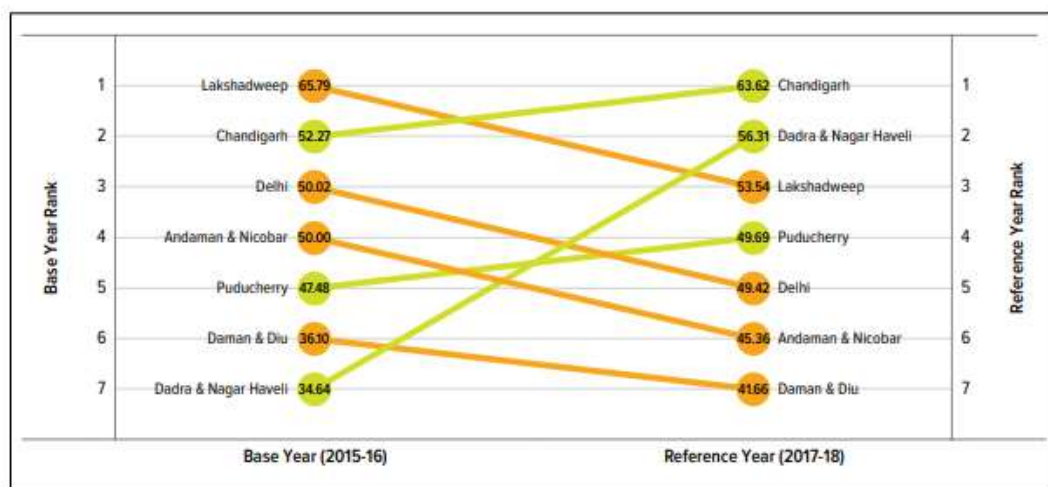
Among the Larger States, the overall Health Index score of the best-performing State is more than two and half times of the overall score of the least-performing State. Kerala championed the Larger States with an overall score of 74.01, while Uttar Pradesh was the least performing State with an overall score of 28.61.

Among the Smaller States, scores varied between 38.51 in Nagaland and 74.97 in Mizoram. Among the UTs, the scores varied between 41.66 in Daman and Diu to 63.62 in Chandigarh. Overall, there is room for improvement in all States, even among the best-performing States there is substantial room for improvement.



Source: "HEALTHY STATES, PROGRESSING INDIA" REPORT OF NITI AAYOG

Among the least performing States / UTs, particularly, there is an urgent need to accelerate efforts to narrow the performance gap between States and UTs. 5 States vary in progress towards achieving Sustainable Development Goals (SDG). Several States have made good progress towards achieving SDG goals included in the Index.



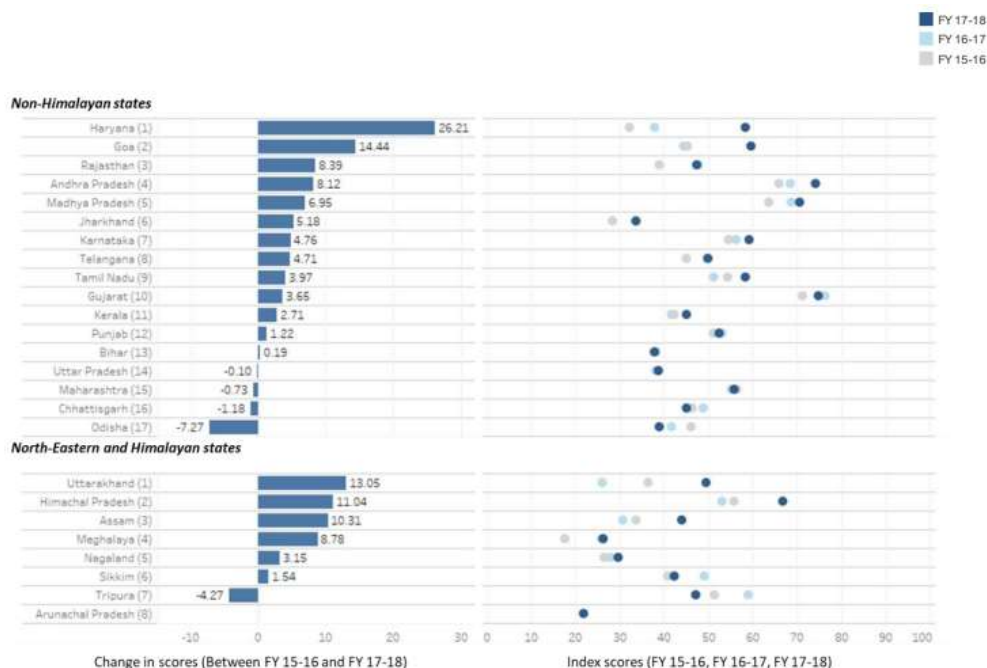
Source : "HEALTHY STATES, PROGRESSING INDIA" REPORT OF NITI AAYOG

In terms of incremental performance in Index scores from Base Year (2015-16) to Reference Year (2017-18), the top three ranked States in the group of Larger States are Haryana (up 6.55 points), Rajasthan (up 6.30 points) and Jharkhand (up 5.99 points). However, in terms of overall performance, these States are among the bottom two-third of the range of Index scores, with Kerala (74.01), Andhra Pradesh (65.13) and Maharashtra (63.99) showing the highest scores.

3.5 Water Management Index, 2019

The National Institution for Transforming India (NITI) Aayog has developed the Composite Water Management Index (CWMI) to enable effective water management in Indian states. The CWMI is the first comprehensive collection of country-wide water data in India based on in-depth structured questionnaires followed by focus group discussions to generate qualitative information. It represents a major step towards creating a culture of data-based decision-making for water in India, which can encourage “competitive and cooperative federalism” in the country’s water governance and management. The Index and this associated report are expected to: (1) establish a clear baseline and benchmark for state-level performance on key water indicators; (2) uncover and explain how states have progressed on water issues over time, including identifying high-performers and under-performers, thereby inculcating a culture of constructive federal competition amongst states; and (3) identify areas for deeper engagement and investment on the part of the states. NITI Aayog plans to develop the Index into a composite, national-level data management platform for all water resources in India.

CWMI is the first of its kind to monitor key water-related metrics that are relevant for India going forward. The Index uses water data from both central and state sources for three years—the base year (FY 15-16), FY 16-17, and the FY 17-18.



Source: “HEALTHY STATES, PROGRESSING INDIA” REPORT OF NITI AAYOG

About 80 % of the states (19 out of 24) have shown improvement in their water management scores over the last three years. 13 non-Himalayan states and 6 North-Eastern and Himalayan states improved their water management scores between FY 15-16 and FY 17-18. North-Eastern and Himalayan states displayed stronger improvement, with +6.2 points being the average change, higher than the +4.8 points observed in the case of non-Himalayan states.

Haryana reported the maximum progress (of ~26 points) across three years, driven in large part by higher scores on four themes - restoration of water bodies, watershed development, on-farm water use, and policy and governance. Goa, Uttarakhand, Himachal Pradesh, and Assam are four more states displaying improvement greater than 10 points during the three-year period. On the other end, 5 states reported a decline in performance during the three-year period. Odisha reported the largest decline of 7.27 points, followed by Tripura which reported a decline of 4.27 points.

In addition to these considerations, infrastructural matters related to manpower and laboratories are detailed in the report.

3.6 Manpower in SPCBs / PCCs: It has been reported from time to time that shortage of manpower is the chief cause for under performance of State Pollution Control Boards. Efforts have been made to collect the information about manpower in various SPCBs / PCCs. CPCB requested all SPCBs / PCCs to provide the Scientific, Technical and Administrative manpower details w.r.t. Group A, B, and C in prescribed format. The information has been compiled and State wise manpower details are given in Tables 3.1-3.4. Inferences are as below:

- Group wise vacancy details and Total sanctioned and vacant position combining all SPCBs / PCCs are below:

Category	Group A	Group B	Group C	Total
Total Sanctioned	1,749	2,629	5,060	9,438
In Place	1,092	1,591	2,413	5,096
Vacancy	657	1,038	2,647	4,342

- It is evident that about 46 % posts are vacant and need to be filled up urgently in view of shortage of manpower so that effective steps for protection of environment can be taken. Status of Sanction and in place manpower in SPCBs / PCCs is depicted Figure 3.1.
- Most of the North Eastern States and UTs have skeleton staff just meeting urgent needs of the organisations.
- Six Boards namely Andaman & Nicobar (05), Arunachal Pradesh (56, including 49 Group C), Daman, Diu & Dadra and Nagar Haveli (10), Mizoram (11), Nagaland (14) and Sikkim (19) have filled all sanctioned posts.
- Some of the SPCBs / PCCs like Arunachal Pradesh, Delhi, Madhya Pradesh, Himachal Pradesh, Punjab, Meghalaya, Jammu & Kashmir, Sikkim Board had administrative staff more than Scientific & Technical manpower. At some PCCs, there

was no supporting administrative staff. Comparison of Scientific, Technical and administrative staff is shown in Table 3.5 and depicted in Figure 3.2.

Table 3.1 - Group-A Manpower

SPCBs and PCCs - Group-A Staff details									
Name of the SPCBs / PCCs	Scientific		Technical		Admin. Staff		Total		
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Vacancy
Andaman & Nicobar	0	0	0	0	1	1	1	1	0
Andhra Pradesh	4	3	17	17	2	0	23	20	3
Arunachal Pradesh	2	2	2	2	1	1	5	5	0
Assam	28	24	64	54	10	2	102	80	22
Bihar	6	1	13	4	4	2	23	7	16
Chandigarh	1	1	1	0	0	0	2	1	1
Chhattisgarh	10	7	19	10	2	1	31	18	13
D,D&DH	1	1	1	1	0	0	2	2	0
Delhi	10	2	81	26	5	1	96	29	67
Goa	7	5	5	1	0	0	12	6	6
Gujarat	20	13	40	31	5	1	65	45	20
Haryana	8	2	26	12	1	1	35	15	20
Himachal Pradesh	33	14	19	11	9	5	61	30	31
Jammu & Kashmir	0	0	0	0	2	2	2	2	0
Jharkhand	1	0	10	0	0	0	11	0	11
Karnataka	21	11	126	93	0	0	147	104	43
Kerala	5	4	28	28	0	0	33	32	1
Lakshadweep	0	0	0	0	0	0	0	0	0
Madhya Pradesh	132	59	127	34	55	15	314	108	206
Maharashtra	13	8	76	68	14	7	103	83	20
Manipur	2	1	2	1	2	1	6	3	3
Meghalaya	9	4	10	9	5	2	24	15	9
Mizoram	1	1	2	2	0	0	3	3	0
Nagaland	1	1	1	1	0	0	2	2	0
Odisha	44	26	33	20	5	3	82	49	33
Puducherry	1	0	0	0	0	0	1	0	1
Punjab	19	11	132	107	14	6	165	124	41
Rajasthan	19	11	60	48	10	4	89	63	26
Sikkim	0	0	0	0	2	2	2	2	0
Tamil Nadu	13	9	69	64	5	4	87	77	10
Telangana	4	3	13	9	3	1	20	13	7
Tripura	2	2	4	3	0	0	6	5	1
Uttar Pradesh	21	18	28	27	6	1	55	46	9
Uttarakhand	6	2	6	4	0	0	12	6	6
West Bengal	27	23	77	54	23	19	127	96	31
Total	471	269	1,092	741	186	82	1,749	1,092	657

Table 3.2 - Group-B Staff details

SPCBs and PCCs - Group-B Staff details									
Name of the SPCBs / PCCs	Scientific		Technical		Admin. Staff		Total		
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Vacancy
Andaman & Nicobar	1	1	1	1	1	1	3	3	0
Andhra Pradesh	29	20	90	53	6	5	125	78	47
Arunachal Pradesh	1	1	0	0	1	1	2	2	0
Assam	10	5	0	0	25	19	35	24	11
Bihar	18	14	26	6	12	10	56	30	26
Chandigarh	0	0	0	0	0	0	0	0	0
Chhattisgarh	15	8	20	16	2	1	37	25	12
D,D&DH	1	1	1	1	0	0	2	2	0
Delhi	4	3	69	0	41	8	114	11	103
Goa	12	12	9	6	3	2	24	20	4
Gujarat	57	53	173	153	18	13	248	219	29
Haryana	20	12	50	47	10	7	80	66	14
Himachal Pradesh	0	0	15	3	10	8	25	11	14
Jammu & Kashmir	0	0	0	0	1	1	1	1	0
Jharkhand	4	1	15	5	5	0	24	6	18
Karnataka	49	8	142	57	26	10	217	75	142
Kerala	34	2	108	24	7	6	149	32	117
Lakshadweep	0	0	0	0	0	0	0	0	0
Madhya Pradesh	41	35	1	1	73	16	115	52	63
Maharashtra	26	20	205	161	19	8	250	189	61
Manipur	0	0	2	1	5	4	7	5	2
Meghalaya	3	2	1	1	5	3	9	6	3
Mizoram	0	0	0	0	0	0	0	0	0
Nagaland	1	1	0	0	1	1	2	2	0
Odisha	34	26	21	21	59	33	114	80	34
Puducherry	3	2	2	1	0	0	5	3	2
Punjab	21	9	31	11	74	60	126	80	46
Rajasthan	60	52	46	37	17	12	123	101	22
Sikkim	3	3	1	1	0	0	4	4	0
Tamil Nadu	120	44	203	122	102	78	425	244	181
Telangana	32	22	66	54	9	5	107	81	26
Tripura	6	5	4	2	0	0	10	7	3
Uttar Pradesh	41	23	49	37	16	9	106	69	37
Uttarakhand	8	6	8	6	1	0	17	12	5
West Bengal	16	11	0	0	51	40	67	51	16
Total	670	402	1,359	828	600	361	2,629	1,591	1,038

Table 3.3 - Group-C Staff details

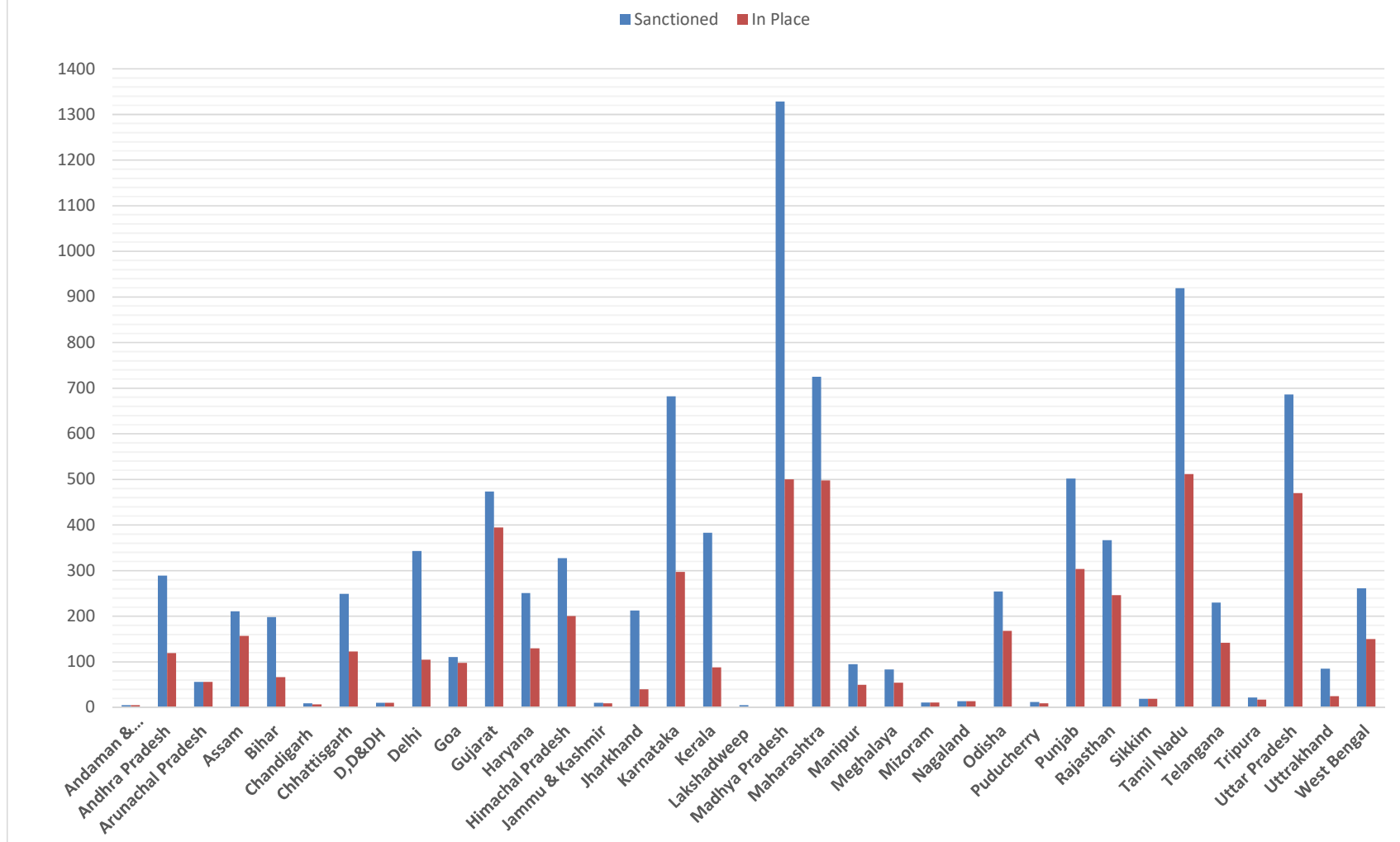
SPCBs and PCCs - Group-C Staff details									
Name of the SPCBs / PCCs	Scientific		Technical		Admin. Staff		Sanctioned	In Place	Vacancy
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place			
Andaman & Nicobar	0	0	1	1	0	0	1	1	0
Andhra Pradesh	38	0	0	0	103	21	141	21	120
Arunachal Pradesh	2	2	11	11	36	36	49	49	0
Assam	9	5	0	0	65	48	74	53	21
Bihar	56	10	3	2	60	18	119	30	89
Chandigarh	4	4	3	2	0	0	7	6	1
Chhattisgarh	70	28	1	1	110	51	181	80	101
D,D&DH	4	4	0	0	2	2	6	6	0
Delhi	17	4	0	0	116	61	133	65	68
Goa	31	31	5	4	39	37	75	72	3
Gujarat	83	72	0	0	77	59	160	131	29
Haryana	17	0	15	4	104	45	136	49	87
Himachal Pradesh	43	21	33	12	165	126	241	159	82
Jammu & Kashmir	3	2	1	1	3	3	7	6	1
Jharkhand	91	18	19	7	68	9	178	34	144
Karnataka	72	25	1	1	245	92	318	118	200
Kerala	45	0	0	0	156	24	201	24	177
Lakshadweep	1	0	4	1	0	0	5	1	4
Madhya Pradesh	267	79	38	14	594	247	899	340	559
Maharashtra	47	31	54	6	271	189	372	226	146
Manipur	20	7	28	18	34	17	82	42	40
Meghalaya	13	6	2	1	35	26	50	33	17
Mizoram	5	5	1	1	2	2	8	8	0
Nagaland	4	4	0	0	6	6	10	10	0
Odisha	0	0	0	0	58	39	58	39	19
Puducherry	4	4	2	2	0	0	6	6	0
Punjab	26	12	1	1	184	87	211	100	111
Rajasthan	19	4	0	0	136	78	155	82	73
Sikkim	3	3	0	0	10	10	13	13	0
Tamil Nadu	84	58	7	5	316	128	407	191	216
Telangana	26	21	77	27	0	0	103	48	55
Tripura	2	2	0	0	4	3	6	5	1
Uttar Pradesh	167	136	69	23	289	196	525	355	170
Uttarakhand	28	1	11	0	17	6	56	7	49
West Bengal	24	3	1	0	42	0	67	3	64
Total	1,325	602	388	145	3,347	1,666	5,060	2,413	2,647

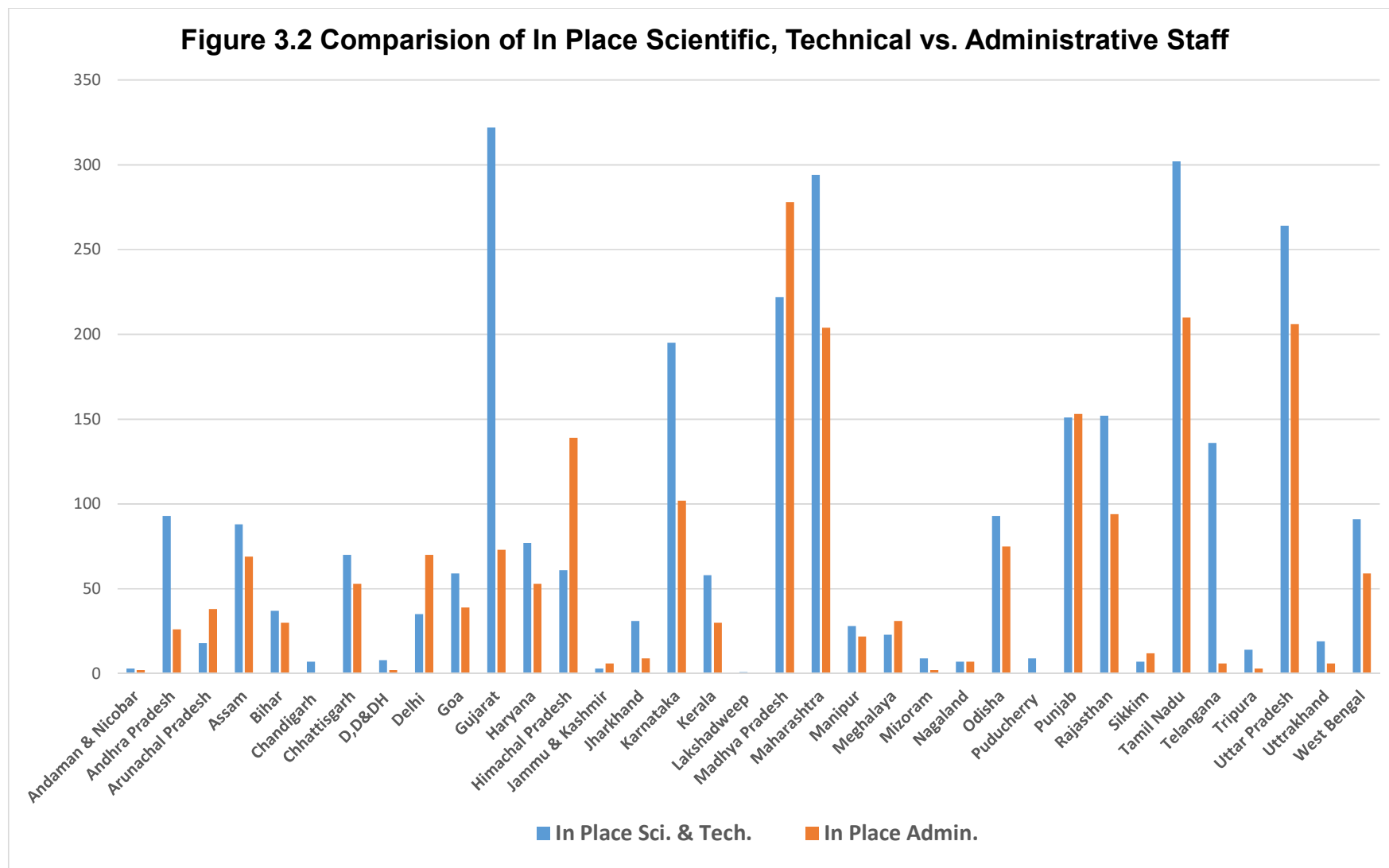
Table 3.4 Group wise Staff and Total Staff Details

Name of the SPCBs / PCCs	Group A			Group B			Group C			Total		
	Sanctioned	In Place	Vacancy	Sanctioned	In Place	Vacancy	Sanctioned	In Place	Vacancy	Sanctioned	In Place	Vacancy
Andaman & Nicobar	1	1	0	3	3	0	1	1	0	5	5	0
Andhra Pradesh	23	20	3	125	78	47	141	21	120	289	119	170
Arunachal Pradesh	5	5	0	2	2	0	49	49	0	56	56	0
Assam	102	80	22	35	24	11	74	53	21	211	157	54
Bihar	23	7	16	56	30	26	119	30	89	198	67	131
Chandigarh	2	1	1	0	0	0	7	6	1	9	7	2
Chhattisgarh	31	18	13	37	25	12	181	80	101	249	123	126
D,D&DH	2	2	0	2	2	0	6	6	0	10	10	0
Delhi	96	29	67	114	11	103	133	65	68	343	105	238
Goa	12	6	6	24	20	4	75	72	3	111	98	13
Gujarat	65	45	20	248	219	29	160	131	29	473	395	78
Haryana	35	15	20	80	66	14	136	49	87	251	130	121
Himachal Pradesh	61	30	31	25	11	14	241	159	82	327	200	127
Jammu & Kashmir	2	2	0	1	1	0	7	6	1	10	9	1
Jharkhand	11	0	11	24	6	18	178	34	144	213	40	173
Karnataka	147	104	43	217	75	142	318	118	200	682	297	385
Kerala	33	32	1	149	32	117	201	24	177	383	88	295
Lakshadweep	0	0	0	0	0	0	5	1	4	5	1	4
Madhya Pradesh	314	108	206	115	52	63	899	340	559	1,328	500	828
Maharashtra	103	83	20	250	189	61	372	226	146	725	498	227
Manipur	6	3	3	7	5	2	82	42	40	95	50	45
Meghalaya	24	15	9	9	6	3	50	33	17	83	54	29
Mizoram	3	3	0	0	0	0	8	8	0	11	11	0
Nagaland	2	2	0	2	2	0	10	10	0	14	14	0
Odisha	82	49	33	114	80	34	58	39	19	254	168	86
Puducherry	1	0	1	5	3	2	6	6	0	12	9	3
Punjab	165	124	41	126	80	46	211	100	111	502	304	198
Rajasthan	89	63	26	123	101	22	155	82	73	367	246	121
Sikkim	2	2	0	4	4	0	13	13	0	19	19	0
Tamil Nadu	87	77	10	425	244	181	407	191	216	919	512	407
Telangana	20	13	7	107	81	26	103	48	55	230	142	88
Tripura	6	5	1	10	7	3	6	5	1	22	17	5
Uttar Pradesh	55	46	9	106	69	37	525	355	170	686	470	216
Uttarakhand	12	6	6	17	12	5	56	7	49	85	25	60
West Bengal	127	96	31	67	51	16	67	3	64	261	150	111
Total	1,749	1,092	657	2,629	1,591	1,038	5,060	2,413	2,647	9,438	5,096	4,342

Table 3.5 - Comparison of Scientific, Technical Vs Administrative Staff

Name of the SPCBs / PCCs	Total			Scientific & Technical			Administrative			Sanctioned Post	
	Sanctioned	In Place	Vacancy	Sanctioned	In Place	Vacancy	Sanctioned	In Place	Vacancy	% of Sci. & Tech.	% of Admin. Staff
Andaman & Nicobar	5	5	0	3	3	0	2	2	0	60.00	40.00
Andhra Pradesh	289	119	170	178	93	85	111	26	85	61.59	38.41
Arunachal Pradesh	56	56	0	18	18	0	38	38	0	32.14	67.86
Assam	211	157	54	111	88	23	100	69	31	52.61	47.39
Bihar	198	67	131	122	37	85	76	30	46	61.62	38.38
Chandigarh	9	7	2	9	7	2	0	0	0	100.00	0.00
Chhattisgarh	249	123	126	135	70	65	114	53	61	54.22	45.78
D.D&DH	10	10	0	8	8	0	2	2	0	80.00	20.00
Delhi	343	105	238	181	35	146	162	70	92	52.77	47.23
Goa	111	98	13	69	59	10	42	39	3	62.16	37.84
Gujarat	473	395	78	373	322	51	100	73	27	78.86	21.14
Haryana	251	130	121	136	77	59	115	53	62	54.18	45.82
Himachal Pradesh	327	200	127	143	61	82	184	139	45	43.73	56.27
Jammu & Kashmir	10	9	1	4	3	1	6	6	0	40.00	60.00
Jharkhand	213	40	173	140	31	109	73	9	64	65.73	34.27
Karnataka	682	297	385	411	195	216	271	102	169	60.26	39.74
Kerala	383	88	295	220	58	162	163	30	133	57.44	42.56
Lakshadweep	5	1	4	5	1	4	0	0	0	100.00	0.00
Madhya Pradesh	1,328	500	828	606	222	384	722	278	444	45.63	54.37
Maharashtra	725	498	227	421	294	127	304	204	100	58.07	41.93
Manipur	95	50	45	54	28	26	41	22	19	56.84	43.16
Meghalaya	83	54	29	38	23	15	45	31	14	45.78	54.22
Mizoram	11	11	0	9	9	0	2	2	0	81.82	18.18
Nagaland	14	14	0	7	7	0	7	7	0	50.00	50.00
Odisha	254	168	86	132	93	39	122	75	47	51.97	48.03
Puducherry	12	9	3	12	9	3	0	0	0	100.00	0.00
Punjab	502	304	198	230	151	79	272	153	119	45.82	54.18
Rajasthan	367	246	121	204	152	52	163	94	69	55.59	44.41
Sikkim	19	19	0	7	7	0	12	12	0	36.84	63.16
Tamil Nadu	919	512	407	496	302	194	423	210	213	53.97	46.03
Telangana	230	142	88	218	136	82	12	6	6	94.78	5.22
Tripura	22	17	5	18	14	4	4	3	1	81.82	18.18
Uttar Pradesh	686	470	216	375	264	111	311	206	105	54.66	45.34
Uttarakhand	85	25	60	67	19	48	18	6	12	78.82	21.18
West Bengal	261	150	111	145	91	54	116	59	57	55.56	44.44
Total	9,438	5,096	4,342	5,305	2,987	2,318	4,133	2,109	2,024	56.21	43.79

Figure 3.1 Sanctioned Manpower and In Place



3.7 Central & Regional Laboratories

Central Laboratories

Most of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) have Central Laboratory at their Head Office, except a few i.e. Andhra Pradesh SPCB, Chhattisgarh SPCB, Daman & Diu and Dadra & Nagar Haveli PCC. A few of the SPCBs have their Central Laboratory established in a place different than that of their Head Office i.e. Himachal Pradesh SPCB (Parwanoo), Kerala SPCB (Kochi) and Maharashtra (Navi Mumbai). SPCBs of Arunachal Pradesh, Goa, Manipur, Meghalaya, Mizoram, Nagaland and Sikkim do not have Regional Offices. Among the Pollution Control Committees only Daman & Diu and Dadra & Nagar Haveli PCC and Puducherry PCC have one Regional Offices each, rest of the PCCs don't have Regional Offices. Some SPCBs have Sub-Regional Offices also, i.e. Himachal Pradesh (2), Jammu and Kashmir (22 before reconstitution), Kerala (16), Madhya Pradesh 3), Maharashtra (43), Tamil Nadu (38) and Uttar Pradesh (2).

Regional Laboratories

All Regional Laboratories are located in the premises of Regional Offices. In general, all SPCBs / PCCs have good functional laboratories capable of basic analytical facilities. Tamil Nadu SPCB has Regional Laboratories in all of its 7 Regional Offices and 9 out of its 38 Sub-Regional Offices, Odisha SPCB has 11 Regional Laboratories for its 12 Regional Offices, Rajasthan SPCB has 12 Regional Laboratories for its 14 Regional Offices, Madhya Pradesh SPCB has 14 Regional Laboratories for its 17 Regional Offices, Uttar Pradesh SPCB has 21 Regional Laboratories for its 28 Regional Offices, Chhattisgarh ECB has 5 Regional Laboratories for its 7 Regional Offices, Maharashtra SPCB has 7 Regional Laboratories for its 12 Regional Offices, West Bengal SPCB has 6 Regional Laboratories for its 11 Regional Offices and Assam PCB has 4 Regional Laboratories for its 8 Regional Offices. Kerala SPCB has 15 Sub-Regional Laboratories in its 16 Sub-Regional Offices, Tamil Nadu SPCB has 9 Sub-Regional Laboratories in its 38 Sub-Regional Offices. Tripura SPCB does not have Regional Laboratories in any of their 3 Regional Offices. Rest of the SPCBs have Zonal / Regional Laboratories in less than 50 % of their Zonal / Regional Offices.

Monitoring and Analytical Facilities

Some of the SPCBs i.e. Andhra Pradesh, Assam, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Tripura, Uttar Pradesh and West Bengal have monitoring and analytical facilities for wide range of parameters in common environmental matrices. Other SPCBs i.e. Arunachal Pradesh, Chhattisgarh, Mizoram, Nagaland, Sikkim and Uttarakhand have monitoring and analytical facilities for limited parameters in common environmental matrices. Detailed information is not available about monitoring and analytical facilities in SPCBs of Bihar, Haryana, Jammu and Kashmir, Jharkhand and Manipur. Among PCCs Chandigarh, Delhi, Puducherry have monitoring and analytical

facilities for wide range of parameters. Lakshadweep PCC has monitoring and analytical facilities for limited parameters in common environmental matrices. Andaman and Nicobar Islands PCC and Daman & Diu and Dadra & Nagar Haveli PCC don't have their own facilities but have arrangements with other private laboratories for monitoring and analytical activities.

Board and Government Analysts

Only a few SPCBs have a good number of designated Board and / or Govt. Analysts i.e. Gujarat, Madhya Pradesh, Maharashtra, Odisha and Rajasthan. Other SPCBs and PCCs have limited number of designated Board and / or Govt. Analysts i.e. Arunachal Pradesh, Chandigarh (Approved by Govt. Body but not notified), Goa, Himachal Pradesh, Karnataka, Meghalaya, Puducherry, Punjab, Tamil Nadu, Telangana and Uttar Pradesh. Information on designated Board and / or Govt. Analysts has not been received from Bihar, Haryana, Jammu and Kashmir and Jharkhand SPCBs. Rest of the SPCBs / PCCs don't have Board and / or Govt. Analysts i.e. Andaman & Nicobar Islands, Assam, Chhattisgarh, Daman, Diu and Dadra Nagar Haveli, Delhi (validity lapsed), Kerala, Lakshadweep, Manipur, Mizoram, Nagaland, Sikkim, Tripura, Uttarakhand and West Bengal.

Recognition of Laboratories under E (P) Act, 1986

Only a few SPCBs have valid recognition of their Central Laboratories under E (P) Act, 1986 from Union Ministry of Environment, Forest and Climate Change, i.e. Assam, Gujarat, Karnataka, Punjab, Telangana and Uttar Pradesh. Recognition renewal applications of Madhya Pradesh and Kerala SPCBs were under process. One Regional Laboratory of Madhya Pradesh (Indore) has valid recognition. Recognition of Central Laboratory of Maharashtra SPCBs has lapsed in March 2020, however, two Regional Laboratories (Pune and Nagpur) of Maharashtra SPCB have valid recognition and three Regional Laboratories (Ratnagiri, Nasik and Aurangabad) have their applications for recognition under process. Rest of the SPCBs and PCCs have not obtained recognition for their Central Laboratories under E (P) Act, 1986.

Laboratory Accreditation from NABL-QCI

Only some SPCBs have accreditation for four major groups of analytical parameters (Core, General, Trace Metals and Ambient Air) i.e. Gujarat, Meghalaya, Telangana, Uttar Pradesh and West Bengal. Six SPCBs / PCCs have accreditation for three out of four major groups of analytical parameters i.e. Andhra Pradesh, Goa, Karnataka, Puducherry, Punjab and Tamil Nadu. Two SPCBs have accreditation for two out of four major groups of analytical parameters i.e. Himachal Pradesh and Madhya Pradesh. Rest of the SPCBs / PCCs have not obtained accreditation for any of the major groups of analytical parameters.

The strengthening of laboratories at SPCBs and PCCs is one of the major concerns and expected upgradation / establishment of facilities was not taken up in some Boards for

want of funds. Majority of the Boards have adequate funds, but have not taken up on priority to get laboratories strengthened.

There are no reasons for not obtaining the recognition from MoEF&CC under E (P) Act for the laboratories, specially central laboratories. All Boards and Committees should ensure at least one laboratory recognised before 2021 by bridging the gaps in analytical facilities. In major states, more than one laboratory should be developed at par with its Central Laboratory.

Similarly, there is a need for NABL Accreditation for all major group of parameters. CPCB has taken the issue of accreditation with SPCBs since 2018. The progress made by SPCBs is not satisfactory. All the Central Laboratories at SPCBs and PCCs should ensure that the accreditation is completed by 2021.

One of the major concerns is shortage of scientific manpower at SPCBs. A strong scientific cadre at SPCBs and PCCs will be backbone for their functioning. In some Boards, the laboratories are operated by outsourced and project staff. These officials are involved in regulatory sampling and analysis works. The quality of work output suffered in the past, specially in last 5 years. The Chairmen and the Member Secretaries should ensure that capacity building at Laboratories by recruiting scientific manpower and training these officials.

3.8 Compliance to Regulatory Mechanism

The State Boards are deploying most of the resources in consent management and finally at compliance of industrial operations. The performance of SPCBs is expected to be better in the segment of Regulatory in view of time and resources spent. During audit exercise, the compliance outcome is categorised in 17-categories of industries, Grossly Polluting Industries (GPI), Water Polluting industries needed ETPs, Sewage Treatment Plants and CETPs.

(a) 17 Categories of Industries

There are 4,359 industries identified by the States and 546 of these are closed down their operations for other business reasons. The active operating 3,813 units are located mostly in UP, Maharashtra, Gujarat, Telangana and Andhra Pradesh. The overall compliance of the industries is 91.7 %, 3,497 industries are complying with the prescribe standards. Gujarat, West Bengal, Jharkhand and Puducherry has recorded less than 80 % compliance, while Rajasthan, HP, Assam and Uttarakhand have reported less than national average compliance percentage. The states Tamil Nadu, Odisha, Kerala, Uttar Pradesh, Bihar, Madhya Pradesh and Haryana have shown better compliance.

The non-complying industries, 316 are mostly located in Gujarat (97), Maharashtra (40), UP (25), West Bengal (24) and Rajasthan (20). The SPCBs generally issue Show-Cause Notices (SCNs), then closure and finally file legal cases. There were only 6 legal cases filed by States, 4 by Telangana, while 105 units were issued Closure directions and 174

were issued SCNs. It was also observed that the time taken for processing action against the non-complying units is long in some states, notably AP and Jharkhand.

(b) Grossly Polluting Industries

The water polluting industries with discharges to a water course having BOD of 100 Kg/day and / or handling hazardous substances are categorised as GPIs. The inventory of these units was not updated by many States. The basic approach of enforcement limited to red and orange categories of industries. CPCB followed up with five States in case of river Ganga and could get the list updated. Similar efforts are needed from others to update the inventory of GPIs.

There were 2,747 GPI units identified in the country and 247 of these were found closed on their own. Most of the operating GPIs are located in Uttar Pradesh (1,079) followed by Haryana (638) Andhra Pradesh (193) and Gujarat (178). The overall compliance percentage was 89 and Gujarat, West Bengal, Jharkhand, Uttarakhand, Uttar Pradesh and Arunachal Pradesh have reported lesser compliance than the national average.

The non-complying units are located in UP, Gujarat, Jharkhand and Arunachal Pradesh. UP has issued closure directions to 84 units out of 143 in the country and also the state was in the process of required action against 39 non-complying industries. Only three legal cases are filed against the non-complying units, two in Jharkhand and one in UP.

(c) Industries Generating Trade Effluents & Requiring ETPs

In the country 64,001 industrial units were identified under this category from 32 States and UTs. Uttar Pradesh has not provided the details and there were no units reported in Manipur and Lakshadweep. It was identified that 1,827 units were operating without functional ETPs. Assam has maximum of 795 units followed by J & K (212), Karnataka (156) and Gujarat (117). SPCBs have issued closure directions to 804 and Show-Cause Notices (SCN) to 842 units. Legal cases were filed against 6 units, while action was pending for remaining 164 industries.

The 60,980 industrial units having functional ETPs complied with prescribed standards and the remaining 1,194 units failed to comply. Closure directions were issued to 163 units, SCNs to 652, 13 legal cases filed and action was pending against 366 non-complying units. The non-complying units were located in Assam (237), Maharashtra (208), Punjab (143) and Rajasthan (120).

(d) Common Effluent Treatment Plants (CETPs)

Only 19 States have reported 189 CETPs operating in the country and most of these are located in Tamil Nadu (36), Gujarat (34), Maharashtra (26) and Haryana (19). The compliance status of CETPs is poor at 70 %, mainly because of undisciplined member units. Some of the agencies involved in management of CETPs were unprofessional and found lacking required skilled manpower. SPCBs have issued closure directions to five CETPs and filed legal cases against eight CETPs. The non-complying CETPs were reported in Gujarat (15), Tamil Nadu (9), Rajasthan (9) and Delhi (8).

(e) Sewage Treatment Plants (STPs)

The sewage generation in the country was estimated as 70,089 MLD and the treatment capacity was reported as 27,240 MLD in 2018. After 2018, the States have calculated the gap in generation and installed capacity to create additional capacity needed for treatment. The total operating STPs reported in the country were 1,122 and 236 of these STPs were not complying with discharge standards. These STPs are located in Punjab (47), West Bengal (42), Karnataka (31), Rajasthan (30) and Uttar Pradesh (22).

Most of the SPCBs preferred issuing SCNs (98) to non-complying STPs and only 13 legal cases were filed. The action needed against the defaulters was delayed in 137 cases, mostly in Punjab, Rajasthan and UP.

Central Pollution Control Board (CPCB) has estimated (2018) that 70,089 Million Litre per Day (MLD) wastewater (sewage) is generated from urban centres of India. A total of 27,240 MLD treatment capacity has been installed and about 21,883 MLD of it was operational. The estimation has also suggested that about 48,206 MLD untreated wastewater is being discharged on land or into rivers or creeks or coastal water. Details are given at Annexure - A.

(f) Polluted River Stretches

CPCB has identified 351 polluted river stretches based on 2016 & 2017 data from National Water Quality Monitoring Program. The criteria parameter Biochemical Oxygen Demand (BOD) was considered for categorising the river stretches into five priorities. The State-wise list of polluted river stretches is provided at Annexure – B.

As per Hon'ble NGT order in the matter of O.A. 673 of 2018, action plans are prepared by the States for rejuvenation of rivers to meet the criteria of outdoor bathing quality. The States have constituted River Rejuvenation Committees to prepare and execute the action plans. At Centre, Ministry of Jal Shakti started monthly review of the progress made by the States on action plans approved by the Task Team at CPCB. The States were given a target date of March 31, 2021 to meet the criteria of outdoor bathing quality.

(g) Hazardous Waste Management

As per the information furnished by SPCBs / PCCs, there are 69,054 units are generated about 10.71 Million MT of HW during 2018-19. Out of 10.71 Million MT of generated hazardous waste, about 45 % of waste is utilized / recycled and about 31 % of waste is disposed through TSDFs / SLFs. Details are given at Annexure - C.

For environmentally safe disposal of HW, there are 42 Common HW Treatment, Storage and Disposal Facilities (TSDFs) available in 18 States / UT, which includes 18 integrated TSDFs (having both Secured Landfills and Incinerators); 10 common HW incinerators and; 14 Common Secured Landfills. As remaining 17 States / UTs generating HW do not have Common HW TSDFs, HW generated in those States / UTs are being stored at occupier's premises.

In accordance with provisions stipulated under Rule 9 of HOWM Rules, 2016, that is utilization of HW and other wastes as a resource or after pre-processing either for co-processing or for any other use, including within the premises of the generator (if it is not part of process) are granted, thereby reducing disposal of such HW in secured landfills. Utilization of HW is permitted through concerned SPCBs / PCCs once Standard Operating

Procedure (SOP) is prepared by CPCB. About 1,050 applications for utilization of different categories of HW under Rule 9 of HOWM Rules, 2016 have been received. Upon technical examination and evaluation followed by successful trial runs, 54 SOPs for utilization of 40 different categories of HW have been developed and circulated to all SPCBs / PCCs.

(h) Biomedical Waste Management

CPCB has compiled the Annual Report on Bio-Medical Waste Management for the year 2018 received from the SPCBs / PCCs, there are 2,70,416 no. of Health Care Facilities (HCFs) out of which; 97,382 no. of HCFs are bedded and 1,73,831 no. of HCFs are non-bedded. Out of 2,70,416 nos. of HCFs; 1,10,356 no. of HCFs have obtained authorization under BMW Rules, 2016. About 615 TPD of biomedical waste is generated by these HCFs out of which, about 534 TPD of biomedical waste is treated and disposed off. There are 200 nos. of Common Biomedical Waste Treatment Facilities (CBWTFs) and 12,326 nos. of captive treatment facilities installed by HCFs, available for the treatment & disposal of biomedical waste. There are 28 nos. of CBWTFs which are under construction.

All States / UTs; except Arunachal Pradesh, Goa, Jharkhand, Kerala and Uttarakhand are granted over a 75 % authorizations to the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules. Details are given at Annexure - D.

(i) Solid Waste Management

As per the Annual Report furnished by the SPCBs / PCCs, MSW Generation in the country is about 1,62,836 TPD. Out of which, about 92 % (1,49,346 TPD) of waste is collected, about 41 % (60,683 TPD) of the collected waste is treated and about 30 % (44,835 TPD) of total waste is landfilled in 3,115 dumpsites. While the remaining 21 % is unaccounted, which is either disposed in dumpsites or littered elsewhere. Status of the Solid Waste Management in India (2018-19) is given at Annexure - E.

CPCB has developed format for submission of information on SWM and same has been uploaded on e-Sanyojan portal at CPCB website. SPCBs / PCCs are required to upload compliance report w.r.t SWM on the portal on quarterly basis for monitoring of implementation status of SWM Rules by CPCB.

(j) Non-Attainment Cities (Air Pollution)

CPCB has identified 122 Non-attainment cities based on ambient air quality data for the period 2014- 2018. List of Non-attainment cities is given at Annexure - F. As per Hon'ble NGT order in the matter of O.A. 681 of 2018, City specific action plans are prepared for these cities. City plans targets all major sources specific to city (Soil & Road Dust, Vehicles, Domestic Fuel, MSW Burning, Construction Material and Industries) and identifies short-term priority action as well as those to be implemented in a medium to longer time frame along with the responsible agencies.

Directions under Section 31A of The Air (Prevention and Control of Pollution) Act, 1981 have been issued to States for ground implementation of approved city action plan.

(k) Critically Polluted Areas

CPCB in concurrence with MoEF&CC carried out environmental quality monitoring in 100 polluted industrial areas (PIAs) across the country for assessment of Comprehensive Environmental Pollution Index (CEPI) based on CEPI-2016. The monitoring work was carried out, during 2017-18, in co-ordination with the respective SPCB / PCC and Regional Directorates of CPCB.

Thereafter, CPCB undertook the process of analysing the monitoring reports, for identifying critical pollutants in the respective PIAs. Also as evaluation of CEPI scores needs additional information, namely; industrial sources / pollution control facilities and health / hospital data of the industrial clusters, the concerned SPCBs / PCC provided the desired information, based on which, the details of CEPI scores were evaluated by CPCB for the identified 100 PIAs located in 21 States. As an outcome of CEPI evaluation, no. of Critically Polluted Areas (CPAs), Severely Polluted Areas (SPAs) and Other Polluted Areas (OPAs) were found as 38, 31 and 31 respectively. Details of CEPI evaluation of 38 CPAs in 100 Polluted Industrial Areas (PIAs) during 2017-18 is given at Annexure - G.

3.9 State Performance Reports

The state-wise detailed reports are prepared considering each of the aspects discussed in previous sections of the report. The broader areas are related to Environmental monitoring, Regulatory set-up / mechanism, Policy Initiatives, Public Outreach & Information Disclosure, Capacity Building & Initiatives, Areas of attention including strengths & weakness. The segmented data is placed at the end of state reports for ready reference.

3.10 Proposed Performance Audit

The performance audit of organisations and the programmes is being carried out by Comptroller and Auditor General (CAG) at regular intervals and the reports are submitted to Parliament. There are many reports related to union ministries and States available in public domain including the Performance Audit of Pollution by Industries in West Bengal, Government of West Bengal (Report 5 of 2018). CAG submitted two such reports covering the programmes and schemes for control of pollution of rivers, lakes and ground water in MoEF / MoWR relating to the periods 2006-07 and 2010-11. A CAG audit includes examining the Government framework for monitoring of compliance with environmental laws, performance of environmental programs, impact of Government programs and evaluation of policies and programs. The audit process generally takes about 3 to 6 months and methodology has standard procedures with well laid-out objectives. CAG has published detailed *audit guidelines*.

The performance of States with respect to water management, sustainable development, health and many other fields is assessed by Niti Aayog every year in a structured score sheet. Similarly, Union Ministries have also standard procedures for assessing the program implementation across the States. The assessment is made through a structured questionnaire followed by interaction / consultations. Many of these assessments had

inbuilt public views for capturing public perception. Annual ranks are published in selected sectors for promoting healthy competition amongst the States.

Central Pollution Control Board has designed a well-structured questionnaire for its Audit 2019 and constituted expert teams to interact with the SPCBs to collect supporting documents. The process of audit exercise took about three months by six expert teams and a core team at CPCB. The compilation and report preparation took another three months.

Auditing is a full-time exercise and professional approach with clear objective oriented framework needed to assess the performance of SPCBs / PCCs. An agency having good understanding of the functions and practices of pollution control boards is better placed to conduct independent audit. The methodology and questionnaire used by CPCB may be modified to bring in more clarity on state-specific issues and capture details to evaluate the performance. Some of the consultancy firms such as KPMG, Deloitte in private institutions such as IIMs, TERI, IIPA may conduct the performance audits in future. It is suggested that the performance audit may be commissioned on regular basis by the Union Ministry of Environment, Forest and Climate Change for all SPCBs, PCCs and CPCB.

It is proposed that the Performance Audit of State Pollution Control Boards may be carried out once in three years.

Table 3.6 - State-wise details of GPI Units (as received from SPCBs / PCCs)

S. No.	State / UT	Total no. of industries	No. of industries closed by their own	No. of industries operational	No. of Indus. complying with Env. Stds.	No. of Indus. Non-complying with Env. Stds.	Action taken against industries not complying with the standards				% of industries complied with Env. Norms
							Show cause notices issued	Closure directions issued	Legal cases filed	Action under process	
1	Andaman & Nicobar	2	0	2	1	1	0	1	0	0	50
2	Andhra Pradesh	198	5	193	189	4	4	0	0	0	98
3	Arunachal Pradesh	97	8	89	63	26	3	23	0	0	71
4	Assam	0	0	0	0	0	0	0	0	0	NA
5	Bihar	84	34	50	50	0	0	0	0	0	100
6	Chandigarh	0	0	0	0	0	0	0	0	0	NA
7	Chhattisgarh	2	0	2	1	1	0	1	0	0	50
8	Daman, Diu, Dadra & NH	0	0	0	0	0	0	0	0	0	NA
9	Delhi	3	0	3	3	0	0	0	0	0	100
10	Goa	0	0	0	0	0	0	0	0	0	NA
6	Gujarat	191	13	178	139	39	26	13	0	0	78
12	Haryana	660	22	638	625	13	6	7	0	0	98
13	Himachal Pradesh	0	0	0	0	0	0	0	0	0	NA
14	Jammu & Kashmir	69	0	69	66	3	3	0	0	0	96
15	Jharkhand	45	6	39	5	34	14	10	2	8	13
16	Karnataka	4	0	4	4	0	0	0	0	0	100
17	Kerala	29	1	28	27	1	0	1	0	0	96
18	Lakshadweep	0	0	0	0	0	0	0	0	0	NA
19	Madhya Pradesh	2	0	2	2	0	0	0	0	0	100
20	Maharashtra	4	1	3	3	0	0	0	0	0	100
21	Manipur	0	0	0	0	0	0	0	0	0	NA
22	Mizoram	0	0	0	0	0	0	0	0	0	NA
23	Meghalaya	2	0	2	2	0	0	0	0	0	100
24	Nagaland	0	0	0	0	0	0	0	0	0	NA
25	Odisha	6	0	6	6	0	0	0	0	0	100
26	Puducherry	3	0	3	3	0	0	0	0	0	100
27	Punjab	5	0	5	2	3	3	0	0	0	40
28	Rajasthan	1	0	1	1	0	0	0	0	0	100
29	Sikkim	0	0	0	0	0	0	0	0	0	NA
30	Tamil Nadu	0	0	0	0	0	0	0	0	0	NA
31	Telangana	3	1	2	2	0	0	0	0	0	100
32	Tripura	0	0	0	0	0	0	0	0	0	NA
33	Uttar Pradesh	1,218	139	1,079	950	129	5	84	1	39	88
34	Uttarakhand	76	12	64	54	10	1	1	0	8	84
35	West Bengal	43	5	38	27	11	9	2	0	0	71
	Total	2,747	247	2,500	2,225	275	74	143	3	55	

**Table 3.7 - Compliance Status of all Existing Sewage Treatment Plants
(Municipal STPs only)**

S. No.	Name of the SPCBs/PCCs	Total No. of STPs in the State/UT	No. of STPs complying	No. of STPs Non-complying	Action taken against Non-complying STPs				No. of STPs complying
					No. of STPs against which show cause notice/directions issued	No. of STPs against which closure directions issued	No. of STPs against which legal cases filed in the court (s)	No. of STPs against which action is under process	
A	B	C	D	E	F	G	H	I	
1	Andaman & Nicobar	91	89	2	2	0	0	0	98
2	Andhra Pradesh	39	25	14	14	0	0	0	64
3	Arunachal Pradesh	1	1	0	0	0	0	0	100
4	Assam	3	3	0	0	0	0	0	100
5	Bihar	0	0	0	0	0	0	0	NA
6	Chandigarh	6	3	3	0	0	0	3	50
7	Chhattisgarh	3	3	0	0	0	0	0	100
8	Damn, Diu, Dadra & NH	2	2	0	0	0	0	0	100
9	Delhi	0	0	0	0	0	0	0	NA
10	Goa	0	0	0	0	0	0	0	NA
11	Gujarat	51	39	12	9	0	0	3	76
12	Haryana	152	137	15	5	0	1	9	90
13	Himachal Pradesh	55	48	7	7	0	0	0	87
14	Jammu and Kashmir	12	9	3	0	0	0	3	75
15	Jharkhand	9	9	0	0	0	0	0	100
16	Karnataka	101	70	31	31	0	0	0	69
17	Kerala	2	2	0	0	0	0	0	100
18	Lakshadweep	0	0	0	0	0	0	0	NA
19	Madhya Pradesh	22	14	8	7	0	1	0	64
20	Maharashtra	134	134	0	0	0	0	0	100
21	Manipur	0	0	0	0	0	0	0	NA
22	Meghalaya	0	0	0	0	0	0	0	NA
23	Mizoram	1	1	0	0	0	0	0	100
24	Nagaland	0	0	0	0	0	0	0	NA
25	Odisha	6	5	1	1	0	0	0	83
26	Puducherry	3	3	0	0	0	0	0	100
27	Punjab	98	51	47	0	0	7	40	52
28	Rajasthan	70	40	30	10	0	4	16	57
29	Sikkim	5	5	0	0	0	0	0	100
30	Tamil Nadu	60	58	2	2	0	0	0	97
31	Telangana	30	26	4	4	0	0	0	87
32	Tripura	1	1	0	0	0	0	0	100
33	Uttar Pradesh	94	72	22	1	0	0	21	77
34	Uttarakhand	27	26	1	1	0	0	0	96
35	West Bengal	44	2	42	0	0	0	42	5
TOTAL		1,122	878	236	98	0	13	137	

Table 3.8 - Compliance Status of all Industries generating Trade Effluent and requiring Effluent Treatment Plants (ETPs)

S. No.	Name of the SPCBs/PCCs	Total No. of Industries which require ETPs	No. of industries having functional ETPs	No. of industries operating without ETPs	Action taken against industries operating without ETPs				Details of Industries having functional ETPs		Action taken against industries having ETPs but Non-complying with the Effluent Standards			
					No. of industries against which show cause notice/directions issued	No. of industries against which closure directions issued	No. of industries against which legal cases filed	No. of industries against which action is under process	No. of industries complying with Effluent Standards	No. of industries Non-complying with Effluent Standards	No. of industries against which show cause notice/directions issued	No. of industries against which closure directions issued	No. of industries against which legal cases filed	No. of industries against which action is under process
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Andaman & Nicobar	22	17	5	4	1	0	0	17	0	0	0	0	0
2	Andhra Pradesh	1,091	1,074	17	17	0	0	0	1,053	21	21	0	0	0
3	Arunachal Pradesh	2	2	0	0	0	0	0	2	0	0	0	0	0
4	Assam	2,472	1,677	795	399	312	0	84	1,440	237	3	0	0	234
5	Bihar	213	211	2	0	1	1	0	210	1	1	0	0	0
6	Chandigarh	222	222	0	0	0	0	0	222	0	0	0	0	0
7	Chhattisgarh	969	860	109	0	109	0	0	860	0	0	0	0	0
8	Daman, Diu, Dadra NH	256	251	5	0	5	0	0	238	13	13	0	0	0
9	Delhi	38	35	3	1	2	0	0	31	4	4	0	0	0
10	Goa	209	209	0	0	0	0	0	209	0	0	0	0	0
11	Gujarat	7,818	7,701	117	34	68	0	15	7,583	118	73	33	0	12
12	Haryana	3,599	3,530	69	1	61	0	7	3,496	34	3	17	3	11
13	Himachal Pradesh	994	991	3	3	0	0	0	978	13	13	0	0	0
14	Jammu and Kashmir	439	227	212	178	18	0	16	200	27	19	3	1	4
15	Jharkhand	207	207	0	0	0	0	0	207	0	0	0	0	0
16	Karnataka	3,345	3,189	156	89	56	2	9	3,138	51	46	3	2	0
17	Kerala	5,166	5,146	20	20	0	0	0	5,114	32	13	0	2	17
18	Lakshadweep	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madhya Pradesh	1,209	1,209	0	0	0	0	0	1,204	5	2	0	3	0
20	Maharashtra	16,597	16,597	0	0	0	0	0	16,389	208	116	35	0	57
21	Manipur	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Meghalaya	231	190	41	12	20	2	7	190	0	0	0	0	0
23	Mizoram	59	55	4	0	0	0	4	55	0	0	0	0	0
24	Nagaland	29	25	4	0	0	0	4	25	0	0	0	0	0
25	Odisha	1,180	1,133	47	13	29	1	4	1,074	59	48	8	0	3
26	Puducherry	94	91	3	3	0	0	0	83	8	4	1	0	3
27	Punjab	1,796	1,717	79	43	31	0	5	1,574	143	118	3	0	22
28	Rajasthan	1,369	1,257	112	25	84	0	3	1,137	120	107	10	2	1
29	Sikkim	64	64	0	0	0	0	0	64	0	0	0	0	0
30	Tamil Nadu	11,264	11,257	7	0	7	0	0	11,216	41	21	20	0	0
31	Telangana	2,179	2,168	11	0	0	0	0	2,115	53	24	29	0	0
32	Tripura	17	11	6	0	0	0	6	9	2	0	0	0	2
33	Uttar Pradesh	Data not provided												
34	Uttarakhand	830	830	0	0	0	0	0	828	2	1	1	0	0
35	West Bengal	21	21	0	0	0	0	0	19	2	2	0	0	0
TOTAL		64,001	62,174	1,827	842	804	6	164	60,980	1,194	652	163	13	366

Table 3.9 - Compliance Status of all Existing Common Effluent Treatment Plants (CETPs)

S. No.	Name of the SPCBs/PCCs	Total No. of CETPs in the State/UT	No. of CETPs complying	No. of CETPs Non-complying	Action taken against Non-complying CETPs				% Complying CETP
					No. of CETPs against which show cause notice/directions issued	No. of CETPs against which closure directions issued	No. of CETPs against which legal cases filed in the court (s)	No. of CETPs against which action is under process	
A	B	C	D	E	F	G	H	I	
1	Andaman & Nicobar	0	0	0	0	0	0	0	NA
2	Andhra Pradesh	6	6	0	0	0	0	0	100
3	Arunachal Pradesh	0	0	0	0	0	0	0	NA
4	Assam	0	0	0	0	0	0	0	NA
5	Bihar	0	0	0	0	0	0	0	NA
6	Chandigarh	0	0	0	0	0	0	0	NA
7	Chhattisgarh	0	0	0	0	0	0	0	NA
8	Daman, Diu, Dadara & NH	0	0	0	0	0	0	0	NA
9	Delhi	13	5	8	0	0	0	8	38
10	Goa	0	0	0	0	0	0	0	NA
11	Gujarat	34	19	15	4	0	0	11	56
12	Haryana	19	15	4	0	0	1	3	79
13	Himachal Pradesh	1	1	0	0	0	0	0	100
14	Jammu and Kashmir	2	0	2	2	0	0	0	0
15	Jharkhand	1	1	0	0	0	0	0	100
16	Karnataka	10	9	1	1	0	0	0	90
17	Kerala	6	4	2	2	0	0	0	67
18	Lakshadweep	0	0	0	0	0	0	0	NA
19	Madhya Pradesh	2	2	0	0	0	0	0	100
20	Maharashtra	26	24	2	0	1	1	0	92
21	Manipur	0	0	0	0	0	0	0	NA
22	Meghalaya	0	0	0	0	0	0	0	NA
23	Mizoram	0	0	0	0	0	0	0	NA
24	Nagaland	0	0	0	0	0	0	0	NA
25	Odisha	0	0	0	0	0	0	0	NA
26	Puducherry	0	0	0	0	0	0	0	NA
27	Punjab	3	2	1	0	0	1	0	67
28	Rajasthan	13	4	9	1	0	5	3	31
29	Sikkim	0	0	0	0	0	0	0	NA
30	Tamil Nadu	36	27	9	7	1	0	1	75
31	Telangana	7	4	3	0	3	0	0	57
32	Tripura	1	0	1	0	0	0	1	0
33	Uttar Pradesh	5	5	0	0	0	0	0	100
34	Uttarakhand	3	3	0	0	0	0	0	100
35	West Bengal	1	1	0	0	0	0	0	100
TOTAL		189	132	57	17	5	8	27	

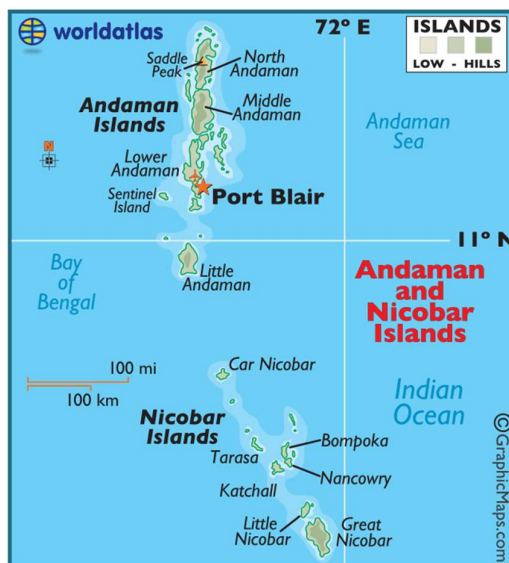
**Table 3.10 - Compliance Status of Authorisation of Health Care Facilities (HCFs),
Captive and Common Bio-medical Waste Treatment Facilities (CBWTFs)**

S. No.	Name of the State/UT and	Total no. Health Care Facilities (HCFs)	Total no. of Beds	Authorization Status			Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)	Captive BMW Treatment Facilities Operated by the (HCFs)		Common Bio-medical Waste Treatment Facilities (CBWTFs)		Total BMW treated by captive treatment facilities by HCF in Kg/day	Total BMW treated by CBWTFs (kg/day)	Total no. of violation by HCFs & CBWTFs	Total No. of show cause notices/Directions issued to defaulter HCFs/CBWTFs	No. of CBWTFs that have installed COEMS	% of authorization granted to applied for authorization	% of BMW treated/dispensed to generated	% of OC/EMS installed in CBWTFs to the facilities operational	% of SC notice/direction issued to violation by HCFs & CBWTFs
				Total no. of HCFs applied for authorization	Total no. of HCFs granted authorization	Total no. of HCFs in operation without authorization			No. of HCFs having Captive Treatment Facilities	No. of Captive Incinerators Operated by HCFs	CBWTFs Operational	CBWTFs under Construction									
I.	II.	V.	VI.	VII.	VIII.	IX.	XI.	XII.	XIII.	XIV.	XV.	XVI.	XIX.	XX.	XXI.	XXII.	XXIII.				
1	Andaman Nicobar	119	1,269	59	51	60	199	199	1	1	Nil	Nil	199	Nil	Nil	Nil	Nil	86	100	NA	NA
2	Andhra Pradesh	7,463	1,17,184	3,040	3,002	1,940	15,144	15,144	Nil	Nil	11	2	Nil	10,003	2,042	1,556	11	99	100	100	76
3	Arunachal Pradesh	337	3,185	261	90	76	889	889	337	3	Nil	Nil	889	Nil	Nil	Nil	Nil	34	100	NA	NA
4	Assam	1,408	25,667	352	352	1,046	7,821	5,869	118	10	1	Nil	2,155	3,714	1,046	780	1	100	75	100	75
5	Bihar	24,996	70,653	1,336	4,135	20,484	34,813	10,038	3	1	4	Nil	288	9,750	1,320	1,320	4	310	29	100	100
6	Chandigarh	809	4,347	193	194	471	3,188	3,188	3	2	1	Nil	2,571	617	Nil	Nil	1	101	100	100	NA
7	Chhattisgarh	719	6,132	455	341	Nil	16,096	4,597	319	2	4	Nil	252	4,345	72	1	1	75	29	25	1
8	DD & DNH	140	1,061	105	81	INP	331	331	Nil	Nil	1	Nil	Nil	331	Nil	92	1	77	100	100	NA
9	Delhi	6,429	54,185	1,002	818	2,110	26,758	26,758	3	Nil	2	Nil	437	26,321	413	413	2	82	100	100	100
10	Goa	INP	INP	141	76	582	1,837	1,837	207	Nil	Nil	Nil	1,837	Nil	974	Nil	Nil	54	100	NA	100
11	Gujarat	28,960	1,93,599	9,460	8,973	3,365	33,706	33,706	Nil	Nil	20	2	0	33,706	2,562	2,562	20	95	100	100	100
12	Haryana	4,079	53,249	3,946	3,874	133	14,218	14,218	Nil	Nil	11	Nil	Nil	14,218	137	153	11	98	100	100	112
13	Himachal Pradesh	3,802	14,150	1,832	1,569	1,970	2,570	2,570	2,302	1	3	1	207	2,363	228	228	3	86	100	100	100
14	J & K	6,445	15,135	836	545	5,609	4,483	4,280	2	1	3	Nil	842	3,438	5,618	311	3	65	95	100	6
15	Jharkhand	1,558	26,550	509	143	106	12,788	6,721	INP	17	2	2	4,334	2,387	270	187	0	28	53	0	69
16	Karnataka	35,869	1,87,772	15,631	15,369	9,055	65,621	65,621	2,985	3	26	4	4,406	61,215	2,837	684	24	98	100	92	24
17	Kerala	12,595	1,10,114	6,861	6,673	4,985	71,976	42,226	23	24	1	Nil	5,098	37,128	90	134	1	97	59	100	149
18	Lakshadweep	25	250	INP	INP	25	527	110	25	3	Nil	Nil	110	Nil	Nil	Nil	Nil	NA	21	NA	NA
19	Madhya Pradesh	6,436	95,421	3,723	3,710	2,713	15,847	14,547	2	2	13	1	238	14,309	1,440	1,441	11	100	92	85	100
20	Maharashtra	60,410	2,76,985	15,939	17,037	4,704	62,418	62,134	218	4	31	1	2,257	59,877	48	52	25	107	100	81	108
21	Manipur	760	3,639	102	102	INP	1,140	905	3	3	1	Nil	375	530	1	1	Nil	100	79	0	100
22	Meghalaya	809	6,716	438	385	371	1,433	1,433	89	Nil	1	Nil	941	491	Nil	40	Nil	88	100	0	NA
23	Mizoram	116	3,295	23	23	1	831	831	106	4	Nil	Nil	831	Nil	1	1	Nil	100	100	NA	100
24	Nagaland	168	2,423	168	168	Nil	632	632	168	4	Nil	Nil	632	Nil	Nil	Nil	Nil	100	100	NA	NA
25	Orissa	3,259	44,865	860	697	Nil	14,564	14,564	2,453	5	5	1	11,173	3,391	88	198	1	81	100	20	225
26	Puducherry	242	12,112	208	178	34	4,320	5,834	1	1	1	Nil	34	5,800	36	38	1	86	135	100	106
27	Punjab	8,234	71,162	4,660	4,425	3,765	15,981	15,981	Nil	Nil	4	2	Nil	15,981	3,739	3,739	2	95	100	50	100
28	Rajasthan	6,476	1,19,524	1,396	1,155	1,702	22,262	16,913	733	INP	8	7	2,372	14,541	1,233	827	5	83	76	63	67
29	Sikkim	284	1,766	232	232	52	425	312	132	8	Nil	Nil	312	Nil	9	9	Nil	100	73	NA	100
30	Tamil Nadu	4,307	1,44,731	4,307	4,307	715	47,197	47,197	Nil	Nil	8	3	Nil	47,197	103	3	8	100	100	100	3
31	Telangana	5,165	1,05,331	1,708	1,670	475	16,243	16,243	Nil	Nil	11	Nil	Nil	16,243	520	520	11	98	100	100	100
32	Tripura	1,743	4,701	536	536	Nil	1,402	1,402	158	4	1	1	1,170	232	Nil	Nil	Nil	100	100	0	NA
33	Uttar Pradesh	25,602	2,53,927	21,881	20,927	4,675	52,500	52,500	10	10	18	Nil	6,105	46,395	171	27	18	96	100	100	16
34	Uttarakhand	2,312	19,765	582	328	1,730	4,111	4,075	1,426	3	2	Nil	1,138	2,938	1,732	102	1	56	99	50	6
35	West Bengal	7,747	1,16,991	7,747	7,619	Nil	34,124	34,124	1	Nil	6	1	125	33,999	571	563	6	98	100	100	99
36	DGA/FMS	593	38,506	593	571	Nil	6,351	6,351	498	4	Nil	Nil	5,736	615	Nil	Nil	Nil	96	100	NA	NA
	Total	2,70,416	22,06,362	1,11,122	1,10,356	68,467	6,14,743	5,34,278	12,326	120	200	28	57,063	4,72,073	27,301	16,956	172				

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4.0 ANDAMAN & NICOBAR ISLANDS (UT)

The Andaman and Nicobar Islands, located in the east of the Indian mainland geographically, float in splendid isolation in the Bay of Bengal. Once a hill range extending from Myanmar to Indonesia, these picturesque undulating islands, islets numbering around 572, are covered with dense rain-fed, damp and evergreen forests and endless varieties of exotic flora and fauna. Most of these islands (about 550) are in the Andaman Group, 28 of which are inhabited. The smaller Nicobars, comprise some 22 main islands (10 inhabited). The Andaman and Nicobars are separated by the Ten Degree Channel which is 150 km wide.



Administratively, the Union Territory of the Andaman and Nicobar Islands has three revenue Districts. Port Blair- the capital and gateway to the islands lies in South Andaman Is land and falls under South Andaman District. The latest North & Middle Andaman District with Mayabunder as headquarters lies separated from South Andaman District by a creek. Car Nicobar is the District Head quarter of Nicobar District. As per 2011 Census, the total population of Andaman & Nicobar stands 3,80,581 with literacy rate of 86.27 %, which is estimated as 4,34,192 (2019).

Area: 8,211 km²	SEWAGE: 25 MLD
Population: 3,80,581	MUNICIPAL SOLID WASTE: 120 TPD
Districts: 03	PLASTIC WASTE: 1,850 TPA
Class-I cities: 00	HAZARDOUS WASTE: 0.16 TPA
Density: 46 persons/km²	BIOMEDICAL WASTE: 199 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 13+252
SDG Index: 61	RIVERS & CANALS: 115 KM
Health Index: 45.36	WATER BODIES: 0.04 Lakh Ha
Percentage share of the Nation	GDP: 0.07 Population: 0.03 Area: 0.25

4.1 Andaman and Nicobar Islands Pollution Control Committee

- i. Andaman and Nicobar Islands Pollution Control Committee (PCC) functions from the office of Department of Science and Technology (DST) in Port Blair and does not have its own office. PCC needs to develop basic infrastructure for execution of functions of PCC.
- ii. PCC has only one engineer to handle the work of PCC and one support staff each for its legal and Information Technology (IT) related activities.
- iii. PCC was provided vehicular support for general purposes, no field vehicles were available for conducting environmental monitoring.
- iv. PCC received funds of Rs. 0.60 cr from the Islands Administration in FY 2018-19. However, the entire sum was spent on non-plan expenditure. PCC does not have any plans to utilize the sum of Rs. 1 cr available as reserve funds.
- v. PCC does not have facilities for Meetings / Conference, Library and Training.
- vi. PCC has set up its laboratory at Port Blair in 2007, but could not make it functional due to shortage of manpower. PCC has plan to strengthen its Laboratory and is in the process of recruitment of technical manpower.
- vii. PCC has no notified Board / Govt. Analysts.
- viii. It has arrangement with three private recognised laboratories for discharging its responsibilities of monitoring activities related to ambient air and industrial emissions / effluents.

4.2 Environmental Monitoring

- i. PCC has three Air Quality Monitoring Stations located in one of the three districts and the stations equipped for monitoring basic parameters of SO₂, NO_x and PM₁₀ and yet to acquire PM_{2.5} monitoring facilities.
- ii. PCC has shared its Air Quality Data with CPCB regularly. PCC has not analysed the data generated for further actions.
- iii. PCC has not started assessment of water quality in UT. It has not participated in National Water Quality Monitoring Program.

4.3 Regulatory Setup / Mechanism

- i. The Committee has reported to have identified 13 industries of red category, 252 industries of orange category and 199 industries of green category following the CPCB guidelines. About 96 % of the industries are having valid consents to operate.
- ii. There are two grossly polluting industries identified and one of these units was issued closure direction by PCC for non-complying with environmental norms.

- iii. Andaman & Nicobar Islands PCC is not linked to India E-Track to update the information on compliance.
- iv. There are 22 industries needed ETPs and 17 industries had functional ETPs complying with environmental norms. The remaining 5 industries are operating without ETPs, show-cause notices were issued to 4 industries and remaining unit was issued closure directions.
- v. Consents to Operate issued by the PCC contain general conditions and the prescribed standards are on emissions and effluents were not mentioned.
- vi. PCC maintains a Consent Register as required under Water and Air Acts.
- vii. About 96 % of the industries were operating with valid consent and 52 % of the consents to operate were issued within the stipulated time.
- viii. PCC has checklist for issue of consent (CTO / CTE) available in public domain and has online system for consent mechanism.
- ix. There are no SOP / Protocols for inspection of industries / common facilities.
- x. It has been reported that the entire quantity of 25 MLD sewage remains untreated.
- xi. Two industrial units generating 0.16 MTA hazardous waste were issued authorisation under Rules.
- xii. About 86 % of the Health Care Facilities (HCFs) got authorisation under the Bio-Medical Waste Management Rules and entire bio-medical waste is being treated and disposed through common bio-medical waste treatment facilities (CBMWTFs).
- xiii. MSW generation in the Islands is estimated as 120 TPD. About 98 % of MSW is collected, about 56 % of the collected waste is treated and 32 % of total waste reached to the only dumpsite in UT.
- xiv. PCC has not received half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xv. During 2018 an inventory was prepared on e-Waste generation in the Islands. However, PCC has not submitted mandatory annual report for FY 2017-18 within the time stipulated. The process of authorising manufacturers, dismantlers, recyclers and refurbishers under Rules is not yet started.
- xvi. PCC has conducted inventory of plastic waste generation, collection, recycle / treatment and disposal in the UT during FY 2017-18.

The estimated plastic waste generation in the UT is approximately 1,850 MTA during 2018-19. There are no units in UT manufacturing / recycling plastic.

PCC has taken measures to stop usage of single-use plastic in the state. The Administration of UT imposed complete ban on plastic bags. Municipal Authority collects solid waste from door to door and the segregated plastic waste is utilized in recycling & road construction as per IRC Guidelines.

PCC has not submitted annual report for FY 2017-18 within the stipulated time.

4.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. Andaman & Nicobar Islands PCC has provided citizen's charter.
- ii. PCC has public grievance registration and redressal system and it has addressed all the grievances received within stipulated time.
- iii. PCC does not have environment policy, industrial siting policy / criteria.
- iv. Directions issued by PCC are displayed in website, however other information i.e. environmental quality data, technical reports, annual reports and public hearing proceedings are not displayed in website.
- v. PCC has not prepared environmental status report for the UT.
- vi. PCC organises stakeholder meetings / awareness programs for new environmental rules / standards amended from time to time.
- vii. There are no success stories displayed on public domain about best available techniques (BAT) and best environmental practices (BEP) by industries / municipalities.
- viii. PCC has not compiled environmental statement submitted by industries every year.

4.5 Capacity Building & Initiatives

- i. PCC neither has its own R & D Activities nor it has collaborated with state or central institute for conducting R & D studies in the field of environmental pollution.
- ii. PCC has not conducted any studies on impact of pollution on human health / ecosystem.
- iii. PCC organises mass awareness / education programmes.

4.6 Areas of attention

- i. The major weakness of the PCC is availability of requisite manpower, especially scientific and technical to carry out minimum required environmental monitoring and assessment.
- ii. It is observed that air and water quality monitoring are not being carried out at regular intervals and thereby annual trend (increase or decrease) of the pollutants could not be assessed.
- iii. The Andaman & Nicobar Islands PCC issues the consents to operate (CTO) to the respective industries but relevant information is not included in the document. Though online CTO management is in place, industries are not in a position to utilize the system due to poor connectivity.

- iv. Complaints related to environmental pollution issues are being lodged by public through the common portal maintained the office of Hon'ble Lieutenant Governor and these complaints are forwarded to the PCC for redressal.
- v. The PCC is carrying out public awareness and outreach programmes with limited resources.
- vi. Overall infrastructure of the PCC needs improvement for performing basic functions as per the mandate.

4.7 Recommendations

- i. The Govt. should appoint (in consultation with CPCB) an expert to conduct an in-depth survey of the island area for (a) identification of all the environmentally relevant issues and their regulatory needs in terms of the man power, infrastructure including the laboratory facilities for the required environmental monitoring / analysis for the regulatory compliance and enforcement and the related data systems, training and development and other needs and (b) preparation of an action plan for development of the what all gets recommended under (i) above.
- ii. Review and finalization of action plan by the Govt. of Andaman and Nicobar Islands in consultation with CPCB.
- iii. Implementation of the plan for development of the complete set up required for the smooth performance of the functions of the PCC.
- iv. Strengthening of PCC is immediate need for effective disposal of its mandated functions.
- v. PCC shall make plan for spending on mandated functions as well as utilization of its reserve funds in addition of the Non-Plan Expenditure.
- vi. Laboratory facility must be made operational with recruitment of required manpower and allocation of required funds.
- vii. 25 MLD of sewage shall be subjected to appropriate treatment at the earliest possible time.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation	Total
1	0	1	0	1	0	3

Availability of Associated Facilities

Library	Training Hall	Conference Hall
No	No	No

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
1	0	0	1

Number of Water / Air Quality Monitoring Stations / Locations

Air			Water		
NAMP	SAMP	CAAQMS	NWMP	SWMP	RTWQMS
0	3	0	0	0	0

Budget Utilization Status (2018-19)

Available (Rs. Crore)			Expenditure (Rs. Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
0.60	1.00	1.60	0.00	0.60	0.60

Industrial Pollution

Category wise No. of Industries					
17 Category	Red	Orange	Green	White	GPI
0	13	252	199	0	2

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
25	0	-	-	-	25

Hazardous Waste Generation and Management (2018-19)

No. of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
2	0.16	0	0	0.16

Bio Medical Waste (BMW) Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
48	71	119	1,269	59	51	60	Nil	199	199

Municipal Solid Waste (MSW) Management (2018-19)

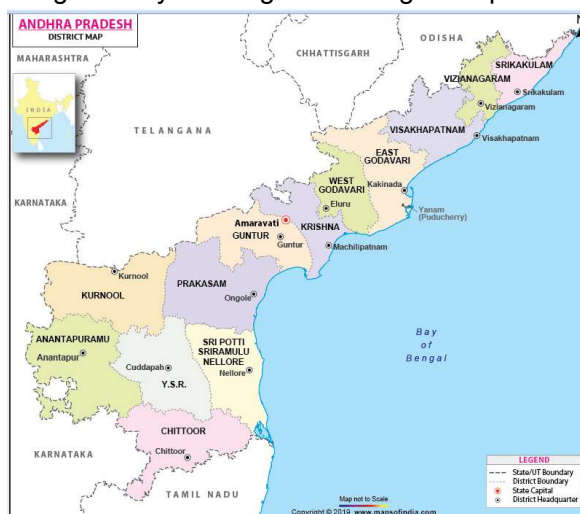
Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
120	117	65	38

*

5.0 ANDHRA PRADESH

Andhra Pradesh, a state in the south-eastern coastal region of India, is the seventh-largest state by area covering 1,62,205 km² and tenth-most populous state with 4,93,86,799 inhabitants. It is bordered by Odisha to the north, Chhattisgarh to the north-east, Tamil Nadu to the south, Karnataka to the west, Telangana to the north-west. The eastern boundary is a 970 km coastline along the Bay of Bengal. Although it is primarily agricultural, the state has mining activity and significant industrial activities. Andhra Pradesh holds the second position in India in terms of its mineral resources. Important industries in Andhra Pradesh include Information Technology, Biotechnology, Business Management, Pharmaceuticals

Andhra Pradesh is also home to Kolleru Lake, one of the largest freshwater lakes in India and rich delta areas of rivers Krishna and Godavari. The delta area of Krishna and Godavari was also known as Rice Bowl of India.



Area: 1,60,205 km²	SEWAGE: 2,684 MLD
Population: 4,93,86,799	MUNICIPAL SOLID WASTE: 6,440 TPD
Districts: 13	PLASTIC WASTE: 66,314 TPA
Class-I cities: 02	HAZARDOUS WASTE: 5,86,883 TPA
Density: 308 persons/km²	BIOMEDICAL WASTE: 15,144 KG/DAY
Water Management Index: 74	INDUSTRIES (RED+ORANGE): 2,770+3,292
SDG Index: 67	RIVERS & CANALS: 13,891 KM *
Health Index: 65.13	WATER BODIES: 6.97 Lakh Ha *
Percentage share of the Nation	GDP: 4.94 Population: 4.08 Area: 4.87

* Length of Rivers & Canals and water bodies includes that of Telangana State (before bifurcation)

5.1 Andhra Pradesh Pollution Control Board

- i. The Board is in the process of rebuilding its new infrastructural set up after the bifurcation from Telangana. SPCB has 3 Zonal and 13 Regional Offices.
- ii. AP Board has only 97 Scientific & Technical personnel in place as against the sanctioned posts of 178. Similarly, only 27 Administrative staff in place as against the sanctioned posts of 111. The existing manpower is inadequate to meet the Regulatory responsibilities.
- iii. The Board has 31 vehicles including 17 sampling / monitoring vans and 3 mobile laboratories.
- iv. The Board has adequate funds to enable its functioning. However, only about 12 % of budget was spent including non-plan (Rs. 53.74 cr of Rs. 442.67 cr) during the year 2018-19. The non-plan expenditure was Rs. 44.02 cr.
- v. SPCB of unified Andhra Pradesh had Central Laboratory which was transferred to Telangana after bifurcation of the state. The Board have 5 laboratories, 1 each in 3 Zonal Offices at Vishakhapatnam, Kurnool & Vijayawada and 1 each 2 Regional Offices each at Kakinada and Tirupathi. All the 5 laboratories are equipped with facilities to analyse minimum analytical parameters.
- vi. SPCB has 5 designated Board / Govt. Analysts.
- vii. The Zonal and Regional Laboratories are yet to obtain recognition under E (P) Act, 1986.
- viii. Visakhapatnam Zonal Laboratory has facilities for all parameters of Annexure 'A' of CPCB Guidelines for Laboratory Recognition.
- ix. SPCB Laboratory has Accreditation for 3 major group of parameters i.e. Core Parameters, General Parameters and Ambient Air (NAAQS). It does not have accreditation for Trace Metals analysis.

5.2 Environmental Monitoring

- i. NAMP air quality stations are located in all the 13 Districts of State. Additionally, seven CAAQM Stations are installed for generation of real-time data.
- ii. The Board has 110 water quality monitoring locations and 39 locations are sampled along its coast for water quality. Some of the minor rivers and tributaries needed monitoring in the state for identifying the polluted stretches that may be subsequently leading to preparation of action plans.
- iii. The state has prepared action plans for 5 identified polluted river stretches (Priority-III to V) for control of river water pollution. Accordingly, State River Rejuvenation Committee approved all the action plans and got these approved from CPCB Task Team.

5.3 Regulatory Setup / Mechanism

- i. The Andhra Pradesh Board has identified 2,770 industries of red category, 3,292 industries of orange category, 2,444 industries of green category and 122 industries of white category following the CPCB guidelines.
- ii. There were 259 industries of 17 categories and 193 grossly polluting units identified along the rivers / lakes. About 96 % of the industries are having valid consent to operate.
- iii. About 94 % of 17 categories of industries have been complying with environmental norms. In case of 16 non-complying industries, one industry was issued show cause notice and a legal case was filed against another. Action was under process against the remaining 14 non-complying industries.
- iv. About 91 % of 17 categories of industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. The board has not yet fixed timelines for the installation of the OCEMS in the defaulting industries. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against 23 units, which have not installed OCEMS.
- v. About 98 % of Grossly Polluting Industries (GPI) have been complying with Environmental norms whereas show-cause notices have been issued by SPCB to the remaining non-complying industries.
- vi. The industrial inspections especially that of red category and GPI were not up to the required frequency, thereby impacting effective compliance with prescribed standards and enforcement.
- vii. OCEMS data is not used by the Board for follow-up actions including short-listing of the industries for inspections / actions.
- viii. About 90 % of the sewage generated in the state is reported as not being treated and the quantity of sewage that remains untreated is about 2,386 MLD.
- ix. About 65 % of STPs are complying with environmental norms and the remaining non-complying STPs were issued show-cause notices / directions by SPCB.
- x. About 96 % of the Hazardous Waste Generators have valid authorization. Out of 5,86,883 MTA of HW quantity of generated, about 77 % of hazardous waste is utilized / recycled and about 26 % of waste is disposed through TSDFs.
- xi. About 99 % of the Health Care Facilities (HCFs) had valid authorization under the Bio-Medical Waste Management Rules and all the waste was treated and disposed through CBMWTFs. All Common Bio-medical Waste Treatment Facilities (CBWTFs) have installed online continuous emission monitoring systems (OCEMS).

- xii. Show-cause notices / directions have been issued by SPCB to about 76 % of HCFs / CBWTFs violating environmental norms.
- xiii. MSW generation in the state is estimated as 6,440 TPD. It was reported that 95 % of MSW is collected, 9 % of the collected waste is treated and 3 % of total solid waste was landfilled.
- xiv. Andhra Pradesh SPCB has received about 69 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xv. The state has completed the inventory of E-Waste and Plastic Waste generation and all the manufacturers, dismantlers, recyclers and refurbishers had valid Authorization from the SPCB.
- xvi. The estimated plastic waste generation in the State was 66,314 TPA during 2018-19. There were 80 plastic manufacturing units and 6 Recycling units in the State. Partial ban imposed on use of plastic carry bags irrespective of thickness in Bobbili, Tadipatri, Tirupati and Vijayawada Municipalities. The collected plastic waste has been segregated and sent to co-processing in cement kilns & partly for road construction. Further, 172 tonnes of plastic bags were seized and Rs. 83.88 Lakh of fine was collected from defaulters.
- xvii. Andhra Pradesh has reported 6 CETPs, 1 TSDF, 11 CBMWTFs and 110 MSW Dumpsites in the state.
- xviii. Out of 1,091 industries needed ETPs, 1,074 industries had functional ETPs and the rest 17 units were the defaulters. SPCB issued show cause notices / directions to all the industries operating without ETPs. Also show-cause notices / directions were issued to 21 industries out of 1,074 for non-complying with the environmental norms.
- xix. There was one severely polluted industrial cluster (Vijayawada) and 13 non-attainment cities (Guntur, Kurnool, Nellore, Vijayawada, Vishakhapatnam, Anantapur, Chittoor, Eluru, Kadapa, Ongole, Rajahmundry, Srikakulam & Vizianagaram) in the state.
- xx. The Board has notified the CETP inlet standards.
- xxi. The State has identified contaminated sites and remedial action plans have been prepared.

5.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 99 % of public complaints were addressed in stipulated time by SPCB.
- ii. SPCB has online complaint management system.
- iii. Directions issued by SPCB, Environmental Quality Data and Public Hearing Proceedings are displayed on website. However, Technical Reports and Annual Reports prepared by SPCB are not displayed on website.
- iv. Andhra Pradesh has not started preparing Environmental Status Reports.

- v. Andhra Pradesh SPCB has organised stakeholder meeting / Awareness for new environmental Rules / Standards amended from time to time.
- vi. The SPCB has provided citizen's charter. Success stories are not displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- vii. The State has not notified Environmental Policy specific to Andhra Pradesh.
- viii. SPCB has advised State Govt. on Policy Issues on Environment.
- ix. State has industrial siting policy / criteria and State Level Monitoring Committees on Environmental issues.
- x. SPCB has prescribed guidelines for green belt development in industrial premises.

5.5 Capacity Building & Initiatives

- i. SPCB doesn't have its own R & D activities, however it has tied up with institutes conducting R & D in the field of environmental pollution.
- ii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iii. SPCB conducts orientation programme for newly recruited staff.

5.6 Areas of attention

- i. In line with Ease of Doing Business, Board was able to meet its own drawn timelines (21 days) to process the consent applications and attain 100 % compliance.
- ii. Board successfully monitored 39 locations towards Coastal Ocean Monitoring and Prediction system. The State was using the data in drawing the action Plans for the Conservation of Coastal Water.
- iii. Andhra Pradesh Board has also floated a scheme of funding Research Fellows to carry out the Research activities in the field of Environment at various Universities and seven candidates have been funded till 2018.
- iv. The Board stipulated much stringent standards for boilers (115 mg/Nm³ for particulate matter as against national standard of 150 mg/Nm³).
- v. Although, one integrated TSDF facility is operational at Vishakhapatnam, Board was successful in developing one more facility at Nellore.
- vi. The Board has been able to harness 75 KW Solar Energy (50 KW at Kakinada and 25 KW at Vishakhapatnam) for captive consumption.
- vii. In the light of bifurcation, Board has a massive task to create new infrastructures, upgradation of laboratories and streamlining the systems to achieve efficient pollution control programs in the State.

- viii. It is understood that Regional Offices of the Board are also involved in District Administration programs, which seriously jeopardized the functioning of the Regional offices.
- ix. There was no recruitment in the Board since 2007 and a sizable gap formed due to retirement of senior officials. State experienced difficulty in outsourcing scientific and technical manpower.
- x. Some of the rivers are not adequately covered with water quality monitoring stations for identifying the polluted stretches.
- xi. General weakness can be highlighted towards the speedy and efficient regulatory controls on the sewage and Solid Waste Management within the State.
- xii. It was also observed that SPCB is conducting routine inspections of industries, which at times is done at a frequency of 6 months.

5.7 Recommendations

- i. SPCB shall make recruitment to 59 % of the total sanctioned posts lying vacant including about 71 % of Group C and 27 % of Group B Posts for effective disposal of its mandated functions. The State Government should grant necessary approvals for recruitment of the staff required by the State Board.
- ii. SPCB shall scale-down involvement of its Regional Offices in District Administration programs for effective functioning of the Regional offices.
- iii. The Board should obtain NABL Accreditation for Trace Metals for its Laboratories. The Board should obtain Laboratory recognition under E(P) Act, 1986.
- iv. The Andhra Pradesh SPCB needs to prepare and implement its annual action plans on urgent basis starting from the year 2020-21, to enable timely performance of its functions especially with regard to the major environmental issues of the state such as monitoring, compliance and enforcement in polluting industries, Polluted Areas, polluted river stretches, Non- Attainment Cities etc. and bridging the gap between the generation and treatment of sewage.
- v. SPCB shall provide treatment / scientific disposal to 88 % of its municipal solid waste, provide treatment to 89 % of its generated sewage and shall improve compliance of existing sewage treatment to environmental norms.
- vi. The annual action plans need to be prepared specially for:
 - a. better monitoring and control of odour problem for the pharma industries,
 - b. implementation of the action plans for control of pollution in river stretches, industrial clusters and non-attainment cities, and improved regulatory controls in regard to sewage and MSW management in the State.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	3	13	0	17

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
97 + (37)*	27	3	2	4	1

* Number in the bracket indicates projects Staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
No	Yes	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
11	17	3	31

Number of Water / Air Quality Monitoring Stations / Locations

Air			Water		
NAMP	SAMP	CAAQMS	NWMP	SWMP	RTWQMS
25	4	7	51	59	0

Budget Utilization Status (2018-19)

Available (Rupees in Crore)			Expenditure (Rupees in Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
442.76	274.58	717.34	9.72	44.02	53.74

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 Category	Red	Orange	Green	White	GPI
259	2,770	3,292	2,444	122	193

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
2,684	500	298	32	18	2,386

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority - I Identified Polluted River stretches		Priority - II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
5	5	0	0	0	0	5	5

Hazardous Waste Generation and Management (2018-19)

No. of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
2,683	5,86,883	4,50,561*	1,52,302	35,737

* includes quantity of hazardous waste sent to other State for recycling / utilization / co-processing / disposal

Bio-medical Waste (BMW) Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
4,892	2,571	7,463	1,17,184	3,040	3,002	1,940	7,463	15,144	15,144

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
6,440	6,140	548	203

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
6	1	11	110

Polluted Industrial Cluster(S)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
----	Vijayawada (68.04)

Non- Attainment (Air Polluted) Cities

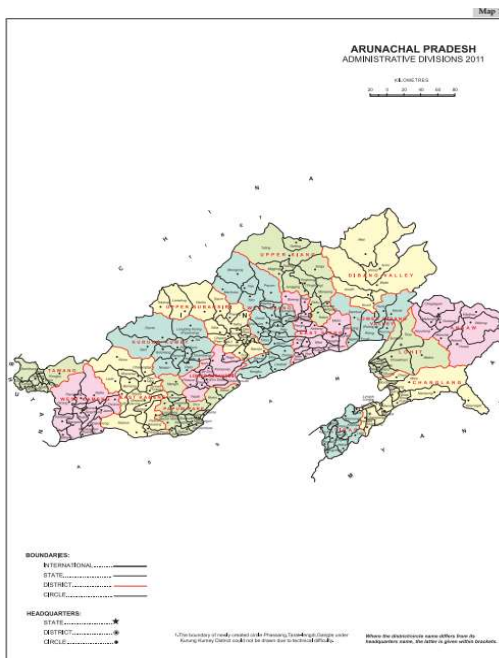
S. No.	Name of the City
1	Guntur
2	Kurnool
3	Nellore
4	Vijayawada
5	Vishakhapatnam
6	Anantapur
7	Chittoor
8	Eluru
9	Kadapa
10	Ongole
11	Rajahmundry
12	Srikakulam
13	Vizianagaram

*

6.0 ARUNACHAL PRADESH

Arunachal Pradesh located in north eastern India has fifteen districts and is called "Land of the Rising Sun". The literary meaning of the "Land of the Rising Sun" is "the land of the dawn lit mountains." The state has its capital in Itanagar, which is also its largest city. The state, known for its natural beauty is backed by a strong agricultural economy- pulses, sugarcane, rice, wheat, maize being its main crops. It has a considerable amount of forest cover which ensures that the forest products also contribute to its economy. The tourism sector of the state, however, has not been fully utilized.

Covering an area of 83,743 sq km, Arunachal Pradesh extends from the snow covered Himalayas to the Brahmaputra plains. It is located between 26° 30' and 29° 30' North latitude and 91° 30' and 97° 30' East longitude. Lying at the country's north eastern tip, the state is surrounded by Tibet in the north and north east, Bhutan in the west and Assam and Nagaland in the south. The Himalayan range, besides the Himalayan foothills and Patkai hills, covers the majority of the state. The major rivers flowing through the state are Subansiri, Lohit, Siang, Kameng, and Tirap. These rivers are snow fed, originating from the Himalayas and splitting the state into five river valleys.



Area: 83,743 km²	SEWAGE: 57 MLD
Population: 13,83,727	MUNICIPAL SOLID WASTE: 271 TPD
Districts: 25	PLASTIC WASTE: 3,787 TPA
Class-I cities: 00	HAZARDOUS WASTE: -- TPA
Density: 17 persons/km²	BIOMEDICAL WASTE: 889 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 348+505
SDG Index: 53	RIVERS & CANALS: 2,000 KM
Health Index: 49.51	WATER BODIES: 4.50 Lakh Ha
Percentage share of the Nation	GDP: 0.14 Population: 0.11 Area: 2.55

6.1 Arunachal Pradesh Pollution Control Board

- i. The SPCB has its Head Office in Naharlagun.
- ii. The State Board has very less scientific and technical and trained staff.
- iii. The basic facilities, such as Broadband Internet are not available.
- iv. There are many limitations with the Board, including funds. The Board could meet its non-plan expenditure and hardly any money is allotted for plan activities.
- v. The SPCB has Central Laboratory at its Head Office and has lone analyst. The laboratory is yet to get recognition under E (P) Act, 1986.
- vi. The laboratory has analytical facilities for some basic parameters, such as PM₁₀, SO₂, NO_x; BOD, COD, Total Coliforms, Turbidity, Conductivity, pH, Temperature and TDS.
- vii. NABL Accreditation was not planned for the laboratory.

6.2 Environmental Monitoring

- i. The state board renewing the consents to operate based on 3rd party monitoring report. The mandatory sampling of emissions or effluents of industries was not being carried out before renewal of consent. There are some physical inspections carries out by Board at random.
- ii. The Board is unable to conduct proper water quality and air quality monitoring as required under NWMP and NAMP.

6.3 Regulatory Setup / Mechanism

- i. The Board has reported to have identified 348 industries of red category, 505 industries of orange category and 92 industries of green category following the CPCB guidelines. There are 5 industries under 17 categories and 89 grossly polluting units identified along the rivers / lakes. About 92 % of the industries are having valid consent to operate.
- ii. All the 17 categories of industries and about 71 % of Grossly Polluting Industries (GPI) have been complying with Environmental norms. Show-cause notices were issued to 3 industries and closure directions to 23 industries by SPCB for non-compliance.
- iii. OCEMS data is not used by the Board for identification of the industries for inspections / actions.
- iv. SPCB has reported that the quantity of 57 MLD of sewage generated, remains untreated. There is one STP in state, which was complying with environmental norms.
- v. The Arunachal Pradesh SPCB has not completed inventory of hazardous waste and also not started authorising the units under Rules.

- vi. About 34 % of the Health Care Faculties (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. All the bio-medical Waste generated is being treated and disposed through CBMWTFs.
- vii. MSW generation in the state was estimated as 271 TPD. About 79 % of MSW is collected and there are no details available on the waste treated and landfilled.
- viii. SPCB has not received half yearly returns from stakeholders during 2018 & 2019 under the Batteries (Management and Handling) Rules, 2001.
- ix. SPCB has reported that there are 31 MSW Dumpsites in the state. However, there is no common facilities for biomedical & hazardous wastes and not a single CETP in the state.
- x. There are 2 industries having functional ETPs and both are complying with environmental norms.
- xi. The state was in the process of preparing inventory of E-waste. None of the manufacturers, dismantlers, recyclers were issued Authorization by the Board.
- xii. Annual Report for the year 2017-18 not submitted for e-waste before the deadline of June 30, 2018.
- xiii. The estimated plastic waste generation in the state was about 3,787 TPA during 2018-19. There were no plastic manufacturing or recycling & unregistered units in the State. There is a partial ban on use of plastic carry bags in East Siang, Tawang, Leparada Changlang, Kameng & Tirap Districts. All ULBs (34) have submitted Annual Reports containing partial information to APSPCB.

6.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 100 % of public complaints addressed in stipulated time by SPCB.
- ii. Directions issued by SPCB, Environmental Quality Data, Technical Reports & Annual Reports are not displayed on website.
- iii. The State has prepared Environmental Status report.
- iv. Public Hearing Proceedings by SPCB are displayed on website.
- v. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vi. SPCB has not provided citizen's charter and success stories are not displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- vii. Arunachal Pradesh SPCB has not been compiling environmental statement submitted by industries every year.

- viii. State has Environmental Policy and also State has prepared industrial siting policy / criteria.
- ix. There are State Level Monitoring Committees on Environmental issues.
- x. SPCB has not prescribed guidelines for green belt development in industrial premises.

6.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff and also organized mass awareness / education programmes in limited way.
- ii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iii. SPCB doesn't have any R & D activities and it has limited scope of work.
- iv. SPCB has not tied up with any State / Central institutes conducting R & D in the field of environmental pollution.

6.6 Areas of Attention

- i. Both the Chairman and Member Secretary are holding dual charges.
- ii. The Board is having its own office cum laboratory building, but not laboratory. Some basic facilities such as Internet are not provided.
- iii. Young team of Engineers and Scientists in the Board taken initiatives for various issues. But the team needs proper professional training.
- iv. NWMP not carried out regularly and monitoring calendar is not followed for sampling / analysis.
- v. There is no system of monitoring of industries regularly.
- vi. Less number of industries result in inadequate revenue collection. Therefore, support from Govt. is required to carry out various activities.

6.7 Recommendations

- i. The State Government should arrange for professional training.
- ii. Basic infrastructure needs to be developed for functioning of Board.
- iii. PCC shall have plan for spending on mandated functions as well as utilization of its reserve funds in addition of the Non-Plan Expenditure.
- iv. The Arunachal Pradesh SPCB needs to prepare and implement its annual action plans on urgent basis starting from the year 2020-21, to enable timely performance of its functions especially with regard to the major environmental issues of the state such as monitoring, compliance and enforcement in polluting industries, polluted river stretches, etc.

- v. SPCB shall submit annual inventory of Hazardous Waste within stipulated time for further plan and execution of action to manage the waste.
- vi. SPCB shall provide information on treatment of municipal solid waste collected and waste disposed in landfill sites.
- vii. SPCB shall ensure 57 MLD is subjected to appropriate treatment at the earliest possible time.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
5	26	1	0	2	0

Availability of Associated Facilities

Library	Training Hall	Conference Hall
1	0	1

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
4	4	0	8

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
2	1 (under process)	18	0

Budget Utilization Status (2018-19)

Available (Rupees in crore)			Expenditure (Rupees in crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
2.88	5.00	7.88	NIL	2.61	2.61

Major Environmental Issues of Audit Concern
Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
5	348	505	92	0	89

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
57	0	-	-	-	57

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
Information not provided				

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
208	129	337	3,185	261	90	76	Nil	889	889

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
271	215	INP	INP

INP = Information not provided

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
Nil	Nil	Nil	31

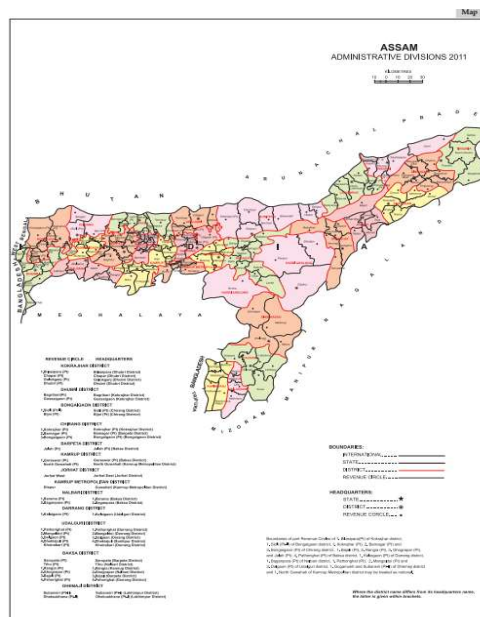
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7.0 ASSAM

Assam is the biggest and most accessible north-eastern state of India bounded by West Bengal, Bhutan and Bangladesh. The state is synonymous with astounding natural beauty, brimming with wildlife, and immaculate tea gardens. Dispur is its capital city and Assamese is the state language.

The Physiography of Assam can be divided into; the Karbi or Meghalaya plateau, hills of North Cachar and Barali range and the plain of Brahmaputra and Barak valley. The state has an impressive forest cover of 35 %. The Brahmaputra becomes a braided river on entering Assam; (more than 16 km wide), with its tributaries that create a massive flood plain. Assam is a globally recognised biodiversity hot-spot. It has 20 wild life sanctuaries and 5 National Parks that include the Manas and Kaziranga - UNESCO world Heritage sites.

The main occupation is Agriculture and farming. Rice, pulses, jute, tea, cotton, oilseeds, areca nut, etc. are grown here. The economy runs on revenue from timber, tourism, and tea. Assam is famous for its finest and some of the most expensive teas in the world. It is also an important producer of natural gas and crude oil.



Area: 77,178 km²	SEWAGE: 799 MLD
Population: 3,12,05,576	MUNICIPAL SOLID WASTE: 1,294 TPD
Districts: 33	PLASTIC WASTE: 32,278 TPA
Class-I cities: 01	HAZARDOUS WASTE: 45,540 TPA
Density: 46 persons/km²	BIOMEDICAL WASTE: 7,821 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 1,742+2,856
SDG Index: 55	RIVERS & CANALS: 4,820 KM
Health Index: 48.85	WATER BODIES: 1.55 Lakh Ha
Percentage share of the Nation	GDP: 1.70 Population: 2.58 Area: 2.39

7.1 Assam Pollution Control Board

- i. The Pollution Control Board is functioning with its Head Office at Guwahati and 8 regional offices in the State.
- ii. Board had 88 Scientific & Technical manpower and 112 administrative staff.
- iii. Assam PCB had 7 vehicles for general purpose and 12 vehicles for sampling / monitoring. There are no mobile laboratories with the Board.
- iv. About 75 % expenditure of the annual budget for 2018-19 has been spent on 'Non-Plan' activities.
- v. Assam PCB has its Central Laboratory in its Head Office. It has four regional laboratories.
- vi. APCB has no designated Board / Govt. Analysts.
- vii. Central Laboratory of APCB was recognised under E. P. Act 1986 (valid up to 03-12-2022). The Regional Laboratories have not applied for recognition.
- viii. Analytical facilities exist for physical, general and non-metallic, metals, organics, microbiological, toxicological, biological, hazardous waste, and air pollution parameters for analysis of ambient air, source emissions, noise and micro-meteorological parameters.
- ix. The laboratories have not taken NABL Accreditation for any of the major group of parameters.

7.2 Environmental Monitoring

- i. Board has established strong water quality and air quality monitoring networks in the state. Further strengthening these networks was felt as air quality of many districts is not being monitored.
- ii. The state has second highest number of polluted river stretches in the country. Some of the river bodies are classified as wetlands and the quality issues are being addressed through action plans.
- iii. There is no standard protocol developed for inspection of the industries.

7.3 Regulatory Setup / Mechanism

- i. The Board has identified 1,742 industries of red category; 2,856 industries of orange category; 1,320 industries of green category and 107 industries of white category following the CPCB guidelines. There are 40 industries of 17 categories identified along the rivers / lakes. About 69 % of the industries are having valid consent to operate.
- ii. About 90 % of 17 category industries have been complying with Environmental norms. In case of 4 non-complying industries, show-cause notices and closure directions were issued by the Board. About 54 % of 17 categories of industries have installed online continuous emission

monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against 26 units for not installing OCEMS.

- iii. OCEMS data is not used by the Board for identification of the industries for inspections / follow-up actions.
- iv. There is hardly any treatment provided to the sewage generated in the state and the quantity of sewage estimated as 799 MLD. There are 3 STPs in the state, which are complying with environmental norms.
- v. About 80 % of the Hazardous Waste Generators have valid authorization. Out of 45,540 MTA quantity of generated hazardous waste, about 21 % of hazardous waste is utilized / recycled. However, no information was provided on remaining waste generated in the state.
- vi. Almost all the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. About 75 % of Bio-Medical Waste generated was being treated and disposed through CBMWTFs. All the Common Bio-medical Waste Treatment Facilities (CBWTFs) have installed online continuous emission monitoring systems (OCEMS).
- vii. Show-cause notices / directions have been issued to about 75 % of HCFs / CBWTFs violating environmental norms as per inspections.
- viii. MSW generation in the state was estimated as 1,294 TPD. About 87 % of MSW is collected, however, no information about the waste treated and landfilled is provided by the Board.
- ix. Assam SPCB has received only 17 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- x. SPCB has reported that there was one CBMWTF and 76 MSW Dumpsites in the state. However, there is no CETP and TSDF in the state.
- xi. There were 2,472 industries needed ETPs and only 1,677 industries were having functional ETPs. Actions against 795 industries operating without ETPs were initiated by issuing show-cause notices to 399 industries, and closure directions to 312 industries. Action was under process for remaining 84 industries.
- xii. Out of 237 industries non-complying with the environmental norms, show-cause notices / directions were issued to 3 industries and action was not yet taken against 234 industries.
- xiii. There was one critically polluted industrial cluster (Byrnihat) in the state. There are 5 non-attainment cities (Guwahati, Nagaon, Nalbari, Sibsagar & Silchar) identified in the state for preparation of action plans to meet prescribed standards.
- xiv. Implementation of E-Waste Management Rules in the state has been very poor. The Board was yet to prepare the Inventory of E-Waste for the state also issue authorisations to the manufacturers, dismantlers, recyclers.

- xv. Annual Report of E-Waste for the year 2017-18 was not submitted before the deadline of June 30, 2018.
- xvi. The estimated plastic waste generation in the State was about 32,278 MT during 2018-19. There were 17 registered plastic manufacturing units in the State and one application was under process. Complete ban on single use plastics including plastic carry bags irrespective of thickness was notified on 29.04.2019. The segregated non-recyclable plastic waste has been utilized in road construction on a pilot project. Further, efforts are being made to dispose plastic waste for co-processing in Cement Kilns.

7.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 90 % of public complaints addressed in stipulated time by SPCB.
- ii. Directions issued, Environmental Quality Data and Technical Reports prepared by SPCB are displayed on website.
- iii. Annual Reports prepared by SPCB are not displayed on website.
- iv. The State has not prepared environmental status report.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new Environmental Rules / Standards amended from time to time in state.
- vii. SPCB has not provided citizen's charter.
- viii. Success stories are displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- ix. The State has notified an Environmental Policy and advised State Govt. on Policy Issues on Environment.
- x. State has industrial siting policy / criteria.
- xi. There are State Level Monitoring Committees on Environmental issues.
- xii. SPCB has prescribed guidelines for green belt development in industrial premises.

7.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programme.
- iii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iv. Assam SPCB has its own R & D activities and also tied up with State / Central institutes conducting R & D in the field of environmental pollution.

7.6 Recommendations

- i. The State Government should grant all approvals for the recruitment of the staff required by the State Board and development of required infrastructure.
- ii. The performance was very poor in recent past due to frequent changes in crucial organisations of the State, including the PCB. The SPCB was unable to respond to the directions of Hon'ble NGT on various issues.
- iii. The SPCB needs to prepare and implement its annual action plans on urgent basis starting from the year 2020-21, to enable timely performance of its functions especially with regard to the major environmental issues of the state such as monitoring, compliance and enforcement in polluting industries, polluted river stretches, non-attainment cities, etc.
- iv. SPCB shall complete action against 234 industries not complying effluent standards without further delay.
- v. SPCB shall provide treatment / disposal to 79 % of its hazardous waste and 25 % of its Bio-medical Waste.
- vi. SPCB shall come out with urgent policy to provide appropriate treatment to the generated sewage in the State in time-bound manner, as available treatment is negligible (0.1 %).
- vii. SPCB shall provide information on treatment of municipal solid waste collected and waste disposed in landfill sites.

Important Information at a Glance

Number of Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	8	0	9

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
122 (34)*	112	0	0	4	0

* Number in the bracket indicates project staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Common Hall		

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
7	12	0	19

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
23	1	196	0

Budget Utilization Status (2018-19)

Available (Rupees crore)			Expenditure (Rupees crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
30.32	NA	30.32	NA	22.84	22.84

Major Environmental Issues of Audit Concern Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
40	1,742	2,856	1,320	107 (Registered)	-

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
799	0.86	0.86	2	2	798.14

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
44	44	3	3	1	1	40	40

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
105	45,540	9,525	0	0

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
605	820	1,408	25,667	352	236	1,046	300	7,821	5,869

Municipal Solid Waste (MSW) Management

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
1,294	1,119	INP	INP

INP = Information not provided

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
NIL	NIL	1	76

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Guwahati
2	Nagaon
3	Nalbari
4	Sibsagar
5	Silchar

Polluted Industrial Cluster(S)

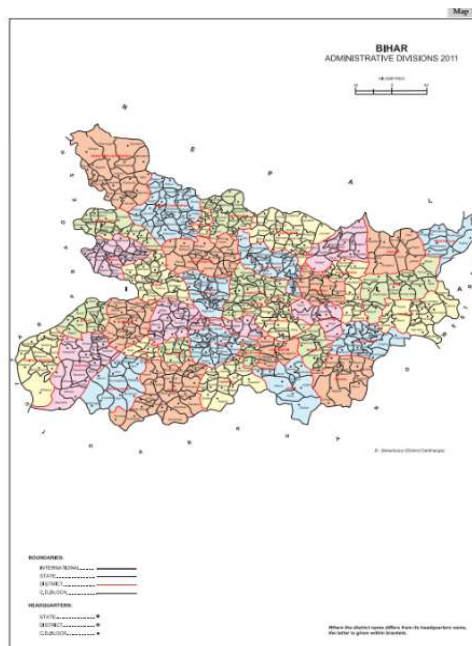
Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Byrnihat (78.31)	-

*

8.0 BIHAR

Located in the Eastern part of India, Bihar is the 13th largest state of the country. The state covers an area of 94,163 square km. On 15 November 2000, the southern part of Bihar was split to form the state of Jharkhand. Bihar is divided into 38 districts and has Patna as its capital. The state has a rich history and culture which dates back to ancient times. It was once a great center of learning and was also the centre of Buddhism. Some prominent Universities of ancient Bihar were Nalanda Odantapurā or Odantapuri and Vikramashila

Bihar has one of the fastest growing economies in terms of gross state domestic product. Mainly an agricultural economy, the state is the major producer of vegetables and fruits in the country. The state has also made progress in the industrial sector with an oil refinery in Barauni and a power plant in Muzaffarpur. A satellite town located in the Patna Metropolitan Region, Fatuha is well known for its farm tractor and scooter industries. Other than this, Bihar is also known for its agriculture-based industries such as sugar and vegetable oil.



Area: 94,163 km²	SEWAGE: 2,135 MLD
Population: 10,40,99,452	MUNICIPAL SOLID WASTE: 2,272 TPD
Districts: 38	PLASTIC WASTE: 68,903 TPA
Class-I cities: 01	HAZARDOUS WASTE: 16,349 TPA
Density: 1,106 persons/km²	BIOMEDICAL WASTE: 34,813 KG/DAY
Water Management Index: 38	INDUSTRIES (RED+ORANGE): 448+6,180
SDG Index: 50	RIVERS & CANALS: 2,000 KM
Health Index: 32.11	WATER BODIES: 1.10 Lakh Ha
Percentage share of the Nation	GDP: 3.66 Population: 8.60 Area: 2.86

8.1 Bihar Pollution Control Board

- i. The State Board has Central Office in Patna and 5 regional offices in the State.
- ii. The SPCB has only 33 technical & scientific staff (including 8 project staff) in comparison to 90 administrative staff.
- iii. State has only 2 general purpose vehicles and 5 for sampling and monitoring.
- iv. The SPCB had Annual Budget of Rs 39.01 Cr in 2018-19 and reserve funds of Rs 56.45 Cr in terms of fixed deposits. State had incurred plan expenditure of Rs 4.48 Cr and non-plan expenditure of Rs 13.41 Cr.
- v. State has Central Laboratory in its Central Office in Patna.
- vi. The Central Laboratory of SPCB has not taken recognition under E (P) Act, 1986 and also not started process to obtain NABL Accreditation for any of the major group of parameters.

8.2 Environmental Monitoring

- i. State has installed 8 Air Quality Monitoring Stations and 3 Continuous Ambient Air Quality Monitoring Stations (CAAMS). Most of the districts are not included in the network and in the existing stations 40 % needed additional facility to monitor PM_{2.5}.
- ii. State has not observed improvement in Air Quality with respect to PM_{2.5} and PM₁₀ levels in FY 2018-19 when compared to FY 2017-18 and it has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB and to enable their use in planning of control measures. State has also prepared action plans for identified polluted areas.
- iii. State has 161 water quality monitoring stations and reviewed the data for designated best use criteria. State has reported having its own water quality monitoring programme, however, the number of stations in its own network have not been provided.
- iv. State has shared Water Quality Data with CPCB on regular basis during last two years. State has reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB. Action plans were prepared and got approval from State RRC and the Task Team at CPCB for identified polluted river stretches.
- v. There is one severely polluted industrial cluster (Hajipur) and three non-attainment cities (Patna, Gaya & Muzaffarpur) in the state.

8.3 Regulatory Setup / Mechanism

- i. The Bihar Board has reported to have identified 448 industries of red category, 6,180 industries of orange category and 3,257 industries of green category following the CPCB guidelines. There are 17 industrial units of 17 categories and 50 grossly polluting industry identified along the rivers / lakes. About 83 % of the industries are having valid consent to operate.

All the 17 units were reported complying with Environmental norms. 9 units have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against 8 units which have not installed OCEMS.

All the 50 Grossly Polluting Industries (GPI) were reported complying with Environmental norms.

- ii. OCEMS data generated was used for the identification of industries requiring inspection / follow-up actions.
- iii. About 96 % of the sewage generated in the state was reported as untreated amounting as 2,055 MLD.
- iv. About 91 % of the Hazardous Waste Generators have valid authorization. Out of 16,349 MTA quantity of generated hazardous waste, 28 % of hazardous waste is utilized / recycled.
- v. All the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. Only 29 % of Bio-Medical Waste generated was being treated and disposed through CBMWTFs. All the Common Bio-medical Waste Treatment Facilities (CBWTFs) have installed online continuous emission monitoring systems (OCEMS).

Show-cause notices / Directions were issued by SPCB to all the identified HCFs / CBWTFs violating environmental norms.
- vi. MSW generation in the state was estimated as 2,272 TPD.
- vii. SPCB has not received half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. SPCB has reported developing 4 CBMWTFs and 156 MSW Dumpsites in the state. However, there were no CETPs and TSDFs in the state.
- ix. There were 213 industries needed ETPs and 211 had functional ETPs. Remaining 2 units functioning without ETP, SPCB has issued closure direction to one unit and filed legal case against the other.
- x. There is one severely polluted industrial cluster (Hazipur Industrial Area).

8.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 85 % of public complaints were addressed in stipulated time.

- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports, Public Hearing Proceedings prepared by SPCB are displayed on website.
- iv. Annual Reports prepared by SPCB are not displayed on website.
- v. The State has prepared Environmental Status Report.
- vi. State has provided citizen's charter and has displayed success stories of Industries / municipalities on technologies (BAT) and practices (BEP) in public domain.
- vii. SPCB has been compiling environmental statement submitted by industries every year.
- viii. State has not notified Environmental Policy.
- ix. State has notified its environmental siting policy and the SPCB has prescribed guidelines for green belt development in industrial premises.
- x. State level monitoring committees were setup on environmental issues.

8.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff and organized mass awareness / education programme.
- ii. SPCB has conducted study on impact of pollution on human health and ecosystem.
- iii. SPCB has its own R & D activities and has collaborated with state and central institutes conducting R & D in the field of environmental pollution.

8.6 Areas of attention

- i. The board has spread its limited resources to maximum areas, thereby reducing the effective outcome.
- ii. The board has established its laboratory under Water Act. However, accreditation from NABL, certification from OSHAS and recognition under EPA are needed to improve its performance.
- iii. The State Board needs more manpower to meet the requirements of the mandated assignments and also technical training of existing manpower.

8.7 Recommendations

- i. The Board needs more manpower to meet the requirements of the mandated assignments. SPCB shall make recruitment to 66 % of the total sanctioned posts lying vacant for effective disposal of its mandated functions. The technical training of manpower also needs to be done.

- ii. The Bihar Board has established its laboratory under Water Act. However, to strengthen the laboratory performance accreditation from NSBL, Certification from OHSMS and recognition under EPA is needed.
- iii. SPCB shall provide treatment / disposal to 71 % of its hazardous waste and 71 % of its Bio-medical Waste.
- iv. SPCB shall provide appropriate treatment to 96 % of the generated sewage.
- v. SPCB shall provide information on collection of municipal solid waste, treatment of collected waste and waste disposed in landfill sites.

Important Information at a Glance

Number of Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	5	0	6

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
33 (8)*	90	1	0	2	1

*Number in the bracket indicates project staff.

Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
2	5	0	7

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
39.01	56.45	95.46	4.48	13.41	17.89

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
8	3	161	-

Major Environmental Issues of Audit Concern Industrial Pollution

Category wise No. of Industries					
17 Category	Red	Orange	Green	White	GPI
17	448 (including GPIs and 17 Categories)	6,180	3,257	-	50

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
2,135	120	80	5	2	2,055

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
6	6	0	0	0	0	6	6

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
138	16,349	4,644	95	5,065

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
4,821	20,175	24,996	70,653	1,336	4,135	20,484	3,364	34,813	10,038

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
2,272	INP	INP	INP

INP = Information not provided

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
-	-	04	156

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
-	Hajipur (64.36)

Non- Attainment (Air Polluted) Cities

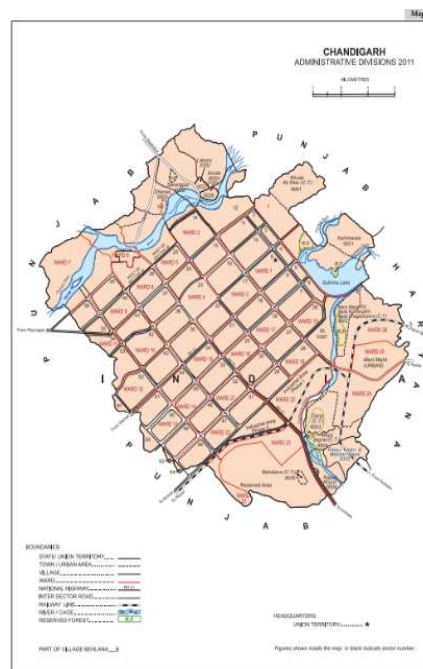
S. No.	Name
1	Patna
2	Gaya
3	Muzaffarpur

*

9.0 CHANDIGARH

Chandigarh is the first ever planned city in India. The city tops the union territories of India and is significant as it has the highest per capita income as compared to other union territories of the country. It is the capital of two states, Punjab and Haryana. The city is known to be one of the cleanest in the country. It permits only those industries that do not pollute the air. Due to the beautiful planning and architecture, the tourism has also flourished and became an important tourist hub in North India.

Most of the population here works in government offices. The UT has medium to large industries along with public sector enterprises. There are around 2,500 units of small scale industries manufacturing paper, sanitary ware, machine tools, basic metals, auto parts, pharmaceuticals and electrical appliances and is an emerging outsourcing and IT services hub. Although the city was not planned to be an industrial hub, it has become quite prominent in this sector due to better connectivity and communications.



Area: 114 km²	SEWAGE: 187 MLD
Population: 10,55,450	MUNICIPAL SOLID WASTE: 470 TPD
Districts: 01	PLASTIC WASTE: 11,715 TPA
Class-I cities: 01	HAZARDOUS WASTE: 1,798 TPA
Density: 9,528 persons/km²	BIOMEDICAL WASTE: 3,188 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 194+586
SDG Index: 70	RIVERS & CANALS: 2 KM
Health Index: 63.62	WATER BODIES: 0.00 Lakh Ha
Percentage share of the Nation	GDP: 0.31 Population: 0.09 Area: 0.00

9.1 Chandigarh Pollution Control Committee

- i. The Union Territory has its office in Chandigarh.
- ii. The PCC is functioning with 9 Scientific & Technical officials and 8 administrative staff. The CPCC reported its inability to perform efficiently and deliver desired quality on work front due to lack of man power and proper training. There is a need for capacity building of staff.
- iii. PCC has one vehicle for general purpose and 2 vehicles for sampling / monitoring.
- iv. The budget utilization for year 2018-19 was about 54 % of the available Rs. 5.47 Cr. Most of the expenditure (Rs. 2.95 Cr) was non-plan activities (Rs. 2.80 Cr) and only Rs. 0.15 Cr was spent for planned activities.
- v. Chandigarh PCC has Laboratory at its Head Office. PCC has arrangements with private environmental Laboratory for support to its analytical activities.
- vi. Board has sampling and analysis Facilities for Physical Tests – 10 Mandatory parameters, General & Non-Metallic - 10 Mandatory parameters, Metals - 1 Mandatory parameters, General and Trace Organics - 3 Mandatory parameters. Board Analyst was approved by Govt. but was not notified until the time of audit.
- vii. Laboratory of Chandigarh PCC is yet to get recognition under E. P. Act. 1986 and not yet obtained NABL Accreditation for any of the major group of parameters.

9.2 Environmental Monitoring

- i. CPCC has established Air Quality and water quality monitoring network. An action plan for the non-attainment city of Chandigarh was prepared.
- ii. There is no river in Chandigarh and hence the question of river water quality monitoring does not arise. The water quality of lake and ground water is being monitored.

9.3 Regulatory Setup / Mechanism

- i. The Committee has reported to have identified 194 industries of red categories, 586 industries of orange category, 576 industries of green category and 1,631 industries of white category following the CPCB guidelines. About 77 % of the industries are having valid consents to operate.
- ii. OCEMS data is not used by the PCC for identification of the industries for inspections / actions.
- iii. All the sewage generated in the UT is being treated. 50 % of STPs are complying with environmental norms and the remaining 50 % non-complying STPs, against which action is under process by the PCC.

- iv. About 76 % of the Hazardous Waste Generators have valid authorization. Out of 1,798 MTA quantity of generated hazardous waste, about 44 % of hazardous waste is utilized / recycled and about 9 % of waste is disposed through TSDFs.
- v. All the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. Bio-Medical Waste generated is 100 % treated and disposed through CBMWTFs. The Common Bio-medical Waste Treatment Facilities (CBWTFs) have installed online continuous emission monitoring systems (OCEMS).
- vi. MSW generation in the UT was estimated as 470 TPD. About 98 % of MSW is collected, about 33 % of the collected waste is treated and remaining waste (including residue from the treatment of waste) is landfilled in dumpsite.
- vii. Chandigarh PCC has received about 70 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. PCC has reported one CBMWTF and one MSW Dumpsite and TSDF in Punjab is shared for HW management. There are no CETPs in the UT.
- ix. There are 222 industries needed ETPs and all the units are having functional ETPs complying with environmental norms.
- x. The estimated plastic waste generation in the UT is approximately 11,715 MT in 2018-19. There is a complete ban on plastic carry bags vide notification no. ED/2008/684 dated: 30.07.2008. However, compostable bags are allowed in the UT.
- xi. There were no plastic manufacturing units in UT. There were seven registered recycling units in the UT and 808 Challans have been issued against violations in 2018-19.

9.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. Environmental Status report for Chandigarh has been prepared.
- ii. The PCC has provided citizen's charter.
- iii. CPCC does not have its own website to place the issues related to environmental protection & pollution control and other issues in the public domain. Website was under development with the help of NIC, Chandigarh.
- iv. The UT has its notified industrial siting policy / criteria.

9.5 Areas of attention

- i. The existing skeletal structure of Chandigarh Pollution Control Committee is inadequate to accomplish their task to fulfil the requirement of these acts. The CPCC is struggling for manpower, infrastructure, continuous flow of

adequate fund to meet expenditure. With the limited manpower and available resources, the PCC performed better.

- ii. CPCC functioning with limited laboratory facilities and its performance can improve with further strengthening.
- iii. There are no facilities to get the existing staff trained in technical matters.

9.6 Recommendations

- i. The UT Administration should grant all approvals for the recruitment of the staff required by the PCC. Proper mechanism should be developed for adequate fund flow to CPCC for meeting its functional requirements.
- ii. The CPCC needs to prepare and implement its annual action plans starting from the year 2020-21 which enables better performance of its functions especially with regard to the major environmental issues of the UT.
- iii. PCC shall provide treatment / disposal to 53 % of its hazardous waste.
- iv. PCC shall improve compliance of Sewage Treatment Plants to the applicable environmental norms.

Important Information at a Glance

Number of Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
9	8	1	0	1	0

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicles	Mobile Laboratories	Total
1	2	0	3

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water		
NAMP / SAMP	CAAQMS	NWMP	SWMP	RTWQMS
5	1	11	0	0

Budget Utilization Status (2018-19)

Available (Rupees crore)			Expenditure (Rupees crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
5.47	24.97	30.44	0.15	27.99	28.14

Major Environmental Issues

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
0	194	586	576	1,631	0

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
187	231.07	231.07	6	6	0

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
253	1,798	790	161	0

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
46	763	809	4,347	193	194	471	752	3,188	3,188

Municipal Solid Waste (MSW) Management

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
470	459	150*	361

* Some of the residue after treatment of waste is land filled.

Plastic Waste (Annual Report 2018-2019)**Common Waste Treatment / Disposal Facilities**

CETP	TSDF	CBMWTF	MSW Dumpsites
NIL	Sent to TSDF of Punjab*	1	1

(Hazardous Waste is sent to the TSDF of Punjab, located at Derabassi, which is about 25 km from Chandigarh).

Non- Attainment (Air Polluted) Cities

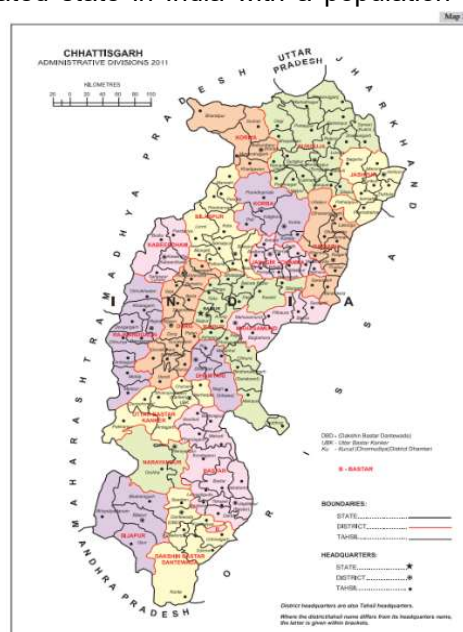
S. No.	Name
1	Chandigarh

*

10.0 CHHATTISGARH

Chhattisgarh, formed on 1 November 2000, is the 10th largest state in the country, with an area of 1,35,194 km². It is the 17th most-populated state in India with a population of 2,79,28,015. The economy of this state benefits from its Bhilai Steel Plant, Railway Zone at Bilaspur, BALCO Aluminium Plant, South Eastern Coal Fields and National Thermal Power Corporation Ltd. The State is a mineral rich state. Apart from many cement plants, Raigarh and Raipur emerged as major industrial hubs after sponge iron units started operating in large number. The service sector consists of trade, transport, communication, banking & insurance and real estate.

This state is surrounded with dense forests, hilly mountains, streams, waterfalls, natural caves, parks etc. Mahanadi, one of the largest rivers in India originates from this state. Other rivers include Indravati, Son, Pain, Hasdeo and Sabari.



Area: 1,35,192 km²	SEWAGE: 1,081 MLD
Population: 2,55,45,198	MUNICIPAL SOLID WASTE: 1,650 TPD
Districts: 27	PLASTIC WASTE: 6,000 TPA
Class-I cities: 02	HAZARDOUS WASTE: 2,43,595 TPA
Density: 189 persons/km²	BIOMEDICAL WASTE: 16,096 KG/DAY
Water Management Index: 45	INDUSTRIES (RED+ORANGE): 1,487+3,486
SDG Index: 56	RIVERS & CANALS: 3,573 KM
Health Index: 53.36	WATER BODIES: 1.47 Lakh Ha
Percentage share of the Nation	GDP: 1.98 Population: 2.11 Area: 4.11

10.1 Chhattisgarh Environment Conservation Board

- i. The State Board has its Central Office at Raipur and has seven Regional Offices with five of these operating with laboratories.
- ii. The SPCB has 79 technical & scientific manpower and 53 administrative officials.
- iii. The State Board has 19 general purpose vehicles and 6 vehicles for sampling and monitoring.
- iv. The Board had annual budget of Rs 41.21 Cr in FY 2018-19 and Reserve Funds in the form of Fixed Deposits of Rs 186.32 Cr. State had plan expenditure of Rs 0.54 Cr and total expenditure of Rs 29.62 Cr.
- v. Chhattisgarh SPCB does not have a Central Laboratory. SPCB has arrangements with private environmental laboratories for support to its monitoring activities. SPCB has plans to establish a Central Laboratory.
- vi. The SPCB has no designated Board Analysts and yet to obtain recognition under E (P) Act and NABL Accreditation for any major group of parameters.
- vii. The regional laboratories have sampling and analysis facilities for 20 Major Parameters.

10.2 Environmental Monitoring

- i. The State has 12 Air Quality Monitoring Stations and 8 Continuous Ambient Air Quality Monitoring Stations (CAAMS) and does not have its own network of Air Quality Monitoring Stations. All the stations have facility for PM_{2.5} monitoring and the data is regularly shared air quality data with CPCB.
- ii. The Board has observed improvement in Air Quality as 10 % reduction in PM_{2.5} levels and 9 % reduction in PM₁₀ levels in 2018-19 when compared to 2017-18. The Board has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB. State has prepared action plans for all of the identified polluted areas.
- iii. State has a network of 39 water quality monitoring stations. There are only 20 stations / 1000 km length of major and medium rivers. The state has its own Water Quality Monitoring Programme, however, there is no information about its number of stations.
- iv. State has not reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB. The state has not observed any significant improvement in overall water quality in the State in FY 2018-19 compared to FY 2017-18.
- v. The Laboratories of Chhattisgarh ECB neither had recognition from under E (P) Act, 1986 nor it has accreditation (IS 17025) from NABL for analysis of any of the major groups of parameters (Core, General, Toxic Metals and Ambient Air).

10.3 Regulatory Setup / Mechanism

- i. The Chhattisgarh Board has identified 1,487 industries of red category, 3,486 industries of orange category, 983 industries of green category and 944 industries of white category following the CPCB guidelines. There are 143 industries of 17 categories and 2 grossly polluting units identified along the rivers / lakes. About 76 % of the industries are having valid consents to operate.
- ii. About 96 % of 17 categories of industries have been complying with Environmental norms. In case of 6 non-complying industries, show-cause notices have been issued to 5 industries and closure direction was issued to one unit.
- iii. About 95 % of 17 categories industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against 9 units which have not installed OCEMS.

One GPI unit reported complying with Environmental norms whereas closure direction was issued by SPCB to the non-complying industry.
- iv. OCEMS data is not used by the Board for identification of the industries for inspections / actions.
- v. About 93 % of the sewage generated in the state is reported as not being treated, amounting to 1,010 MLD. Only 2 STPs are operating and both are complying with environmental norms.
- vi. About 75 % of the Hazardous Waste Generators have valid authorization. Out of 2,43,595 MTA quantity of generated hazardous waste, about 20 % of hazardous waste is utilized / recycled.
- vii. Similarly, 75 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. Only 29 % of Bio-Medical Waste generated is being treated and disposed through CBMWTFs. Only 25 % Common Bio-medical Waste Treatment Facilities (CBWTFs) have installed online continuous emission monitoring systems (OCEMS).

The only action taken by the State Board was to issue Show-cause notice to 1 out of 72 HCFs / CBWTFs violating environmental norms.
- viii. MSW generation in the state is estimated to be 1,650 TPD. Out of which, about 84 % of MSW is collected and about 92 % of the collected waste is treated and about 7 % of total waste is landfilled.
- ix. SPCB has not received half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- x. Chhattisgarh SPCB has reported that there are 4 CBMWTFs and 8 MSW Dumpsites in the state. However, there is no CETP and TSDF in the state.

- xi. There were 969 industries needed ETPs and 860 had functional ETPs. The 109 industries operating without ETPs were issued show cause notices / directions by SPCB.
- xii. There are two critically polluted industrial clusters (Raipur & Siltara Industrial Area) and 3 non-attainment cities (Bhilai, Korba & Raipur) in the state.

10.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has not provided citizen's charter but has displayed success stories of Industries / municipalities on technologies (BAT) and practices (BEP) in public domain.
- ii. State has notified Environmental Policy and also prepared Environmental Status Reports.
- iii. State has its own environmental siting policy and prescribed guidelines for green belt development in industrial premises.

10.5 Capacity Building & Initiatives

- i. SPCB has conducted study on impact of pollution on human health and ecosystem.
- ii. SPCB has collaborated with state and central institutes conducting R & D in the field of environmental pollution.

10.6 Areas of attention

- i. The SPCB has provided adequate office space.
- ii. Improvement in ambient air quality reported in PM_{2.5} & PM₁₀ levels at seven locations in the state.
- iii. Continuous emission monitoring system (CEMS) is installed in all rolling mills and sponge iron units in the state.
- iv. Back filling / disposing of fly ash in abandoned coal mines has been initiated (Open cast) as per DGMS, guidelines.
- v. Dolochar (solid waste generated from sponge iron plant) is being used.
- vi. Needed improvement in MIS for easy access & retrieval of data.
- vii. Laboratory facilities at HO & RO level is need special attention for quality control and performance.
- viii. Inadequate scientific manpower.

10.7 Recommendations

- i. SPCB shall make recruitment to half of the total sanctioned posts lying vacant including about 80 % of Group C Posts for effective disposal of its mandated functions. The State Government should grant all approvals for the recruitment of the staff required by the State Board.
- ii. The Chhattisgarh SPCB needs to prepare and implement its annual action plans on urgent basis starting from the year 2020-21 to enable timely performance of its functions especially with regard to the major environmental issues of the state such as monitoring, compliance and enforcement in polluting industries, Polluted Areas, polluted river stretches, Non-Attainment Cities etc.
- iii. SPCB shall provide treatment / disposal to 80 % of its hazardous waste and 71 % of its Bio-medical Waste.
- iv. SPCB shall provide treatment to 93 % of its generated sewage.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	7	0	8

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
79(2)*	53	2	3	0	1

*Number in the bracket indicates project staff.

Associated Facilities

Library	Training Hall	Conference Hall
No	No	Yes

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
19	6	-	25

Financial Status (2018-19)

Available (Rupees Crores)			Expenditure (Rupees Crores)		
Annual	Reserved	Total	Plan	Non-Plan	Total
41.21	186.32	227.53	0.54	Not Available	29.62

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
12	8	39	-

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
143	1487	3,486	983	944	2

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
1,081	71	71	2	2	1,010

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
5	5	0	0	0	0	5	5

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
377	2,43,595	48,126	178	1,14,200

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
254	465	719	6,132	455	341	Nil	1,428	16,096	4,597

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
1,650	1,386	1,271	115

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
0	0	4	8

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Raipur (70.77), Siltara Industrial Area (79.94)	-

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Bhilai
2	Korba
3	Raipur

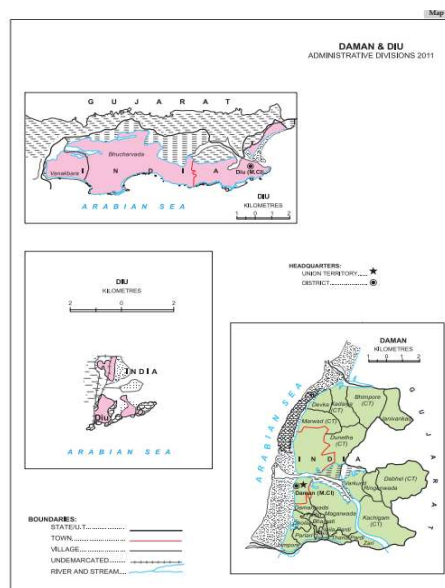
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11.0 DAMAN & DIU, DADRA & NAGAR HAVELI

Dadra & Nagar Haveli and Daman & Diu, a union territory, lies in western India. “Dadra and Nagar Haveli” and “Daman and Diu” were separate union territories until January 2020 and merged with Daman as the new capital.

While Nagar Haveli lies between Maharashtra and Gujarat, Dadra is an enclave which is a few kilometres north of Nagar Haveli in Gujarat. On the other hand, Daman and Diu lie within the state of Gujarat, in the coastal area of the Arabian Sea. The population of Dadra and Nagar Haveli and Daman and Diu is 5,86,956 (2011 census), and the union territory covers an area of 602 sq. km.

For administrative purposes, Dadra and Nagar Haveli, Daman and Diu are three districts of the UT. Dadra and Nagar Haveli and Daman and Diu is home to beautiful gardens, lakes, beaches, and forts. This union territory has become a popular tourist destination.



Area: 602 km²	SEWAGE: 62 MLD
Population: 5,86,956	MUNICIPAL SOLID WASTE: 98 TPD
Districts: 03	PLASTIC WASTE: 1,948 TPA
Class-I cities: 00	HAZARDOUS WASTE: -- TPA
Density: 975 persons/km²	BIOMEDICAL WASTE: 331 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 48+1,792
SDG Index: 62	RIVERS & CANALS: 12 KM
Health Index: 56.31	WATER BODIES: 0.00 Lakh Ha

11.1 Daman & Diu, Dadra & Nagar Haveli Pollution Control Committee

- i. PCC does not have required infrastructure and manpower to discharge its functions.
- ii. The PCC has no regular scientific and technical manpower. Office work is managed by project staff.
- iii. PCC has two vehicles for general purposes and two vehicles for sampling / monitoring purposes.
- iv. The budget allocations were zero for the planned activities for the years 2017-18 and 2018-19.
- v. PCC has no Laboratory of its own and has arrangement with a private laboratory. PCC has plans to establish its own Laboratory.

11.2 Environmental Monitoring

- i. The UT is covered in the air quality network, but the data so generated is not analysed for want of manpower.
- ii. Similarly, the 13 water quality monitoring stations are sampled with difficulty.

11.3 Regulatory Setup / Mechanism

- i. The Committee has reported to have identified 48 industries of red category; 1,792 industries of orange category and 6,109 industries of green category following the CPCB guidelines. There are 4 industries under 17 categories. About 94 % of the industries are having valid consent to operate.
- ii. All 04 units under 17 categories of industries have been complying with Environmental norms and also have installed online continuous emission monitoring systems (OCEMS) & connected with CPCB server.
- iii. 100 % of the sewage generated in the UT is reported as not being treated and the total quantity of sewage generated was about 62 MLD.
- iv. About 94 % of the Hazardous Waste Generators have valid authorization. However, inventory of hazardous waste has not submitted by the PCC.
- v. About 77 % of the Health Care Facilities (HCFs) have been issued authorization under the Bio-Medical Waste Management Rules. All the waste generated is being treated and disposed through CBMWTFs. All CBWTFs have installed online continuous emission monitoring systems (OCEMS).
- vi. MSW generation in the state was estimated as 98 TPD. Out of which, about 96 % of MSW is collected and about 5 % of the collected waste is treated. About 91 % of total waste is landfilled in two dumpsites.

- vii. Daman & Diu, Dadra & Nagar Haveli PCC has not received half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. PCC has reported that there are 2 MSW Dumpsites, 1 TSDF and 1 CBMWTF in the UT.
- ix. There are 256 industries needed ETPs and 251 industries are having functional ETPs. PCC has issued closure directions to all the 5 industries operating without ETPs. Show-cause notice / directions were issued by PCC to 13 industries for non-complying with the environmental norms.

11.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. PCC doesn't have public grievance registration and redressal system. However, it has addressed 36 % of public complaints in stipulated time.
- ii. The Committee is depended on NIC for dissemination of information to public including environmental data and consent management.
- iii. Public Hearing Proceedings by PCC are displayed on website.
- iv. The PCC has provided citizen's charter.
- v. UT has industrial siting policy / criteria.

11.5 Capacity Building & Initiatives

- i. PCC organized mass awareness / education programmes.
- ii. PCC has conducted study on impact of pollution on human health / ecosystems.

11.6 Areas of attention

- i. There is no regular scientific and technical staff. The PCC is entirely dependent on project staff who provided all the information during the Audit.
- ii. There is no laboratory establishment.
- iii. The samples collected and sent to EPA recognized Lab for the analysis.
- iv. Depended on NIC for dissimulation of information to public including environmental data and consent management.

11.7 Recommendations

- i. The UT Administration should appoint (in consultation with CPCB) an expert to conduct an in-depth survey of the island area for (i) identification of all the environmentally relevant issues and their regulatory needs in terms of infrastructure including the laboratory facilities for the required environmental monitoring / analysis for the regulatory compliance and enforcement and the related data systems, training and development and

other needs and (ii) preparation of an action plan for development of the what all gets recommended under (i) above.

- ii. Review and finalization action plan by the Govt. of the UT in consultation with CPCB.
- iii. Implementation of the plan by the Govt. of the UT for development of the complete set up required for the smooth performance of the functions of the Daman & Diu, Dadra & Nagar Haveli PCC.
- iv. PCC shall make plan for spending on mandated functions as well as utilization of its reserve funds (₹117.57 Crore) in addition of the Non-Plan Expenditure.
- v. PCC shall assess requirement of regular manpower for effective disposal of its mandated functions and get necessary sanctions from the administration to make appointments of requisite manpower.
- vi. PCC shall increase installed capacity for treatment of its 62 MLD sewage and make the existing sewage treatment plants operational (which is entirely lying non-operational).

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
8*	2	0	0	0	0

*All Project Staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
0	0	1

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
2	2	0	4

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
6	0	28	0

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
3.15	117.57	120.72	0.00	2.33	2.33

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
4	48	1,792	6,109	0	0

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. Of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
62	27	0	3	0	62

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
1	1	1	1	0	0	0	0

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
Annual Report not Submitted				

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
36	104	140	1,061	105	81	INP*	181	331	331

*INP-Information not provided

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
98	95	5	90

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
0	1	1	2

*

12.0 DELHI

Delhi is the capital city of India and the second most populated city in the country. It is officially called National Capital Territory of Delhi (NCT). The city is the largest commercial centre in the northern part of India. It is bordered on the east by Uttar Pradesh and by Haryana on the north, west and south. Considered as the heart of the nation, the city is famous for its enriched culture and heritage. The River Yamuna is the only major river flowing through the city. The Delhi ridge, which reaches a height of 1043 ft, originates from the Aravalli Range in the South and surrounds the West, Northeast and Northwest parts of the city. Delhi lies in India's seismic zone-IV, which makes it vulnerable to earthquakes.

Currently, Delhi has 11 districts. Delhi is divided into the New Delhi Municipal Committee (NDMC), the Municipal Corporation of Delhi (MCD) and the Delhi Cantonment Board (DCB). The capital has four important satellite cities namely, Gurugram, NOIDA, Ghaziabad and Faridabad.



Area: 1,483 km²	SEWAGE: 4,420 MLD
Population: 1,67,87,941	MUNICIPAL SOLID WASTE: 10,817 TPD
Districts: 11	PLASTIC WASTE: 2,24,810 TPA
Class-I cities: 01	HAZARDOUS WASTE: 42,568 TPA
Density: 11,320 persons/km²	BIOMEDICAL WASTE: 26,758 KG/DAY
Water Management Index: 20	INDUSTRIES (RED+ORANGE): 453+5,786
SDG Index: 61	RIVERS & CANALS: 150 KM
Health Index: 49.42	WATER BODIES: 0.04 Lakh Ha
Percentage share of the Nation	GDP: 4.31 Population: 1.39 Area: 0.05

12.1 Delhi Pollution Control Committee

- i. Delhi PCC has Central Office and no regional offices.
- ii. DPCC is functioning with 31 Scientific & Technical manpower and 72 Administrative Staff. Shortage of scientific & technical manpower is met through Project staff which has its own limitations.
- iii. DPCC has 34 vehicles for general purposes and 6 vehicles for sampling / monitoring purposes.
- iv. DPCC has spent Rs 93.48 Cr as Plan Expenditure in 2018-19 more than the budget allocation of Rs 74.13 Cr made.
- v. DPCC has developed a full-fledged office with laboratory for discharge of its functions.
- vi. The Central Laboratory of Delhi PCC yet to obtain recognition under E (P) Act, 1986 and has no designated / notified Board / Govt. Analysts.
- vii. The laboratory has sampling and analysis facilities for Physical Tests – 8 Mandatory parameters; General & Non-Metallic - 12 Mandatory, 3 Secondary parameters; Metals - 12 Mandatory parameters; General and Trace Organics - 4 Mandatory parameters; Toxicological Tests - 1 Mandatory parameter; Soil / Sludge / Sediment and Solid Waste - 2 Mandatory, 4 Secondary parameters.
- viii. DPCC is dealing with multiple agencies in Delhi on various environmental issues such as air quality, River Yamuna Pollution, sewage disposal, solid waste disposal, etc.

12.2 Environmental Monitoring

- i. Delhi has good ambient air monitoring network, manual and automatic stations are being operated by DPCC, CPCB and Ministry of Earth Sciences.
- ii. DPCC is integral part of the actions taken through GRAP for air quality issues.
- iii. Similarly, water quality is also monitored at designated places and uploaded in public domain.
- iv. The corrective action plans are prepared by DPCC in consultation with many departments under Delhi Government and generally the response is slow.
- v. It was reported that data generated was not able to analyse for want of manpower.
- vi. The OCEMS data is also not used for follow-up actions.

12.3 Regulatory Setup / Mechanism

- i. The Delhi Committee has identified 453 industries of red category; 5,786 industries of orange category; 8,049 industries of green category and 5,159 industries of white category following the CPCB guidelines. One industry under 17 categories and three grossly polluting units were identified along the rivers / lakes. All the 4 units were reported complying the prescribed standards. About 60 % of the industries are having valid consents to operate.
- ii. About 62 % of the sewage generated in the UT is reported as treated and the quantity of sewage that remains untreated is about 1,667 MLD.
- iii. Only 15 % of the Hazardous Waste Generators have valid authorization. Out of 42,568 MTA quantity of generated hazardous waste, negligible quantity of hazardous waste is utilized / recycled.
- iv. About 82 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. All the Bio-Medical Waste generated is treated and disposed through two CBMWTFs and both have installed online continuous emission monitoring systems (OCEMS).

Show-cause notices / Directions were issued by PCC to all the identified HCFs / CBWTFs violating environmental norms.
- v. MSW generation in the state is estimated as 10,817 TPD. Out of which, about 98 % of MSW is collected and about 54 % of the collected waste is treated. About 48 % of total waste is landfilled.
- vi. PCC has not received half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- vii. PCC has reported that there are 13 CETPs, 2 CBMWTFs and 3 MSW Dumpsites in the UT.
- viii. There were 38 industries needed ETPs and 35 of these units provided functional ETPs and 3 industries are operating without ETPs. DPCC has issued show cause notice to one industry and closure directions to 2 industries. Show-cause notices were also issued to 4 industries for non-complying with the environmental norms.
- ix. There is one critically polluted industrial cluster (Najafgarh-Drain basin including Anand Parbat, Naraina, Okhla, Wazirpur) and 1 non-attainment city (Delhi) in the UT.

12.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. PCC has public grievance registration and redressal system and 97 % of public complaints were addressed in stipulated time.
- ii. PCC has online complaint management system.
- iii. Environmental Quality Data and Technical Reports prepared by PCC are displayed on website.

- iv. The environmental status report has been prepared.
- v. The Public Hearing Proceedings are displayed on website.
- vi. PCC has organised stakeholder meetings / awareness for new environmental Rules / Standards amended from time to time.
- vii. PCC has provided citizen's charter.
- viii. The UT has formulated Environmental Policy.
- ix. The PCC has advised State Govt. on Policy Issues on Environment.
- x. State has industrial siting policy / criteria.

12.5 Capacity Building & Initiatives

- i. PCC organized mass awareness / education programme.
- ii. PCC has conducted study on impact of pollution on human health / ecosystems.
- iii. Initiated real-time monitoring systems for ambient air and water in NCT and established big CAAQM network. Actively involved in air quality improvement programs initiated by CPCB.

12.6 Areas of attention

- i. The DPCC needs best infrastructure both in terms of facilities and manpower. Major expansion in all aspects including staff, buildings and related infrastructure, opening of regional offices / laboratories, logistics etc. to be able to perform its regulatory functions considering the multiplicity and magnitude of the environmental issues in Delhi. Also capacity building is required at every level to deal with the issues.
- ii. DPCC is required to analyse Ambient Air Quality data and to come out with independent regional & zonal action plans for improvement of urban air quality.
- iii. There is a need for inventorisation of different categories of waste. Further, it was noted that there is a need for Medium to long term vision to address current / emerging plan to address issues including E-waste, Hazardous Waste, Plastic Waste etc.
- iv. It was noted that there is no effort made in utilising online effluent / emission data (OCEMS) received from industries and common facilities.
- v. The efforts made by DPCC in terms of management of Construction & Demolition Waste in Delhi is acknowledged, however, the it is strongly felt that the necessity of short term and long term plan to develop organised facilities (within NCT of Delhi / beyond in NCR) for management of solid waste in Delhi.

- vi. Existing CETPs and Common Bio-Medical Waste Management Facilities in Delhi need upgradation in order to optimize the management of waste received therein.
- vii. Delhi PCC may look into the adequacy of existing CETPs & Common Bio-Medical Waste Management Facilities in Delhi so as to cater to generated effluent / bio-medical waste generated in Delhi.
- viii. The existing Laboratory at DPCC is required to be upgraded to address analysis of core parameters under NWMP and parameters of NAAQS.
- ix. All efforts should be made to obtain NABL Accreditation and recognition under E(P) Act 1986.
- x. The sewage management in utilising installed capacity of sewage treatment and also to ensure that sewage reaches the STPs.

12.7 Recommendations

- i. The DPCC should prepare a detailed proposal (budget needs, time frames etc.) for its developmental needs including, the number regional offices, their locations, staff, laboratories setup and all other needs required for its performance of all the regulatory and related functions.
- ii. The proposal should be reviewed by a committee comprising of experts from all the concerned departments of the Govt. of Delhi, DDA, DSIDC, MCD, NDMC, DPCC, CPCB and other independent experts for making recommendations in regard to the aspects mentioned above.
- iii. PCC shall make recruitment to 69 % of the total sanctioned posts lying vacant including about 68 % of Technical and 57 % of Administrative Posts for effective disposal of its mandated functions.
- iv. PCC shall make use of reserve funds in bank deposits to the tune of ₹ 463.5 Crore.
- v. The Govt. of Delhi and the DPCC should take further necessary actions for the needed development.
- vi. It is recommended that the DPCC should have its own office building including the central laboratory for effective functioning and easy accessibility to the public.
- vii. PCC shall ensure compliance of 8 non-complying CETPs by optimizing the capacity utilization and changes in treatment design.
- viii. PCC has to actively pursue setting up of TSDF for treatment / disposal of huge quantity of hazardous waste (42,466 MT).
- ix. PCC shall direct DJB to ensure that appropriate treatment is provided to 38 % of its generated sewage and levy EC Charges in case of failure to meet the timelines.

Important Information at a Glance

Number of Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
31 + (115)*	72	1	0	2	0

* The number in the bracket indicates the project staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
1	1	1

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
34	6	0	40

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
26	26	9	2

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
74.13	463.50	537.63	93.48	NA	93.48

Major Environmental Issues of Audit Concern

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
1	453	5,786	8,049	5,159	3

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. Of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
4,420	3,104	2,753	41	33	1,667

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
1	1	1	0	0	0	0	0

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
3,503	42,568	21	79	42,466

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
1,100	5,329	6,429	54,185	1,002	818	2,110	6,429	26,758	26,758

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
10,817	10,614	5,714	5,225

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
13	0	2	3

Polluted Industrial Cluster(S)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Najafgarh-Drain basin (92.65) including Anand Parbat, Naraina, Okhla, Wazirpur	-

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Delhi

*

13.0 GOA

Goa, located in Konkan region, is the smallest state in India. Synonymous with tourism in India, Goa remains one of the favourite tourist destinations for millions across the globe. Goa is divided into two districts North Goa and South Goa. This tiny state is situated on the western coastal region of the Indian Peninsula.

The one unique feature about the geography of Goa is that it is a seamless concoction of mountainous, plateau regions and coastal plains. Reputed for its infrastructure, cuisine, historical monuments and unique culture, Goa has become a one-stop tourist spot for millions of foreign and domestic travellers.

Blessed in terms of natural beauty the beaches in Goa cover almost 83 percent of its total coastline. It is also a one-stop pilgrimage centre for millions of Christians across the Globe.



Area: 2,903 km²	SEWAGE: 165 MLD
Population: 5,51,731	MUNICIPAL SOLID WASTE: 236 TPD
Districts: 02	PLASTIC WASTE: 32,581 TPA
Class-I cities: 00	HAZARDOUS WASTE: 29,316 TPA
Density: 394 persons/km²	BIOMEDICAL WASTE: 1,837 KG/DAY
Water Management Index: 60	INDUSTRIES (RED+ORANGE): 918+5,081
SDG Index: 65	RIVERS & CANALS: 250 KM
Health Index: 53.13	WATER BODIES: 0.06 Lakh Ha
Percentage share of the Nation	GDP: 0.52 Population: 0.12 Area: 0.11

13.1 Goa Pollution Control Board

- i. Goa SPCB has only Central Office and that is located in Panaji.
- ii. Goa SPCB has a total staff of 125, of which 14 are Technical, 05 Scientific, 44 Project staff and 54 Administrative. The SPCB also has 03 officials for legal, 05 for IT in supporting streams.
- iii. Goa SPC has four vehicles for general purposes, four vehicles for sampling / monitoring and two mobile laboratories.
- iv. Goa SPCB has utilized entire budget of Rs. 24 Cr for the plan (57 %) and non-plan (43 %) activities during the FY 2017-18.
- v. Goa SPCB has Central Laboratory at its Head Office.
- vi. Validity of Laboratory recognition under E (P) Act, 1986 expired on 13-08-2019. SPCB has not applied for renewal of recognition as the laboratory facility was being shifted to another location.
- vii. SPCB has 5 designated Board / Govt. Analysts.
- viii. The Goa Board has sampling and Analysis Facilities for Physical Tests – 9 Mandatory, 4 Secondary parameters; General & Non-Metallic - 12 Mandatory, 3 Secondary parameters; Metals - 14 Mandatory, 4 Secondary parameters; General and Trace Organics - 5 Mandatory, 3 Secondary parameters; Microbiological Tests - 3 Mandatory, 1 Secondary parameters; Toxicological Tests - 1 Mandatory, 1 Secondary parameter; Hazardous Waste – 1 parameter; Soil / Sludge / Sediment and Solid Waste - 9 Mandatory, 6 Secondary parameters.
- ix. The GSPCB laboratory is duly accredited by NABL for three major group of parameters, except for air quality parameters.

13.2 Environmental Monitoring

- i. Air quality monitoring network had 18 stations in 2 districts of Goa and the air quality was found satisfactory. Also, a decreasing trend in PM₁₀ concentrations was observed during 2018-19 compared to previous year.
- ii. GSPCB has 31 water monitoring stations among which 29 stations covering 392.5 km of river length indicating adequate water quality network.
- iii. GSPCB is additionally monitoring two water quality stations considering the drinking water quality requirement.
- iv. All 17 categories of industries are connected with online continuous emission monitoring system for source, ambient and waste treatment plants.
- v. Online consent mechanism is in operation.
- vi. It has been reported that the STPs' performance was good and meeting the standards.

- vii. Data management on Air Quality, Water Quality and Industrial Emissions and Effluents was better and stored data is analysed for follow up actions.

13.3 Regulatory Setup / Mechanism

- i. The Goa Board has reported to have identified 918 industries of red categories; 5,081 industries of orange category; 2,162 industries of green category and 15 industries of white category following the CPCB guidelines. There are 13 industries of 17 categories identified along the rivers / lakes. About 65 % of the industries are having valid consents to operate.
- ii. About 92 % of 17 categories of industries were complying with Environmental norms. Show-cause notice was issued to one unit. About 85 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against 2 units which have not installed OCEMS.
- iii. OCEMS data is utilised by the Board for identification of the industries for inspections / actions.
- iv. About 75 % of the sewage generated in the state is reported as not being treated and the quantity of sewage that remains untreated is about 124 MLD.
- v. All the Hazardous Waste Generators have valid authorization. Out of 29,316 MTA quantity of generated hazardous waste, only 4 % of hazardous waste is utilized / recycled and about 56 % of waste is disposed through TSDFs.
- vi. About 54 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. All the Bio-Medical Waste generated is being treated and disposed through CBMWTFs. Show-cause notices / Directions have been issued to 100 % of HCFs / CBWTFs violating environmental norms.
- vii. MSW generation in the state is estimated as 236 TPD. 100 % of MSW is collected, about 66 % of the collected waste is treated and only < 1 % of total waste is landfilled.
- viii. SPCB has received about 85 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- ix. SPCB has reported that there are 4 MSW Dumpsites in the state. However, there is no CETP, TSDF and CBMWTF in the state.
- x. There were 209 industries needed ETPs and all 209 industries had functional ETPs complying with the environmental norms.

13.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. Goa State has public grievance registration and redressal system and 100 % of public complaints were addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Environmental Quality Data, Technical Reports, Annual Reports and Public Hearing Proceedings are displayed on website.
- iv. State Environmental Status reports were not prepared.
- v. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vi. SPCB has provided citizen's charter.
- vii. There are success stories displayed in public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- viii. The State has not notified State-specific Environmental Policy.
- ix. SPCB has advised State Govt. on Policy Issues on Environment.
- x. The State has its own industrial siting policy / criteria.
- xi. There are State Level Monitoring Committees on Environmental issues.
- xii. SPCB has not prescribed guidelines for green belt development in industrial premises.

13.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff. GSPCB has offered many technical training on various topics and orientation programmes to staff.
- ii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iii. SPCB doesn't have its own R & D activities, however, SPCB has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

13.6 Areas of attention

- i. The GSPCB has remediated one pesticide contaminated site.
- ii. Most of the court cases filed by the SPCB ended in its favour.
- iii. In case of data management, the online transfer of data of Air quality, Water quality and Industrial emission data are efficiently carried out.
- iv. Ambient air quality samplers need upgradation for efficient sampling and assessment.
- v. Due to non-availability of common biomedical waste treatment facility in Goa, individual health care centres bury the waste in deep burial pits.

- vi. The need for data management system w.r.t inventory of industries is felt for better retrieval and interpretation.

13.7 Recommendations

- i. SPCB shall make recruitment to sanctioned posts lying vacant, 77 % of which are Technical Posts, for effective disposal of its mandated functions. The State Government should grant necessary approvals for the recruitment of the staff required by the Board.
- ii. SPCB has to immediately initiate action for treatment / disposal of 40 % of its hazardous waste and 34 % of municipal solid waste. The process of developing the common facilities for the treatment and disposal of the hazardous waste and Bio-medical wastes should be given top priority.
- iii. SPCB shall increase installed capacity for treatment of 75 % of sewage generated and make the existing sewage treatment plants operational (69 % of installed capacity is un-operational). The board should make an assessment of the sewage generation for cases where the septic tank followed by soak pits is in place for its treatment and disposal. The need and capacity of the STPs capacity should be assessed for the sewage that is expected to get discharged into the sewers for treatment into the common STPs.
- iv. The Board shall obtain valid NABL Accreditation for NAAQS and Biological parameters for its Laboratories.
- v. The Goa SPCB needs to set up a separate centre for carrying out the R & D work on specific pollution control issues pertaining in Goa.
- vi. The provisions of the latest amendment in the CRZ regulations should be implemented to ensure for proper regulation of the polluting activities along the beaches.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
19 + (44)*	54	3	0	5	0

* Number in the bracket indicates projects Staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
4	4	2	10

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
18	1	61	0

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
23.77	30.23	54.00	13.78	10.23	24.01

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
13	918	5,081	2,162	15	0

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
165	133	41	13	5	124

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
11	11	0	0	0	0	11	11

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
1,561	29,316	1,272	16,292	3,280

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
177	541	INP	INP	141	76	582	Nil	1,837	1,837

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
236	236	155	1

Common Waste Treatment/Disposal Facilities

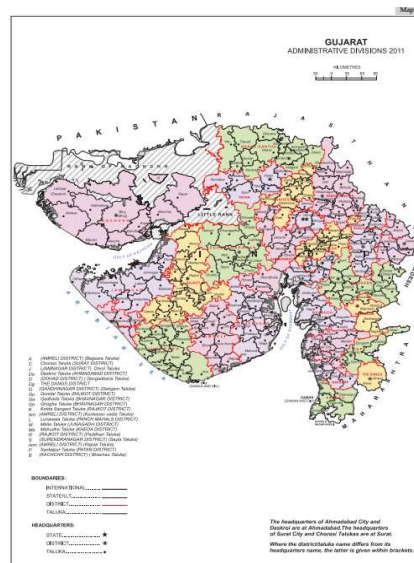
CETP	TSDF	CBMWTF	MSW Dumpsites
Nil	Nil	Nil	14

*

14.0 GUJARAT

Gujarat is the Western most state of India. It is bounded by the Arabian Sea in the west, and it shares its borders with Madhya Pradesh in the east, by Rajasthan in the north and northeast and by Maharashtra in the south and south-east. Gujarat is an industrially advanced state, and although it is not a popular tourist destination among foreigners, it still holds an important place in India. The people of Gujarat are also known to be a thriving business community.

The capital is Gandhinagar and its largest city is Ahmedabad. The population of Gujarat State is 6.04 crores as per 2011 Census. The state covers an area of 1,96,244 sq. km. Gujarat is the 7th largest state in India in terms of area. The literacy rate is 79.31 per cent. The state is in the forefront of industrialisation and has taken many initiatives in setting up mega industrial establishments in manufacturing. The State is also known for better management of water resources in the country.



Area: 1,96,244 km²	SEWAGE: 4,680 MLD
Population: 6,04,39,692	MUNICIPAL SOLID WASTE: 10,759 TPD
Districts: 33	PLASTIC WASTE: 3,56,873 TPA
Class-I cities: 04	HAZARDOUS WASTE: 33,73,813 TPA
Density: 308 persons/km²	BIOMEDICAL WASTE: 33,706 KG/DAY
Water Management Index: 75	INDUSTRIES (RED+ORANGE): 19,038+12,377
SDG Index: 64	RIVERS & CANALS: 3,865 KM
Health Index: 63.52	WATER BODIES: 3.26 Lakh Ha
Percentage share of the Nation	GDP: 8.15 Population: 4.99 Area: 5.97

14.1 Gujarat Pollution Control Board

- i. Gujarat State Board has Central Office in Gandhinagar and it has 27 Regional Offices.
- ii. State has 20 general purpose vehicles and 46 vehicles for sampling and monitoring.
- iii. The Board has 287 technical & scientific manpower and 105 administrative staff.
- iv. SPCB had Annual Budget of Rs. 153.24 Cr in FY 2018-19 and Reserve Funds of Rs. 425.96 Cr in terms of Fixed Deposits. State had non-plan expenditure of 95.03 Cr in 2018-19. Details on Plan expenditure was not provided.
- v. Gujarat State Board has Central Laboratory in Gandhinagar and it has 8 Regional Laboratories.
- vi. Central Laboratory of Gujarat SPCB has recognition under E (P) Act, 1986, valid up to 22-05-2024 and accreditation (IS 17025) from NABL for analysis of all major groups of parameters (Core, General, Toxic Metals and Ambient Air). Its 8 Regional Laboratories are yet to apply for the recognition.
- vii. There are large number of Board / Govt. Analysts, 60 including 24 SOs and 28 SSAs.
- viii. The Central Laboratory had sampling and analysis facilities for Physical Tests – 10 Mandatory, 4 Secondary parameters; General & Non-Metallic - 13 Mandatory, 4 Secondary parameters; Metals - 15 Mandatory, 13 Secondary parameters; General and Trace Organics - 5 Mandatory, 5 Secondary parameters; Microbiological Tests - 4 Mandatory, 1 Secondary parameters; Toxicological Tests - 1 Mandatory, 2 Secondary parameters; Biological Tests - 4 Mandatory, 3 Secondary parameters; Hazardous Waste – 6 parameters; Soil / Sludge / Sediment and Solid Waste - 15 Mandatory, 18 Secondary parameters.

14.2 Environmental Monitoring

- i. State has 62 Air Quality Monitoring Stations (38 of national network NAMP and 24 of State network) and 6 Continuous Ambient Air Quality Monitoring Stations (CAAMS). One third of the districts in the State have Air Quality Monitoring Stations, all of which have facility for PM_{2.5} monitoring. State shares Air Quality Data regularly with CPCB.
- ii. State has not observed improvement in Air Quality with respect to PM₁₀ and PM_{2.5} in FY 2018-19 when compared to FY 2017-18. However, it has not reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB. and to enable their use in planning of control measures.

- iii. The Gujarat SPCB has 165 water quality monitoring stations under national network (NWMP). There are 243 stations / 1000 km length of major and medium rivers. State has its own network of water quality monitoring stations. The state has observed 7 % of total locations shown improvement in water quality in 2018-19 compared to previous year. The Board has not reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB and to enable their use in planning of abatement of pollution.
- iv. Although, state has only 8 Laboratories in 27 Regional Offices, the Regional Laboratories cater to analytical requirement of all Regional Offices.

14.3 Regulatory Setup / Mechanism

- i. The Board has identified 19,038 industries of red category; 12,377 industries of orange category and 6,630 industries of green category following the CPCB guidelines. There were 441 industries of 17 categories and 178 grossly polluting units identified along the rivers / lakes. About 93 % of the industries are having valid consent to operate.
- ii. About 78 % of 17 category industries have been complying with Environmental norms. In case of 97 non-complying industries, show-cause notices were issued to 72 industries, closure directions issued to 24 industries and action is under process against the remaining one industry.
- iii. About 89 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against 39 units which have not installed OCEMS.
- iv. About 78 % of Grossly Polluting Industries (GPI) have been complying with Environmental norms whereas, SPCB has issued show cause notices to 26 industries and closure directions to 13 industries for non-complying.
- v. OCEMS data is not used by the Board for identification of the industries for inspections / follow up actions.
- vi. About 40 % of the sewage generated in the state is reported as being treated. The quantity of sewage that remains untreated is about 2,776 MLD.
About 76 % of STPs were complying with environmental norms, whereas SPCB has issued show cause notices / directions to 9 STPs and action was under process against 3 STPs.
- vii. About 93 % of the Hazardous Waste Generators have valid authorization. Out of 33,73,813 MTA quantity of generated hazardous waste, about 38 % of hazardous waste is utilized / recycled and about 39 % of waste is disposed through TSDFs.
- viii. About 95 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. Entire Bio-Medical Waste generated is being treated and disposed through CBMWTFs all these common facilities have installed

online continuous emission monitoring systems (OCEMS). Show-cause notices / Directions have been issued by Gujarat SPCB to all HCFs / CBWTFs violating environmental norms.

- ix. MSW generation in the state is 10,759 TPD. Out of that that 10,716 TPD of MSW is collected, out of which 6,574 TPD is treated and about 4,142 TPD of MSW is landfilled.
- x. SPCB has received only 15 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xi. SPCB has reported that there are 39 CETPs, 9 TSDFs, 20 CBMWTFs and 170 MSW Dumpsites in the state.
- xii. There were 7,818 industries needing ETPs, 7,701 industries had functional ETPs and 117 industries were operating without ETPs. SPCB has issued show-cause notices to 34 industries, closure directions to 68 industries and action was under process against 15 industries.

In addition, there were 118 industries non-complying with the environmental norms and action was taken by issuing show-cause notices to 73 industries and closure directions to 33 industries.

- xiii. There are six critically polluted industrial clusters (Ankleshwar, Vapi, Rajkot, Surat, Vatva and Vadodara), one severely polluted industrial cluster (Bhavnagar) and two non-attainment cities (Surat and Ahmedabad) in the state.

14.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 93 % of public complaints addressed in stipulated time by SPCB.
- ii. SPCB has online complaint management system.
- iii. Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State has prepared Environmental Status Report.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. State has provided citizen's charter and success stories of Industries / municipalities on technologies (BAT) and practices (BEP) are displayed in public domain.
- viii. SPCB has been compiling environmental statements submitted by industries every year.
- ix. State has Environmental Policy and also advised State Govt. on environmental policy issues.

- x. State has its environmental siting policy and has prescribed guidelines for green belt development in industrial premises.

14.5 Capacity Building & Initiatives

- i. Gujarat SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iii. SPCB has its own R & D activities as well as has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

14.6 Areas of attention

- i. State of the art Central laboratory having high – end analytical equipment.
- ii. Environmental audit scheme implemented for additional monitoring.
- iii. Environmental clinics providing a platform for providing solutions to pollution problems.
- iv. Significant progress in co-processing of hazardous waste & other wastes.
- v. GPCB is ISO-9001 and ISO-14001 certified organization.
- vi. Common Spent Acid Management Project (CSAMP) devised for better management and control of spent acid usages.
- vii. Dependency on NIC for all data and on-line systems.
- viii. Delay in giving replies to CPCB & MoEF & CC wrt Public / VIP complaints / other information
- ix. The state specific pollution issues of Jetpur, Morbi and Vadodara are not resolved for long time.
- x. Though actions are taken against some units violating norms, actions are pending against many units especially the common facilities due to inadequate surveillance.
- xi. The Gujarat Board with its existing set up and resources, is in stress in performing its functions as the State has the largest industrial estates of Asia, is the largest generator of effluents and hazardous wastes, has a long coastline of 1,600 km with many ports, SEZs, many polluting industrial clusters and cities.

14.7 Recommendations

- i. SPCB shall make recruitment to sanctioned posts lying vacant, 65 % of which are Technical Posts, for effective disposal of its mandated functions.
- ii. SPCB shall make plan for spending on mandated functions as well as utilization of reserve funds to the tune of ₹ 426 Crore in addition of the Non-Plan Expenditure.

- iii. GPCB requires preparing detailed proposal covering the staff / development, the budget and all the associated needs with action plans for implementation.
- iv. The SPCB needs to review its environmental policy and place environment before development. The public perception may change if long outstanding issues are resolved.
- v. Consolidated Consent and Authorisation (CCA) issued by State Board should be in line with Environmental Clearance.
- vi. Action taken / compliance of the directions / notifications issued from time to time needs to be communicated to MoEF&CC and CPCB.
- vii. SPCB shall ensure compliance of environmental norms by 15 non-complying CETPs and levy EC charges for failures to upgrade.
- viii. SPCB has to immediately initiate action for treatment / disposal of 23 % of its hazardous waste.

Important Information at a Glance**Name of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	27	0	28

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
287	105	3	0	1	0

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicles	Mobile Laboratories	Total
20	46	0	66

Number of Water / Air Quality Monitoring Stations / Locations

Air			Water	
NAMP	SAMP	CAAQMS	NWMP / SWMP	RTWQMS
38	24	6	165 (NWMP)	0

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
153.24	425.96	579.20	Nil	95.03	95.03

**Major Environmental Issues of Audit Concern
Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
441	19,038	12,377	6,630	0	178

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
4,680	2,662	1,904	53	33	2,776

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
20	20	5	5	1	1	14	14

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
18,769	33,73,813	12,77,854*	13,25,692	11,86,286

*Includes quantity of hazardous waste sent to other State for recycling / utilization / co-processing / disposal.

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
10,882	18,840	28,960	1,93,599	9,460	8,973	3,365	28,496	33,706	33,706

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
10,759	10,716	6,574	4,142

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
34	8	20	170 (including 4 SLFs)

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60 - 70)
Vadodara (89.09), Ankleshwar (80.21), Vapi (79.95), Surat (76.43), Vatva (70.94), Rajkot (70.62)	Bhavnagar (61.94)

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Surat
2	Ahmedabad
3	Vadodara

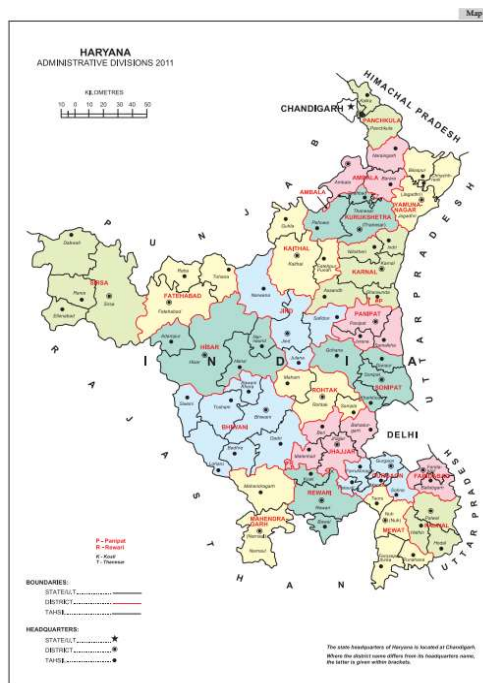
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15.0 HARYANA

Haryana is a state in Northern India surrounded by Rajasthan, Himachal Pradesh, Delhi and Punjab. Chandigarh is the shared capital of the State. Gurugram and Faridabad cities are part of National Capital Region and seen exponential growth in the last three decades. As per 2011 census, the population of the state is 2,77,61,063 making it the 16th most populated state in India. The density of population in Haryana is 573 per square kilometre.

Geographically, the state is divided into four regions, the Shivalik mountain range in the northeast, the Yamuna-Ghaggar basin, the Aravalli mountain range to the south and the semi-arid sandy plateaus in the southwest. There are 22 districts that make up the state of Haryana.

The major rivers of the state are Yamuna, Sarasvati, Ghaggar, Markanda, and Tangri river. Industries like business process outsourcing (BPO), manufacturing, retail and agriculture are the backbone of the state's economy.



Area: 42,236 km²

Population: 16,509,259

Districts: 22

Class-I cities: 01

Density: 573 persons/km²

Water Management Index: 58

SDG Index: 57

Health Index: 53.51

SEWAGE: 1,606 MLD

MUNICIPAL SOLID WASTE: 4,636 TPD

PLASTIC WASTE: 68,735 TPA

HAZARDOUS WASTE: 1,32,296 TPA

BIOMEDICAL WASTE: 14,218 KG/DAY

INDUSTRIES (RED+ORANGE): 6,032+14,721

RIVERS & CANALS: 5,000 KM

WATER BODIES: 0.19 Lakh Ha

Percentage share of the Nation

GDP: 4.14

Population: 2.09

Area: 1.34

15.1 Haryana Pollution Control Board

- i. Haryana State Pollution Control Board has its Head Office in Panchkula and 12 Regional Offices in the State.
- ii. The SPCB has 65 technical & scientific manpower and 91 administrative staff.
- iii. The Board has 8 general purpose vehicles and 26 vehicles for sampling and monitoring.
- iv. State had Annual Budget of Rs. 127.62 Cr in FY 2018-19 and Reserve Funds in the form of Fixed Deposits Rs. 376.46 Cr. State had plan expenditure of Rs. 20.18 Cr in the year 2018-19. Non-plan expenditure has been accounted for rest of the budget.
- v. Haryana SPCB has Central Laboratory in its Head Office at Panchkula. It has setup 4 Regional Laboratories in 12 Regional Offices.
- vi. All laboratories including the Central Laboratory are yet to obtain the recognition under E (P) Act, 1986. NABL Accreditation for major group of parameters is also not initiated.

15.2 Environmental Monitoring

- i. State has 22 Air Quality Monitoring Stations and 23 Continuous Ambient Air Quality Monitoring Stations (CAAQMS) with 6 more stations under installation. 95 % of the districts in the State have Air Quality Monitoring Stations, 82 % of which have facility for PM_{2.5} monitoring. State has its own network of Air Quality Monitoring Stations and it shares Air Quality Data regularly with CPCB.
- ii. State has observed improvement in Air Quality with respect to PM_{2.5} (decrease of 12 %) in 2018-19 when compared to 2017-18. State has not reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB.
- iii. State has 37 water quality monitoring stations under national network (NWMP). State has its own network of water quality monitoring stations, however, the number of such stations has not been provided.
- iv. State has not reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB. However, action plans have been prepared for all of the polluted river stretches identified by CPCB.

15.3 Regulatory Setup / Mechanism

- i. The Board has identified 6,032 industries of red category; 14,721 industries of orange category; 1,690 industries of green category and 1,871 industries of white category following the CPCB guidelines. There are 153 industries

of 17 categories and 638 grossly polluting industries identified along the rivers / lakes. About 89 % of the industries are having valid consent to operate.

- ii. About 97 % of 17 category industries have been complying with Environmental norms. In case of 5 non-complying industries, show-cause notices have been issued to 3 industries and closure directions to 2 industries.
- iii. About 82 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against 21 units which have not installed OCEMS.
- iv. About 98 % of Grossly Polluting Industries (GPI) have been complying with Environmental norms. In case of 13 non-complying industries, show-cause notices have been issued to 6 industries and closure directions to 7 industries.
- v. The OCEMS data is not used by the Board for identification of the industries for inspections / actions.
- vi. 100 % of the sewage generated in the state is reported is being treated. About 90 % of STPs are complying with environmental norms. In case of non-complying STPs, show-cause notices were issued to 5 STPs, legal cases filed in the court against one STP and action is under process against 9 STPs.
- vii. About 97 % of the Hazardous Waste Generators have valid authorization. Out of 1,32,296 MTA quantity of generated hazardous waste, about 85 % of hazardous waste is utilized / recycled and about 10 % of waste is disposed through TSDFs. A total quantity of 2,34,777 MT was utilised in the year, clearing previous backlog.
- viii. About 98 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. All the waste generated is being treated and disposed through CBMWTFs and the facilities have installed online continuous emission monitoring systems (OCEMS).
Show-cause notices have been issued by SPCB to about all those HCFs / CBWTFs violating environmental norms.
- ix. MSW generation in the state is estimated to be 4,636 TPD. Out of which, about 96 % of MSW is collected and only 18 % of the collected waste is treated. About 78 % of total waste is landfilled in 65 dumpsites.
- x. Haryana SPCB has received about 68 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xi. SPCB has reported that there are 19 CETPs, 1 TSDF, 11 CBMWTFs and 65 MSW Dumpsites in the state.

- xii. There were 3,599 industries needed ETPs and 3,530 industries had functional ETPs, while 69 industries were operating without ETPs. Haryana SPCB has issued show-cause notices to one industry, closure directions to 61 industries and action was under process against 7 industries.
- xiii. Out of 34 industries non-complying with the environmental norms, show-cause notices / directions were issued to 3 industries, closure directions to 17 industries, legal cases filed against 3 industries and action was under process against 11 industries.
- xiv. There are two critically polluted industrial clusters (Gurugram and Panipat) and one severely polluted industrial cluster (Faridabad) and in the State.

15.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system, however, none of the public complaints were addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State has not prepared Environmental Status Report.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. State has provided citizen's charter and success stories of Industries / municipalities on technologies (BAT) and practices (BEP) are displayed in public domain.
- viii. SPCB has not been compiling environmental statement submitted by industries every year.
- ix. State does not have Environmental Policy.
- x. State has its environmental siting policy and prescribed guidelines for green belt development in industrial premises.

15.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programme.
- iii. Haryana SPCB doesn't have its own R & D activities, however, SPCB has collaborated with state and central institutes conducting R & D in the field of environmental pollution.

15.6 Areas of attention

- i. HSPCB follows information technology application based approach in discharging their functions.
- ii. HSPCB's approach in establishment and operation of ambient air and water quality monitoring stations across state minimised data gaps.
- iii. HSPCB has good financial health for smooth functioning of the Board.
- iv. HSPCB follows single window system for consent management.
- v. All the HSPCB laboratories need to be improved in terms of infrastructure and quality assurance & quality control so as to meet the new standards / regulations.
- vi. The current mechanism for inventory of various categories of industries, plastic, hazardous and biomedical wastes etc. is generally based on secondary data and not based on physical verification.
- vii. Air pollution due to crop residue burning activities could create problems for neighbouring states including NCR.
- viii. The limited availability of surface water and depletion of ground water level.
- ix. Poor management of MSW and disposal.

15.7 Recommendations

- i. SPCB shall make recruitment on sanctioned posts lying vacant, 49 % of which are Scientific & Technical Posts, for effective disposal of its mandated functions. The State Government should grant all approvals for the recruitment of the staff required by the State Board.
- ii. SPCB shall make plan for utilization of reserve funds in bank deposits to the tune of ₹ 376 Crore.
- iii. The SPCB should prepare its action plans starting from the year 2020-21 for attending the issues listed in this report and the gaps in the implementation of the various rules notified under the EP Act 1986. An effective mechanism is needed for the state to address the civic issues in addition to pollution resulted from rapid urban growth in the State.

Important Information at a Glance

Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	12	0	13

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
65 + (18)*	91	3	0	3	0

*Number in the bracket indicate project staff

Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
8	26	0	34

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
127.62	376.46	504.08	20.18	-	20.18

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
22	23 (6 in progress)	26	0

Major Environmental Issues of Audit Concern

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
153	6,032	14,721	1,690	1,871	638

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
1,606	1,859	1,859	150	150	0

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
2	2	2	2	0	0	0	0

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
4,550	1,32,296	2,34,777	13,206	22,338

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
2,723	1,356	4,079	53,249	3,946	3,874	133	5,376	14,218	14,218

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
4,636	4,430	816	3,614

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
19	1	11	65

Polluted Industrial Cluster(s)

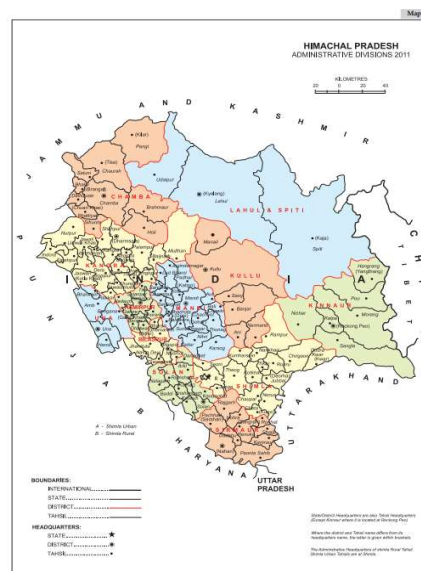
Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Gurgaon (85.15), Panipat (83.52)	Faridabad (62.17)

*

16.0 HIMACHAL PRADESH

Himachal Pradesh is one of the mountainous states, spread over an area of 55,673 square km. The state comprises a population of 68,64,602 as of 2011. Himachal Pradesh shares its borders with Jammu and Kashmir, Punjab, Haryana, Uttar Pradesh and Uttarakhand. Shimla is the state capital and other major towns are Dharamshala, Kangra, Mandi, Kullu, Manali, and Dalhousie. The State is inhabited by many tribes such as Dagis, Khasas, Koilis, Halis, Kinnars and Kirats.

Tourism is a major contributor to the economy of the state. Agriculture contributing to over 45 % to the net state domestic product. Many industrial estates were set up in the state to attract manufacturing units with tax concessions. Textiles and the burgeoning hydroelectric power export industry are the other sources of income for the state. Himachal Pradesh is one of the fastest growing states in India.



Himachal Pradesh is located in the western Himalayas with most its major part has been lying in the foothills of the Dhauladhar Range. Some of the rivers located in the state are Chenab, Beas, Ravi, Yamuna and the Sutlej. Forests comprise about 65 percent of the state.

Area: 55,673 km²	SEWAGE: 125 MLD
Population: 68,64,602	MUNICIPAL SOLID WASTE: 389 TPD
Districts: 12	PLASTIC WASTE: 3,672 TPA
Class-I cities: 00	HAZARDOUS WASTE: 27,169 TPA
Density: 123 persons/km²	BIOMEDICAL WASTE: 2,570 KG/DAY
Water Management Index: 67	INDUSTRIES (RED+ORANGE): 624+4,394
SDG Index: 69	RIVERS & CANALS: 3,000 KM
Health Index: 62.41	WATER BODIES: 0.43 Lakh Ha
Percentage share of the Nation	GDP: 0.88 Population: 0.57 Area: 1.69

16.1 Himachal Pradesh Pollution Control Board

- i. The State Board has its Head Office in Shimla, 10 Regional and 2 Sub-Regional Offices.
- ii. State has 52 Technical & Scientific manpower and 121 Administrative Staff.
- iii. State has 2 general purpose vehicles and 23 vehicles for sampling and monitoring.
- iv. State had Annual Budget of Rs. 23.74 Cr in FY 2018-19 and Reserve Funds of Rs. 142.45 Cr. State had non-plan expenditure of Rs. 17.49 Cr and Rs. 6.25 Cr of plan expenditure.
- v. Himachal Pradesh SPCB has its Central Laboratory in Parwanoo. SPCB has 4 Regional Laboratories for its 10 Regional Offices.
- vi. All laboratories including the Central Laboratory were yet to obtain recognition under E (P) Act, 1986. Central Laboratory has NABL Accreditation for two major group of parameters, i.e. Core and General group of parameters.
- vii. HP PCB has 1 Senior Scientific Officer, 2 Scientific Officers, 3 Junior Scientific Officers as Board Analysts.
- viii. The laboratory has sampling and analysis facilities for DO, pH, Conductance, TSS, TFS, TDS, FDS, TS, Oil & Grease, Total Alkalinity, Total hardness, Calcium Hardness, Total phosphate, Phenol, Sulphate, Sulphide, Magnesium, Turbidity, COD, BOD, Ammonical nitrogen, Boron, Chloride, Chromium hexavalent, Fluoride, Cyanide, Metals, TKN, Nitrate, Total chromium, TC, FC, Residual chlorine, Bicarbonate and Carbonate in water / wastewater. SO₂, NO_x, PM₁₀, PM_{2.5}, Ozone, NH₃, CO, Heavy metals, Temperature and humidity in ambient air, emissions and meteorological parameters are analysed & measured.
- ix. However, it does not have NABL Accreditation for Trace Metals and Ambient Air parameters.

16.2 Environmental Monitoring

- i. State has 25 Air Quality Monitoring Stations all of which are part of national network NAMP and SPCB neither has its own network of Air Quality Monitoring Stations nor any Continuous Ambient Air Quality Monitoring Stations (CAAMS). 58 % of the districts in the State have Air Quality Monitoring Stations, all of which have facility for PM_{2.5} monitoring.
- ii. State has not observed any improvement in Air Quality with respect to PM₁₀ and PM_{2.5} in 2018-19 in comparison to 2017-18. The Board has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB and action plans have been prepared for all identified polluted areas.

- iii. State has 217 water quality monitoring stations under national network (NWMP) and 178 stations under its own network (SWMP). There are 111 stations / 1000 km length of major and medium rivers. State shares Water Quality Data on regular basis with CPCB. State has reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB. Actions have been taken in identified polluted stretches.

16.3 Regulatory Setup / Mechanism

- i. The Himachal Pradesh Board has reported to have identified 624 industries of red category, 4,394 industries of orange category, 6,503 industries of green category and 179 industries of white category following the CPCB guidelines. There are 19 industries of 17 categories identified in the state. About 50 % of the industries are having valid consent to operate.

About 89 % of 17 category industries have been complying with Environmental norms. In case of 2 non-complying industries, show-cause notices have been issued by SPCB.

About 87 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against 3 units which have not installed OCEMS.
- ii. OCEMS data is used by the Board for identification of the industries for inspections / actions.
- iii. About 73 % of the sewage generated in the state is reported is being treated and the quantity of sewage that remains untreated is about 34 MLD.

About 87 % of STPs are complying with environmental norms and show-cause notices have been issued to the remaining non-complying STPs.
- iv. About 60 % of the Hazardous Waste Generators have valid authorization. Out of 27,169 MTA quantity of generated hazardous waste, about 66 % of hazardous waste is utilized / recycled and about 67 % of waste is disposed through TSDFs.
- v. About 86 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. All the waste generated is being treated and disposed through CBMWTFs and these facilities have installed online continuous emission monitoring systems (OCEMS).

Show-cause notices / Directions are issued by SPCB to all non-complying HCFs / CBWTFs at regular intervals.
- vi. MSW generation in the state was estimated as 389 TPD. Out of which, about 87 % of MSW is collected and 44 % of the collected waste is treated. About 49 % of total waste is landfilled in 54 dumpsites.

- vii. Himachal Pradesh SPCB has received 100 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. SPCB has reported that there are 1 CETP, 1 TSDF, 3 CBMWTFs and 54 MSW Dumpsites in the state.
- ix. There were 994 industries needed ETPs, 991 industries had functional ETPs and 3 industries were operating without ETPs. SPCB has issued show-cause notices / directions to the 3 industries operating without ETPs. Also 13 industries non-complying with the environmental norms were issued show-cause notices / directions.
- x. There are three severely polluted industrial clusters (Baddi, Kala Amb, Parwanoo) and 7 non-attainment cities (Baddi, Damtal, Kala Amb Nalagarh, Paonta Sahib, Parwanoo, Sunder Nagar) in the state.

16.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 97 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State Environmental Status Report has been prepared.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / Awareness for new environmental Rules / Standards amended from time to time.
- vii. SPCB has provided citizen's charter.
- viii. Success stories are not displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- ix. SPCB has not been compiling environmental statement submitted by industries every year.
- x. State has its own Environmental Policy and advised State Government on environmental policy issues.
- xi. There are state level monitoring committees on environmental issues.
- xii. State has environmental siting criteria and prescribed guidelines for green belt development in industrial premises.

16.5 Capacity Building & Initiatives

- i. SPCB organized extensive mass awareness programmes on various aspects of pollution control and environmental management through electronic and print media.

- ii. Himachal Pradesh SPCB has conducted study on impact of pollution on human health and ecosystem.
- iii. SPCB doesn't have its own R & D activities, however, SPCB has collaborated with state and central institutes conducting R & D in the field of environmental pollution.
- iv. Electronic Display Screens installed at 12 different locations in the state for displaying air / water quality data.
- v. The provision of 15 % water discharge norms downstream of diversion works of hydel power projects is being monitored on-line by the State Board in 77 projects.
- vi. State is promoting co-processing of plastic waste collected and segregated by the urban local bodies in adjoining cement industries, apart from use of biomass as a supplementary source of energy.

16.6 Areas of attention

- i. Adequate number of water and air quality monitoring stations are maintained by the SPCB.
- ii. The Board under Pollution Abating Plants Abhiyan (PAPA), has planted 1,60,995 identified species of outdoor plants and has also provided 1,210 number of indoor plants at important official / judicial establishments with an objective of improvement of indoor air quality.
- iii. Considering the amount of workload, the existing manpower is inadequate with 136 posts lying vacant. Also training and capacity building of the existing manpower is desired.
- iv. Though the state board has the laboratory for analysing the routine parameters, still it is not equipped for analysing advanced parameters requiring sophisticated instruments and high skilled & trained manpower.

16.7 Recommendations

- i. SPCB shall make plan for utilization of its reserve funds of ₹ 142 Crore.
- ii. The inventory made available for hazardous waste, plastic waste and e-waste was based on secondary data, SPCB shall collect primary data for making inventory of hazardous waste, plastic waste and e-waste.
- iii. SPCB shall provide appropriate treatment to 27 % of its generated sewage.
- iv. There is an urgent need to develop Sanitary Landfill Facilities in the state, as currently there is no SLF. HPSPCB is required to develop sound coordination with ULBs for effective collection, processing, treatment, and disposal of solid wastes in the state.

Important Information at a Glance**Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	10	2	13

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
52	121	2	0	17	0

Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
2	23	0	25

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
23.74	142.46	166.20	6.25	17.49	23.74

Number of Water / Air Quality Monitoring Stations / Locations

Air			Water		
NAMP	SAMP	CAAQMS	NWMP	SWMP	RTWQMS
25	0	0	148	178	0

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
19	624	4,394	6,503	179	NIL

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. Of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
125	123	91	68	43	34

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
7	7	1	1	1	1	5	5

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
2,508	27,169	17,850	18,264	718

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without			
503	3,299	3,802	14,150	1,832	1,569	1,970	1,500	2,570	2,570

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
389	340	150	190

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
1	1	3	54

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
-	Baddi (68.26), Parwanoo (65.77), Kala Amb (65.70)

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Baddi
2	Damtal
3	Kala Amb
4	Nalagarh
5	Paonta Sahib
6	Parwanoo
7	Sunder Nagar

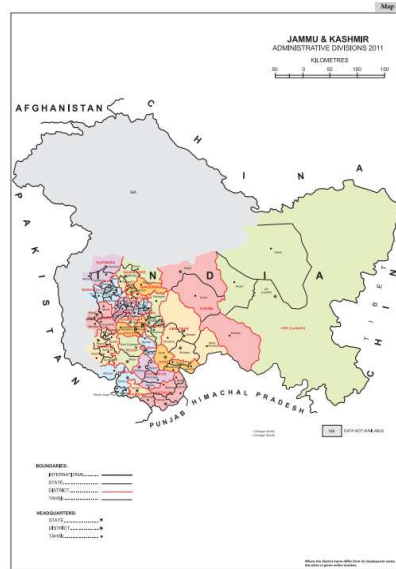
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17.0 JAMMU & KASHMIR

Jammu and Kashmir is one of India's most popular travel destination States. The state covers an area of 2,22,236 square kilometres and comprises a population of 1,25,41,302 as of 2011. Jammu and Kashmir consists of three divisions - Jammu, Kashmir Valley and Ladakh. The state is almost mountainous with stretches of valleys and mountain lakes. Srinagar and Jammu are the major cities with infrastructure supporting cottage industries to large manufacturing industries.

Tourism is one of the main industries of the state and has immensely contributed to the economy. Some of the important places in the state are Gulmarg, Pahalgam, Leh, Patnitop, and Ladakh. The State has important water bodies such as Dal lake and Tawi river in Srinagar.

The State is now converted into two Union Territories, the UT of Jammu & Kashmir and the UT of Ladakh came into existence on October 31, 2019. The new Union Territory of Ladakh constituted with two districts.



Area: 2,22,236 km²	SEWAGE: 621 MLD
Population: 1,25,41,302	MUNICIPAL SOLID WASTE: 1,531 TPD
Districts: 22	PLASTIC WASTE: 34,367 TPA
Class-I cities: 01	HAZARDOUS WASTE: 2,715 TPA
Density: 124 persons/km²	BIOMEDICAL WASTE: 4,483 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 368+3,734
SDG Index: 59	RIVERS & CANALS: 27,781 KM
Health Index: 62.37	WATER BODIES: 0.31 Lakh Ha
Percentage share of the Nation	GDP: 0.93 Population: 1.04 Area: 6.76

17.1 Jammu & Kashmir Pollution Control Board

- i. The State Board has its Head Office in Jammu (November to April) and Srinagar (May to November) and has 2 Regional Offices. There are 22 district offices but none of them have Laboratories.
- ii. SPCB has 9 general purpose vehicles, 16 vehicles for sampling and monitoring and 2 mobile laboratories for vehicular monitoring.
- iii. The State Board has 68 Technical & Scientific personnel and 65 Administrative Staff.
- iv. The Board had Annual Budget of Rs 22.80 Cr in FY 2018-19 and Reserve Funds of Rs 41.49 Cr in terms of FDs and others of. State had plan expenditure of Rs 0.81 Cr and non-plan expenditure of Rs 22.60 Cr.
- v. Jammu and Kashmir SPCB had no Central Laboratory, but 2 Regional Laboratories at Jammu and Srinagar. Both are not recognised under E (P) Act and are yet to initiate NABL Accreditation.
- vi. SPCB is under reconstitution after partition of then Jammu and Kashmir State in August, 2019. State had plans to strengthen the Laboratories.

17.2 Environmental Monitoring

- i. State has 15 Air Quality Monitoring Stations (8 of national network NAMP and 7 of its own network SAMP) but no Continuous Ambient Air Quality Monitoring Stations (CAAMS). 32 % of the districts in the State have Air Quality Monitoring Stations, 73 % of which have facility for PM_{2.5} monitoring. State shares Air Quality Data with CPCB.
- ii. State has observed improvement in Air Quality with respect to PM_{2.5} (decrease of 2 %) in FY 2018-19 when compared to FY 2017-18 and it has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB and to enable their use in planning of control measures. However, state has not prepared action plans for any of those identified non-attainment cities and critically polluted areas.
- iii. State has 136 water quality monitoring stations (103 of national network NWMP and 33 of its own network SWMP). There are 52 stations / 1000 km length of major and medium rivers.
- iv. State has not reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB.

17.3 Regulatory Setup / Mechanism

- i. The Board has reported to have identified 368 industries of red category; 3,734 industries of orange category; 4,104 industries of green category and 282 industries of white category following the CPCB guidelines. There are

69 industries of 17 categories and 55 grossly polluting industry identified along the rivers / lakes. About 54 % of the industries are having valid consent to operate.

About 95 % of 17 category industries have been complying with Environmental norms. In case of 3 non-complying industries, show-cause notice have been issued. About 79 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server.

About 96 % of Grossly Polluting Industries (GPI) have been complying with Environmental norms whereas show-cause notices have been issued by Jammu and Kashmir SPCB to the remaining non-complying industries.

- ii. OCEMS data is not used by the Board for identification of the industries for inspections / actions.
- iii. About 15 % of the sewage generated in the state is reported as being treated and the quantity of sewage that remains untreated is about 525 MLD.

About 75 % of STPs are complying with environmental norms.

- iv. About 42 % of the Hazardous Waste Generators have valid authorization. Out of 2,715 MTA quantity of generated hazardous waste, entire hazardous waste is utilized / recycled and about 14 % of waste is disposed through TSDFs. A total quantity of 34,331 MT was utilised in the year, clearing previous backlog.
- v. About 65 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. It was reported that 95 % of Bio-Medical Waste generated is being treated and disposed through CBMWTFs and all the facilities have installed online continuous emission monitoring systems (OCEMS).

Show-cause notices / Directions have been issued by SPCB to only 6 % of HCFs / CBWTFs violating environmental norms.

- vi. MSW generation in the state is estimated to be 1,531 TPD. Out of which, about 95 % of MSW is collected.
- vii. SPCB has received only 10 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. SPCB has reported that there are 2 CETPs and 2 CBMWTFs in the state.
- ix. There were 439 industries needed ETPs, 227 industries had functional ETPs and 212 industries are operating without ETPs. SPCB has issued show-cause notices / directions to 178 industries, closure directions to 18 industries and action was under process against 16 industries.

Out of 27 industries non-complying with the environmental norms, show-cause notices / directions were issued to 19 industries, closure directions

to 3 industries, legal cases filed against one industry and action is under process against 4 industries.

- x. There are 2 non-attainment cities (Jammu and Srinagar) in the state.

17.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. Jammu and Kashmir State has public grievance registration and redressal system. SPCB doesn't have its own online complaint management system.
- ii. Directions issued, Environmental Quality Data and Technical Reports prepared by SPCB are displayed on website.
- iii. Annual Reports prepared by SPCB are not displayed on website.
- iv. Public Hearing Proceedings by SPCB are displayed on website.
- v. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vi. SPCB has provided citizen's charter.
- vii. Success stories are not displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- viii. State has Environmental Policy and advised State Govt. on environmental policy issues.
- ix. State has environmental siting criteria and prescribed guidelines for green belt development in industrial premises.
- x. There are state level monitoring committees on environmental issues.

17.5 Areas of attention

- i. The Jammu and Kashmir Board is striving to make efforts to perform well in spite of frequent turmoil and climatic constraints. The response to central agencies is generally prompt and required information is provided in time.
- ii. The J & K SPCB is contributing well in Business Reforms Action Plan (BRAP).
- iii. The Board has taken initiatives to manage plastic and plastic waste in the state which includes unique arrangement of setting up "Anti Polythene Check Post" at Lakhanpur border of the state and banning of single use plastic bottles and disposable plates, cups, disposable cutlery etc. in Govt. Offices.
- iv. District offices are lacking manpower and required infrastructure for their functioning.
- v. In spite of having online consent management system, SPCB is not able to dispose the consent applications in time.
- vi. The Board does not have the recruitment and promotion policy leading to stagnation of the employees resulting in resentment and lack of motivation.

- vii. The climatic conditions, frequent turmoil in the state and Darbar (Administration) move between Srinagar and Jammu affects the performance of Board.

17.6 Recommendations

- i. Bifurcation of Jammu and Kashmir SPCB into separate PCCs is the most urgent action needed with adequate infrastructure to perform.
- ii. It shall make plan for increasing its spending on mandated functions which was merely 4 % of its annual budget at the time of Audit.
- iii. As much as 84 % of the generated sewage required treatment by increasing the installed capacity as well as operational capacity of treatment.
- iv. It is required to provide information on treatment of municipal solid waste collected and waste disposed in landfill sites.
- v. There is need to setup good laboratories and develop infrastructure, including trained manpower, instrumentation and acquiring NABL accreditation on priority basis.
- vi. Periodic inspections of STPs are required to be carried out for their better performance.
- vii. Online Continuous Emission / Effluent Monitoring System (OCEMS) is also required to be installed for effective monitoring and surveillance.
- viii. The Board should explore the possibilities of setting of common facilities such as e-waste, wastewater, solid waste and CAAQMS network. The development of TSDF site in the state is required to be expedited.
- ix. There is a need to ensure compliance with the directions issued by the various authorities and Honourable Courts.

Important Information at a Glance**Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	2	22	25

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
68	65	1	0	7	1

Associated Facilities

Library	Training Hall	Conference Hall
0	0	Yes

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
9	16	2	27

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
22.80	41.49	64.29	0.81	22.60	23.41

Number of Water / Air Quality Monitoring Stations / Locations

Air			Water		
NAMP	SAMP	CAAQMS	NWMP	SWMP	RTWQMS
8	7	0	103	33	0

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
55	368	3,734	4,104	282	69

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. Of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
621	133	96	20	18	525

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
9	9	0	0	1	1	8	8

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
236	2,715	34,331	373	1,345

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
992	5,463	6,445	15,135	836	545	5,609	718	4,483	4,280

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
1,531	1,453	INP	INP

INP = Information not provided

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
2	0	2	-

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Jammu
2	Srinagar

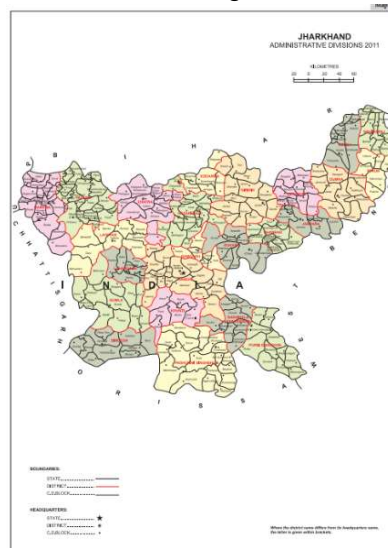
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18.0 JHARKHAND

Jharkhand, an inland state of eastern India shares its borders with Uttar Pradesh and Chhattisgarh in the west, Bihar in the North, Odisha in the south and West Bengal in the east. Ranchi, the capital, and Jamshedpur are well-known industrial and academic cities of Jharkhand. The state is also known as a mining and industrial haven of India with Jamshedpur, Bokaro and Dhanbad as the highly industrialized cities of eastern India. Jharkhand is endowed with thick forest, mines and natural beauty.

It is considered to be a wealthy state with skilled workforce, mineral wealth and forestry produces. There is large presence of mineral ores such as iron ore, copper ore, mica, coal, bauxite, manganese, fireclay, china clay, lime stone, kainite, graphite, chromites, uranium, thorium, asbestos, gold, silver and yemenite.

Jharkhand has thick forests and provides natural habitat to tigers and elephants. The meteorological department calls it the Chhota Nagpur plateau. Jharkhand is the origin of various rivers such as Koel, Damoder, Brahamani, Kharkai and Subarnarekha.



Area: 77,467 km²	SEWAGE: 1,443 MLD
Population: 2,50,55,073	MUNICIPAL SOLID WASTE: 2,205 TPD
Districts: 24	PLASTIC WASTE: 51,455 TPA
Class-I cities: 03	HAZARDOUS WASTE: 4,81,672 TPA
Density: 414 persons/km²	BIOMEDICAL WASTE: 12,788 KG/DAY
Water Management Index: 34	INDUSTRIES (RED+ORANGE): 718+1,007
SDG Index: 53	RIVERS & CANALS: 1,200 KM
Health Index: 51.33	WATER BODIES: 1.23 Lakh Ha
Percentage share of the Nation	GDP: 1.84 Population: 2.72 Area: 2.42

18.1 Jharkhand Pollution Control Board

- i. The State Board has Head Office in Ranchi and 5 Regional Offices.
- ii. State has 39 Technical & Scientific manpower (including 14 project staff) and 3 Administrative Staff.
- iii. State has 9 general purpose vehicles and 5 vehicles for sampling and monitoring.
- iv. State had Annual Budget of Rs 23.91 Cr in FY 2018-19 and Reserve Funds in the form of FDs of Rs 60 Cr. State had plan expenditure of only Rs 0.15 Cr and non-plan expenditure of Rs 13.68 Cr.
- v. Jharkhand SPCB has Central Laboratory in its Head Office at Ranchi. SPCB has 5 Regional Offices, however, information on its Regional Laboratories is not available. The SPCB had 10 Board Analysts.
- vi. Central Laboratory of SPCB does not have recognition under E (P) Act, 1986 and it is yet to process for NABL Accreditation.

18.2 Environmental Monitoring

- i. State has 13 Air Quality Monitoring Stations and 8 Continuous Ambient Air Quality Monitoring Stations (CAAMS). All the stations have facility for PM_{2.5} monitoring. State has its own network of Air Quality Monitoring Stations and it shares Air Quality Data with CPCB.
- ii. State has not observed improvement in Air Quality with respect to PM_{2.5} and PM₁₀ levels in 2018-19 when compared to 2017-18. Board has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB. But no actions were taken thereafter.
- iii. State has 53 water quality monitoring stations and 5 Real Time Water Quality Monitoring Stations (RTWQMS). State has identified river segments as per suitability for designated best use. There are 49 stations / 1000 km length of major and medium rivers. State has its own water quality monitoring programme, however, details of state's own network are not available.
- iv. The water quality data is reviewed by the Board, but no further action was initiated.

18.3 Regulatory Setup / Mechanism

- i. The Board has reported to have identified 718 industries of red categories, 1,007 industries of orange category and 964 industries of green category following the CPCB guidelines. There were 79 industries of 17 categories and 39 grossly polluting units identified along the rivers / lakes. All the industries are having valid consents to operate.

About 68 % of 17 category industries have been complying with Environmental norms. In case of 25 non-complying industries, show-cause notices have been

issued to 13 industries, closure directions to one industry and action under process against 11 industries.

About 55 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.

Under Grossly Polluting Industries (GPI), 34 non-complying industries have been identified. Show-cause notices have been issued to 14 industries, closure direction to 10 industries, legal cases filed against 2 industries and action is under process against 8 industries.

- ii. OCEMS data is used by the Board for identification of the industries for inspections / actions.
- iii. Only about 6 % of the sewage generated in the state is reported as being treated and the quantity of sewage that remains untreated is about 1,357 MLD.
- iv. About 80 % of the Hazardous Waste Generators have valid authorization. Out of 4,81,672 MTA quantity of generated hazardous waste, only 2 % of hazardous waste is utilized / recycled and only 1 % of waste is disposed through TSDFs.
- v. About 28 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. Only 53 % of Bio-Medical Waste generated is being treated and disposed through CBMWTFs. There are 2 CBMWTFs in the state and none of the facility has installed OCEMS.

Show-cause notices / Directions have been issued by SPCB to about 69 % of HCFs / CBWTFs violating environmental norms.

- vi. MSW generation in the state is estimated to be 2,205 TPD. Out of which, about 93 % of MSW is collected, about 41 % of the collected waste is treated.
- vii. Jharkhand SPCB has not received half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. SPCB has reported that there are 6 CETPs, 1 TSDF, 3 CBMWTFs and 42 MSW Dumpsites in the state.
- ix. It was reported that there were 207 industries needed ETPs and all industries had functional ETPs complying with the environmental norms.
- x. There are three severely polluted industrial clusters (Ramgarh, Hazaribagh & Saraikela) and one non-attainment city (Dhanbad) in the state.

18.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 89 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.

- iii. Directions issued, Environmental Quality Data and Technical Reports prepared by SPCB are displayed on website. Annual Reports prepared by Jharkhand SPCB are not displayed on website.
- iv. State has prepared Environmental Status Report.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. SPCB has provided citizen's charter.
- viii. There are success stories displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- ix. State has provided citizen's charter and has displayed any success stories of Industries / municipalities on technologies (BAT) and practices (BEP) in public domain.
- x. State has notified its Environmental Policy.
- xi. State has environmental siting policy and prescribed guidelines for green belt development in industrial premises.
- xii. There are state level monitoring committees on environmental issues.

18.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has conducted study on impact of pollution on human health and ecosystem.
- iv. SPCB doesn't have its own R & D activities, however, SPCB has collaborated with state and central institutes conducting R & D in the field of environmental pollution.

18.6 Areas of attention

- i. The board has a major weakness in the area of laboratory.
- ii. The Board has established its laboratory under Water Act. NABL accreditation, OHSMS certification and recognition under EPA are needed for strengthening of laboratory and capacity building as well.
- iii. The technical manpower needs training and also urgent need for up-gradation of Infrastructure is felt.

18.7 Recommendations

- i. The Jharkhand State Board has not performed well on many fronts due to lack of qualified and trained manpower and fell short of the mandated assignments.
- ii. SPCB shall make recruitment to 81 % of the total sanctioned posts lying vacant. The State Government may approve strengthening plans including recruitment of manpower.
- iii. SPCB shall efficiently make use of its allocated funds and increase spending on plan activities for expected delivery of its mandated functions.
- iv. NABL accreditation, OHSMS certification and recognition under EPA are needed for strengthening of laboratory and capacity building as well.
- v. Comprehensive action plans be prepared for addressing all the environmental issues in the State, if required with external assistance. Annual Action Plans are needed to pay special attention to waste management and industrial pollution control.
- vi. SPCB has to immediately initiate action for treatment / disposal of 97 % of hazardous waste and 47 % of Bio-medical Waste.
- vii. SPCB shall provide treatment to 94 % of its generated sewage.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	5	0	6

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
25 + (14)*	3	4	3	3	1

*Number in the bracket indicates project staff.

Associated Facilities

Library	Training Hall	Conference Hall
1	0	1

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
9	5	0	14

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
23.91	60.00	83.91	0.15	13.68	13.83

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
13	8	53	5

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
79	718	1,007	964	-	39

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. Of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
1,443	188	86	25	15	1,357

Polluted River Stretches and Status of Action Plans Received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
7	7	0	0	0	0	7	7

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
561	4,81,672	9,934	3,463	4,10,270

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
1,066	492	1,558	26,550	509	143	106	INP	12,788	6,721

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
2,205	2,043	837	0

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
1	1	3	42

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
-	Ramgarh (66.75), Hazaribagh (64.20), Saraikela (60.26)

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Dhanbad

*

19. KARNATAKA

Karnataka is the eighth biggest state in India with an area of 1,85,783 km². The capital of Karnataka is Bengaluru, also known as the Information Technology Capital of India. The state forms a part of the Deccan Plateau having sea coast of 280 km. The economy of the state is dependent on agriculture, animal husbandry, mining, quarrying, manufacture, Information Technology, education, etc. It has one of the highest economic growth rates in the country.

The State is divided into four divisions, Belgaum, Bangalore, Mysore, and Gulbarga comprising of 30 districts. The state has a population of 6,10,95,297 as per 2011 census. The urban population consists of 38.67 % and state's literacy rate was 75.36 %. Karnataka is a mineral rich state. The main minerals found are gold, silver, copper, iron-ore, manganese, limestone, dolomite, asbestos, bauxite, chromite, kaolin and granite rock.



Area: 1,85,783.46 km²	SEWAGE: 4,292 MLD
Population: 6,10,95,297	MUNICIPAL SOLID WASTE: 11,958 TPD
Districts: 30	PLASTIC WASTE: 2,72,776 MT (2018-19)
Class-I cities: 26	HAZARDOUS WASTE: 4,14,687 TPA
Density: 319 persons/km²	BIOMEDICAL WASTE: 65.62 TPD
Water Management Index: 59	INDUSTRIES (RED+ORANGE): 7,806+21,885
SDG Index: 66	RIVERS & CANALS: 9,000 KM
Health Index: 61.14	WATER BODIES: 5.01 Lakh Ha
Percentage share of the Nation:	GDP: 6.21 Population: 5.05 Area: 5.83

19.1 Karnataka State Pollution Control Board

- i. Karnataka SPCB has Central Office in Bengaluru, 10 Zonal Offices and 44 Regional Offices (14 in Bengaluru Urban and Rural districts, 2 each in Mysore and Belagavi and 22 for 26 districts).
- ii. KSPCB has a total staff of 771; of which 153 are Technical, 47 Scientific, 451 project staff and 114 Administrative personnel. The SPCB has also staff in supporting streams of law, training, IT and public relations.
- iii. Acute shortage of regular manpower was reported in relation to the number of consented industries, local bodies and other related functions of KSPCB. The Board depends on temporary project staff for majority of its work load.
- iv. KSPCB has 36 vehicles for general purposes, 70 vehicles for sampling / monitoring purposes and 2 mobile laboratories.
- v. KSPCB has utilized good amount of funds on plan activities. In 2017-18, it has spent entire budget meant for planned activities.
- vi. Karnataka SPCB has Central Laboratory in its Head Office at Bengaluru. SPCB has 8 Regional Laboratories to support its 44 Regional Offices.
- vii. Central Laboratory of Board has recognition under E (P) Act, 1986 from MoEF&CC (Valid up to 02-08-2021). The Board has five Government Analysts and 13 Board Analysts notified under Rules. SPCB Laboratory has NABL Accreditation for three major group of parameters i.e. Core Parameters, General Parameters and Trace Metals.
- viii. The following sampling and analytical facilities are developed: Physical Tests – 15 parameters; General & Non-Metallic - 17 Mandatory parameters; Metals - 26 parameters; General and Trace Organics - 10 parameters; Microbiological Tests - 5 parameters; Toxicological Tests - 2 parameters; Biological Tests - 4 parameters; Hazardous Waste – 4 parameters; Soil / Sludge / Sediment and Solid Waste - 32 parameters; Ambient Air / Fugitive Emissions – 11 parameters; Stack / Source Emission – 12 parameters; Noise – 2 parameters; Meteorological – 5 parameters.

19.2 Environmental Monitoring

- i. About 97 % of urban area in the state is covered under the Air Quality Monitoring (AQM) network.
- ii. AQM data have been reviewed, polluted areas have been identified and action plans have been prepared for control of air pollution.
- iii. The State has 287 station-network under NWMP. Water quality of the rivers complies with the designated best use criteria at 83 % of the locations.

19.3 Regulatory Setup / Mechanism

- i. The Karnataka Board has identified 7,806 industries of red category, 21,885 industries of orange category, 24,259 industries of green category and 36,258 industries of white category following the CPCB guidelines. There are 199 industries of 17 categories and 4 grossly polluting units identified along the rivers / lakes. About 76 % of the industries are having valid consents to operate.

About 92 % of 17 category industries have been reported complying with Environmental norms. Also all 4 GPI units were found complying with prescribed standards.

In case of 15 non-complying industries, show-cause notices have been issued to two industries, closure directions to 12 industries and action under process against one industry.

About 78 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against 57 units which have not installed OCEMS.

- ii. OCEMS data is being used by the Board for identification of the industries for inspections / actions.
- iii. It was estimated that the sewage generated in the state was about 4,292 MLD in the year 2018. About 70 % of the sewage generated in the state is reported as not treated.
- iv. Many STPs, 69 % of these were reported complying with environmental norms and the remaining non-complying STPs were being issued show cause notices / directions have been issued by SPCB.
- v. About 78 % of the Hazardous Waste Generating units had valid authorization. Out of 414,687 MT quantity of waste generated every year, about 55 % is utilized / recycled and about 15 % of waste is disposed through TSDFs.
- vi. About 98 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. All the generated Bio-Medical Waste was treated and disposed through CBMWTFs.
- vii. 92 % of Common Bio-medical Waste Treatment Facilities (CBWTFs) have installed online continuous emission monitoring systems (OCEMS).
- viii. Show-cause notices / Directions have been issued by SPCB to about 24 % of HCFs / CBWTFs violating environmental norms.
- ix. Municipal Waste generation in the state was in the order of 11,958 TPD. About 84 % of MSW is collected and 45 % of the collected waste is treated. However, there is no information about the waste not collected and not treated.

- x. SPCB has received about 43 % of the half yearly returns from stakeholders during 2018 under the Batteries (Management and Handling) Rules, 2001.
- xi. There are 101 industries needed ETPs, 70 industries are having functional ETPs and 31 industries are operating without ETPs. The 31 industries operating without ETPs, SPCB has issued show-cause notices / directions.
- xii. Karnataka SPCB has reported 10 CETPs, 8 TSDFs, 26 CBMWTFs and 215 MSW Dumpsites in the state.
- xiii. There are 2 critically polluted industrial clusters (Peenya, KIADB Industrial Area-Jigini) and 1 severely polluted industrial cluster (Bidar). There are 4 non-attainment cities (Bengaluru, Devanagere, Gulbarga & Hubli-Dharwad in the state.

19.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 95 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State Environmental Status Report has been prepared.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. SPCB has provided citizen's charter.
- viii. There are success stories displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- ix. SPCB has not been compiling environmental statement submitted by industries every year.
- x. There is no State-specific Environmental Policy notified.
- xi. The State has notified industrial siting policy / criteria and prescribed guidelines for green belt development in industrial premises.
- xii. There are State Level Monitoring Committees on Environmental issues.

19.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has conducted study on impact of pollution on human health / ecosystems.

- iv. Karnataka SPCB doesn't have its own R & D activities, however, SPCB has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

19.6 Areas of attention

- i. KSPCB has exhibited a strong top management commitment towards the implementation of the Environmental Laws.
- ii. KSPCB has well-qualified officers and they are able to develop new initiatives using technology for a transparent consent management system, online grievance and complaint management system.
- iii. KSPCB has taken a number of initiatives such as providing of training to SSLC qualified candidates for operating STPs, training for e-waste handlers, developed a Mobile App. for selecting a suitable site for the entrepreneurs as a decision making tool, sending SMS alerts on air quality in Bengaluru to all the concerned authorities.
- iv. KSPCB has adopted several schools in the state to promote environmental awareness (Parisara Mitra Shala) and awards best performers on the world environment day.
- v. Karnataka has initiated measures in avoiding POP idols during Ganesha and other festivals.
- vi. KSPCB has showcased few initiatives that could bring a better quality to environment such as adopting of dry coffee pulping to reduce water consumption, collection and safe disposal of discarded and expired medicines.
- vii. KSPCB has established a good central laboratory with NABL accreditation and MoEF&CC recognition with all necessary infrastructure and qualified personnel.
- viii. KSPCB organised numerous training programs for various stakeholders for creating awareness on amended Environmental Laws from time to time.
- ix. All the annual reports under the waste management rules are not submitted on time by the Board. The Board should sensitise the stakeholders for timely submission and onward transmission to CPCB.
- x. KSPCB at present is not having a timeline for taking action against non-compliant industries and they should immediately take steps for preparing necessary actions.
- xi. KSPCB should be able to analyse numerous environmental quality parameter data, monitored on a regular basis to understand the reasons for increase or decrease in values so as to initiate pro-active corrective measures.

- xii. There is an acute shortage of manpower in relation to the number of consented industries, local bodies and other related functions of KSPCB.
- xiii. Karnataka SPCB although established 44 Regional offices for 30 districts, but needed to strengthen by providing required manpower and capacity building.

19.7 Recommendations

- i. SPCB shall make recruitment to 56 % of the total sanctioned posts lying vacant. The State Government should grant necessary approvals for the recruitment of regular / permanent staff required by the State Board.
- ii. SPCB has to immediately initiate action for treatment / disposal of 30 % of hazardous waste generated in the state.
- iii. SPCB shall provide treatment to 70 % of its generated sewage.
- iv. SPCB is required to provide information on municipal solid waste disposed in landfill sites.
- v. The Inventorization of waste generated (e-waste, plastic, hazardous & domestic waste generated), though it is a dynamic process, should be strengthened to obtain credible data every two years to plan an effective management solution.
- vi. KSPCB should prepare inspection protocol to ensure transparency in regulatory functions.
- vii. KSPCB should install a nano-pure water purification system and strengthen quality assurance in analysis.
- viii. KSPCB should carry out a mass balance approach to verify the quantity treated at common treatment facilities and also evolve a mechanism for tracking the movement of hazardous wastes through GPS.
- ix. KSPCB should develop an in-house R & D facility and be a facilitator to industry for transfer of clean technology or best available technology.
- x. KSPCB should immediately switch over to NIC based consent management system and uplink to India e-track so as to be at par with other states.
- xi. KSPCB should periodically review all the consent conditions provided by various Regional offices at the central level.
- xii. KSPCB should reconstitute all technical committees with members having requisite technical qualification and expertise.
- xiii. KSPCB shall pursue with the state government to formulate a state environment policy on priority.

Important Information at a Glance**Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	10	44	0	55

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
200 + (451)* = 651	114	3	1	1	1

*Number in the bracket indicates project staff

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
Under Audit			Under Audit	Under Audit	

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Number of Vehicles

General Vehicles	Sampling/Monitoring Vehicle	Mobile Laboratories	Total
36	70	2	108

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water		Total
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS	
39	32	330	2	403

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
199	7,806	21,885	24,259	36,258	4

Polluted Industrial Cluster (S)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Peenya (78.12), KIADB Industrial Area-Jigini (70.99)	Bidar (65.64)

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
4,292	1,370.13	1,300.13	65	63	2,991.87

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
17	17	0	0	0	0	17	17

Hazardous Waste Generation and Management (2017-18)

Number of HW Generating Industries	Quantity of HW stored at the end of Previous Financial year	Total Quantity of HW Generated	Quantity of HW Recycled	Quantity of HW Utilized	Quantity of HW Disposed	Quantity of HW Stored at the end of 2017-18
3,451	4,14,687	2,27,209	62,368	17,638	3,451	4,14,687

Bio-Medical Waste Management (As on March, 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
7,132	27,995	35,869	1,87,772	15,631	15,369	9,055	22,980	65,621	65,621

Municipal Solid Waste (MSW) Management (2018-19)

Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
11,958	10,011	4,515	INP

INP = Information not provided

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
10	8	26	215

Non- Attainment (Air Polluted) Cities

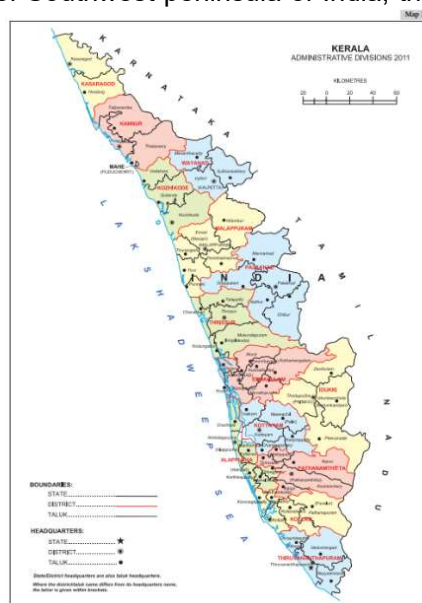
S. No.	Name
1	Bengaluru
2	Devanagere
3	Gulbarga
4	Hubli-Dharwad

*

20.0 KERALA

Geographically located in the Southwest region of India, Kerala is spread across an area of 38,852 square kilometre. Situated in the extreme of Southwest peninsula of India, the State lies between the Western Ghats on the east and the Arabian Sea on the west. The varied demography, different traditions and culture have made it one of the most vibrant societies in India. Kerala tops among Indian states in human development, mass literacy, economic parity, women empowerment, harmony between religions, the progressive and liberal mind-set of people, least in corruption, etc. which makes it literally 'Gods Own Country'.

The state has 14 districts which are further divided into 21 Revenue divisions, Taluks and Revenue Villages. Thiruvananthapuram is the capital of the state, while other important cities include Kochi, Kozhikode, Kollam and Thrissur. Kochi is the major industrial hub in the state with many small scale industries in the state.



Area: 38,852 km²	SEWAGE: 2,900 MLD
Population: 3,34,06,061	MUNICIPAL SOLID WASTE: 3,903 TPD
Districts: 14	PLASTIC WASTE: 1,33,316 TPA
Class-I cities: 07	HAZARDOUS WASTE: 1,06,695 TPA
Density: 860 persons/km²	BIOMEDICAL WASTE: 71.98 TPD
Water Management Index: 45	INDUSTRIES (RED+ORANGE): 14,248+57,833
SDG Index: 70	RIVERS & CANALS: 3,092 KM
Health Index: 74.01	WATER BODIES: 3.03 Lakh Ha
Percentage share of the Nation	GDP: 4.22 Population: 2.76 Area: 1.18

20.1 Kerala Pollution Control Board

- i. Kerala SPCB has Head Office at Thiruvananthapuram. SPCB has three regional offices and 16 Sub-Regional Offices.
- ii. Kerala SPCB has a total staff of 414 (including 228 contractual basis), of which 129 are Technical, 69 Scientific and 109 Administrative. The SPCB has staff in IT, Legal and other streams.
- iii. Kerala SPCB has 28 vehicles for general purposes and 38 vehicles for sampling / monitoring purposes. There are no mobile laboratories with the SPCB.
- iv. Kerala SPCB utilized 54 % of its budget from total available Rs 83.80 Cr during the FY 2018-19. Expenditure done for the plan activities was only 7.8 %.
- v. Kerala SPCB has Central Laboratory at Kochi. SPCB has one Regional and 15 Sub-Regional Laboratories set up in the state.
- vi. Recognition of Central Laboratory under E (P) Act is under process. Regional and sub-regional Laboratories have not obtained the recognition. The State was yet to initiate process for NABL Accreditation of the laboratories.
- vii. SPCB has not designated any officials as Board / Govt. Analysts.
- viii. The laboratory has sampling and analysis facilities for 29 Mandatory parameters and 32 secondary parameters.

20.2 Environmental Monitoring

- i. All the districts are covered under the Air Quality Monitoring (AQM) network.
- ii. The air quality data generated is analysed to enable their use in the preparation of control plans.
- iii. The state has identified river segments as per the suitability of their designated best use.
- iv. The water quality was found to be improving at 98 % of the locations in 2018-19 compared to the status in the year 2017-18.
- v. The Kerala SPCB is regularly monitoring water quality at 152 locations in addition to the NWMP. Similarly, the air quality is also being monitored continuously at 5 locations in addition to the NAMP.

20.3 Regulatory Setup / Mechanism

- i. The Board has identified 14,248 industries of red category; 57,833 industries of orange category; 53,446 industries of green category and 5,481 industries of white category following the CPCB guidelines. There are 20 industries of 17 categories and 28 grossly polluting industry identified

along the rivers / lakes. About 87 % of the industries are having valid consents to operate.

- ii. All the 17 category industries have been complying with Environmental norms. About 63 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of E (P) Act, 1986 have been issued against the units which have not installed OCEMS.
- iii. About 96 % of Grossly Polluting Industries (GPI) have been complying with Environmental norms, whereas closure directions have been issued by Kerala SPCB to the non-complying industries.
- iv. The OCEMS data is used by the Board for identification of the industries for inspections / actions.
- v. About 96 % of the sewage generated in the state is reported as not being treated, which was about 2,779 MLD. Sewage is mostly treated in septic tanks and soak pits. Only some conventional STPs are operating in the State. 100 % of STPs are complying with environmental norms.
- vi. About 60 % of the Hazardous Waste Generators have valid authorization. Out of 1,06,695 MTA quantity of generated hazardous waste, about 33 % of hazardous waste is utilized / recycled and about 76 % of waste is disposed through TSDFs.
- vii. About 97 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. About 59 % of Bio-Medical Waste generated is being treated and disposed through CBMWTFs and all the common facilities have installed online continuous emission monitoring systems (OCEMS).
Show-cause notices / Directions have been issued by SPCB to all the HCFs / CBWTFs for violating environmental norms.
- viii. MSW generation in the state is estimated to be 3,903 TPD. Out of which, only about 19 % of MSW is collected and about 59 % of the collected waste is treated.
- ix. SPCB has received about 35 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- x. SPCB has reported that there are 6 CETPs, 1 TSDF, 1 CBMWTF and 52 MSW Dumpsites in the state.
- xi. There were 5,166 industries needed ETPs, 5,146 industries had functional ETPs and 20 industries are operating without ETPs. The 20 industries operating without ETPs, SPCB has issued show-cause notices / directions. Out of 32 industries non-complying with the environmental norms, show-cause notices / directions were issued to 13 industries, legal cases filed against 2 industries and action is under process against 17 industries.

20.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. Kerala State has public grievance registration and redressal system and 75 % of public complaints addressed in stipulated time by SPCB.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data and Annual Reports prepared by SPCB are displayed on website.
- iv. The State has prepared Environmental Status report.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. SPCB has provided citizen's charter.
- viii. There are success stories displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- ix. SPCB has not been compiling environmental statement submitted by industries every year.
- x. State has Environmental Policy and advised State Govt. on Policy Issues on Environment.
- xi. State has industrial siting policy / criteria and prescribed guidelines for green belt development in industrial premises.

20.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iv. SPCB has its own R & D activities as well as has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

20.6 Areas of attention

- i. The Kerala SPCB has brought a wide range of activities under consent management by following the CPCB guidelines on categorization into Red, Orange, Green and White.
- ii. The Kerala SPCB has developed a Mobile Application Based Rejuvenation Plan for Karamana river. Similarly, two more applications have been developed for sanitation Survey and post flood monitoring of wells.
- iii. The Kerala SPCB has a well-equipped Central laboratory at its Regional Office Ernakulam.

- iv. Inventorization and documentation on solid, e-waste, battery and plastic waste requires to be addressed.
- v. The Annual Reports mandatory under Rules are not being submitted in time.
- vi. There is only one Common Bio-medical waste Treatment facility for entire state.

20.7 Recommendations

- i. SPCB shall make recruitment to 77 % of the total sanctioned posts lying vacant. The State Government should grant necessary approvals for the recruitment of permanent staff required by the State Board.
- ii. SPCB shall make plan for increasing its spending on Plan activities which was mere 8 % of its annual budget.
- iii. SPCB has to immediately initiate action for treatment / disposal of 41 % of its Bio-medical Waste.
- iv. The State Govt. / SPCB should take necessary steps in treating remaining 96 % of its generated sewage and utilizing of sewage generation.
- v. The inventorization of waste generation (e-waste, plastic, hazardous & domestic waste generated), though it is a dynamic process, should be strengthened to obtain credible data so as to plan an effective management solution.
- vi. The Kerala SPCB should review the consents and prescribe the CETP inlet standards, if applicable.
- vii. The State Government / Kerala SPCB should facilitate establishment of more CBMW facilities considering the need.
- viii. The Board should prepare its action plans starting from the year 2020-21 for attending the issues listed in this report and the gaps in the implementation of the various rules notified under the EP Act 1986.
- ix. The Kerala Board should prepare an inspection protocol to ensure standard process is followed for all inspections.
- x. The Board shall obtain NABL Accreditation for Core, General & Trace Metals Parameters of Water Quality and NAAQS Parameters in Ambient Air for its Laboratories.

Important Information at a Glance

Number of Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	3	16	20

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
54 + (144)*	32 + (77)*	1 + (2)*	2 + (2)*	2 + (2)*	(1)*

* Number in the bracket indicate on contract staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
28	38	0	66

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
34	5	284	1

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
8.3.80	445.74	529.54	6.56	38.45	45.02

Major Environmental Issues of Audit Concern

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
20	14,248	57,833	53,446	5,481	28

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
2,900	124	121	10	9	2,779

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
21	21	1	1	0	0	20	20

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
1,345	1,06,695	35,069	81,184	55,580

Bio-medical Waste Management (As on March, 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
2,287	10,308	12,595	1,10,114	6,861	6,673	498	13,386	71,976	42,226

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
3,903	742	438	INP

INP = Information not provided

Common Waste Treatment / Disposal Facilities

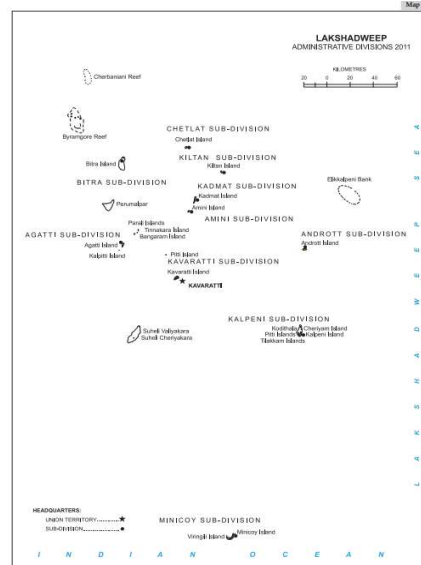
CETP	TSDF	CBMWTF	MSW Dumpsites
6	1	1	52

*

21.0 LAKSHADWEEP

Lakshadweep has a variety of flora and fauna and rich vegetation. All the islands comprise coral reefs, incredible lagoons, perfect blue waters and, of course, shining sandy beaches. It comprises 36 islands, out of which many are isolated. The islands are located in the Arabian Sea and around 220 to 440 km from Kochi in Kerala. The lagoon area is around 4,200 sq. km, territorial waters around 20,000 sq. km and an economic zone of 4 lakh sq. km. The whole of the union territory has covered an area of 32 sq. km.

Agriculture earns the livelihood for more than ninety percent of the population of this union territory. Coconut cultivation is a major economic activity and recently in some of the interior parts of the islands water logging was done to facilitate cultivation of rice and other food crops. Jowar, ragi, sweet potatoes, sorghum and banana are the other products of cultivation in Lakshadweep islands. Lakshadweep Fisheries is one of the major economic activities of a large section of the population. Factory for canning Tuna fish has also been established in the islands with tunnel freezer, cold storages and ice plants for the preservation and marketing of fishes from Lakshadweep.



Area: 30 km²

Population: 64,473

Districts: 01

Class-I cities: 00

Density: 2,149 persons/km²

Water Management Index: NA

SDG Index: 63

Health Index: 53.54

SEWAGE: 09 MLD

MUNICIPAL SOLID WASTE: 35 TPD

PLASTIC WASTE: 153 TPA

HAZARDOUS WASTE: 48 TPA

BIOMEDICAL WASTE: 527 KG/DAY

INDUSTRIES (RED+ORANGE): ---

RIVERS & CANALS: 0 KM

WATER BODIES: 0.00 Lakh Ha

21.1 Lakshadweep Pollution Control Committee

- i. LPCC is under the administrative control of Department of science and Technology.
- ii. The LPCC has just one person and had a total budget of only Rs. 0.14 Cr for the year 2018-19 with transport in UT.
- iii. Lakshadweep PCC has a Laboratory at Kavarati which can analyse 11 basic parameters.
- iv. 2 NAMP stations and 16 NWMP stations are in operation and 29 NWMP stations are newly sanctioned in May, 2019.

21.2 Environmental Monitoring

- i. LPCC has Air Quality Monitoring Station but without PM_{2.5} monitoring facility.
- ii. LPCC shared Air Quality Data with CPCB (for 2 years up to 31 March 2019).
- iii. LPCC has Water Quality Monitoring Stations and PCC shared Water Quality Data with CPCB (for 2 years up to 31 March 2019).

21.3 Regulatory Setup / Mechanism

- i. UT has limited industrial activities and no consent management mechanism is in place.
- ii. All the sewage about 9 MLD in UT remains untreated.
- iii. Only 21 % of Bio-Medical Waste generated is being treated and disposed through CBMWTFs.
- iv. MSW generation in the was estimated to be 35 TPD. Out of which, about 51 % of MSW is collected and all the collected waste is treated.
- v. PCC has not received half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- vi. PCC has reported that there are 9 MSW Dumpsites in the UT.

21.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. PCC has public grievance registration and redressal system and 100 % of public complaints addressed in stipulated time.
- ii. Environmental Status Report has been prepared.
- iii. PCC has organised stakeholder meeting / Awareness for new environmental Rules / Standards amended from time to time.
- iv. UT has Environmental Policy and PCC advises on issues of Environment.

21.5 Areas of Attention

- i. Material Recovery facilities are existing in 10 different in habituated islands
- ii. DST / LPCC have installed 1618 bio-toilets to reduce faecal contamination in the islands
- iii. DST / LPCC have installed 30 biogas plants for management of biodegradable waste.
- iv. Lakshadweep administration has installed three desalination plants for 1 lakh LPD capacity and 6 are under commissioning.
- v. As an R & D activity, Science and Technology has prepared a Lakshadweep water resource atlas. LPCC is fully dependent on DST for everything.

21.6 Recommendations

- i. The Govt. should appoint (in consultation with CPCB) an expert to conduct an in- depth survey of the island area for (i) identification of all the environmentally relevant issues and their regulatory needs in terms of the man power, infrastructure including the laboratory facilities for the required environmental monitoring / analysis for the regulatory compliance and enforcement and the related data systems, training and development and other needs and (ii) preparation of an action plan for development of the what all gets recommended under (i) above.
- ii. Review and finalization action plan by the Govt. of Lakshadweep in consultation with CPCB.
- iii. Implementation of the plan for development of the complete set up required for the smooth performance of the functions of the LPCC.
- iv. PCC shall make recruitment of Scientific & Technical Posts, for effective disposal of its mandated functions.
- v. PCC shall make plan for increasing its allocated funds for efficient delivery of mandated functions as its annual budget in 2019 was meagre ₹ 14 Lakh.
- vi. PCC has to immediately initiate action for treatment / disposal of 48 MT of hazardous waste generated and 79 % of its Bio-medical Waste.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	0

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
1	0	0	0	0	0

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
0	0	0	0

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
1	0	45	0

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
DST Funds			DST Funds	0.14	0.14

Major Environmental Issues of Audit Concern**Sewage (As on March, 2018)**

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
9	0	-	-	-	9

Hazardous Waste Generation and Management (2018-19)

No. of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
46	48	0	0	48

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
10	15	25	250	INP	INP	25	Nil	527	110

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
35	18	18	-

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
6	1	1	52

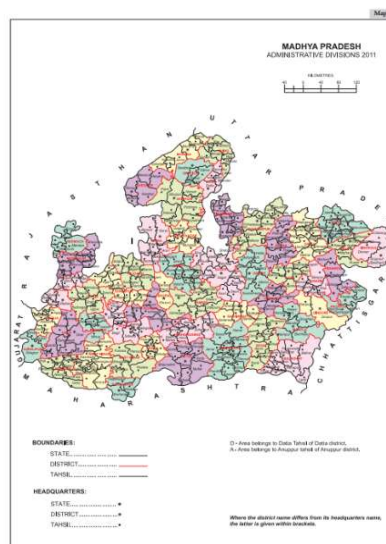
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22.0 MADHYA PRADESH

Madhya Pradesh (MP) state is situated in central India and is bordered by Uttar Pradesh, Chhattisgarh, Maharashtra, Gujarat and Rajasthan. The state retains landmarks from different eras of Indian history. Sites such as Bhimbetka, Adamgarh, Pachmarhi, Raisen, Jaora etc. stand witness to the prehistoric period. It is the second largest state in India with an area of 3,08,000 km². Bhopal is the capital city, Indore, Gwalior and Jabalpur are other major cities. It has a population of over 7 crores as per 2011 census, ranking it sixth among Indian states in terms of population. The 51 districts of Madhya Pradesh are grouped into ten divisions.

The narrow and long Narmada-Son valley runs almost through the entire state from east to west making the area fit for agricultural activities. The Central Highlands and the Satpura-Maikal ranges contribute in dividing the state into three physio-geographic regions. Madhya Pradesh contributes to India's mineral production in a large way.

Major rivers flowing through Madhya Pradesh are Betwa, Chambal, Ken, Mahi, Narmada, Parbati, Tapi (Tapti), Tons, Wainganga, and Wardha.



Area: 3,08,252 km²	SEWAGE: 3,651 MLD
Population: 7,26,26,809	MUNICIPAL SOLID WASTE: 8,000 TPD
Districts: 51	PLASTIC WASTE: 72,327 TPA
Class-I cities: 04	HAZARDOUS WASTE: 2,46,456 TPA
Density: 308 persons/km²	BIOMEDICAL WASTE: 15,847 KG/DAY
Water Management Index: 70	INDUSTRIES (RED+ORANGE): 11,468+5,242
SDG Index: 58	RIVERS & CANALS: 17,088 KM
Health Index: 38.39	WATER BODIES: 2.87 Lakh Ha
Percentage share of the Nation	GDP: 4.63 Population: 6.00 Area: 9.38

22.1 Madhya Pradesh Pollution Control Board

- i. The State Board has its Head Office in Bhopal and 17 Regional Offices and 3 Sub-Regional Offices.
- ii. MPPCB has 288 Technical & Scientific manpower (including 64 project staff) and 119 administrative staff. The SPCB has staff in Legal, IT and other streams.
- iii. The Board has 43 general purpose vehicles and 22 vehicles for sampling and monitoring.
- iv. MPPCB had Annual Budget of Rs. 133.46 Cr in FY 2018-19 and Reserve Funds of Rs. 91.84 Cr in terms of FDs. State had plan expenditure of Rs. 16.38 Cr and non-plan expenditure of Rs. 52.27 Cr.
- v. MPPCB has Central Laboratory in its Head Office at Bhopal. SPCB also has 14 Regional Laboratories.
- vi. SPCB has notified 95 Board Analysts under Water Act and 87 under Air Act. Five officers were notified as Government Analysts.
- vii. The laboratory has sampling and analysis facilities for Physical Tests – 10 Mandatory, 4 Secondary parameters; General & Non-Metallic - 13 Mandatory, 4 Secondary parameters; Metals - 15 Mandatory, 13 Secondary parameters; General and Trace Organics - 5 Mandatory, 4 Secondary parameters; Microbiological Tests - 4 Mandatory, 3 Secondary parameters; Toxicological Tests - 1 Mandatory, 4 Secondary parameters; Biological Tests - 8 parameters; Hazardous Waste – 5 parameters; Soil / Sludge / Sediment and Solid Waste - 15 Mandatory, 15 Secondary parameters.

22.2 Environmental Monitoring

- i. The State has 39 Air Quality Monitoring Stations and 17 Continuous Ambient Air Quality Monitoring Stations (CAAQMS). All the stations have facility for PM_{2.5} monitoring. State has its own network of Air Quality Monitoring Stations but the details are not provided. State shares Air Quality Data with CPCB.
- ii. State has not observed improvement in Air Quality with respect to PM₁₀ and PM_{2.5} in FY 2018-19 when compared to FY 2017-18. It has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition to those identified by CPCB. However, action plans have not been prepared for any such identified polluted areas.
- iii. State has 188 water quality monitoring stations under national network (NWMP) and 64 stations under its own network (SWMP). The state has observed improvement in 7 % of total locations 2018-19 compared to 2017-18. State shares Water Quality Data regularly with CPCB. State has reviewed Water Quality Data to identify polluted stretches in addition of

those polluted river stretches identified by CPCB. However, action plans have not been prepared for identified polluted stretches.

- iv. The central laboratory of Madhya Pradesh SPCB had recognition from MoEF&CC under E (P) Act, 1986 which is under process of renewal. Out of 14 Regional Laboratories only Indore Regional Laboratory is recognised by MoEF&CC under E (P) Act, 1986. Board has accreditation (IS 17025 from NABL) for analysis of two major groups of parameters (Core and General) but it does not have accreditation for Toxic Metals and Ambient Air parameters. State has 14 Laboratories for 17 Regional Offices, to cater the analytical requirements of all Regional Offices.

22.3 Regulatory Setup / Mechanism

- i. The Board has identified 11,468 industries of red categories; 5,242 industries of orange category; 3,157 industries of green category and 744 industries of white category following the CPCB guidelines. There are 91 industries of 17 categories and 2 grossly polluting industries identified along the rivers / lakes. About 72 % of the industries are having valid consents to operate.
- ii. About 97 % of 17 category industries have been complying with Environmental norms. In case of 3 non-complying industries, one was issued show cause notice, another was filed legal case against it and action is under process for the third.
- iii. About 90 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of E (P) Act, 1986 have been issued against the units which have not installed OCEMS.
- iv. Both the Grossly Polluting Industries (GPI) have been complying with Environmental norms.
- v. The OCEMS data is used by the Board for identification of the industries for inspections / actions.
- vi. About 13 % of the sewage generated in the state is reported as being treated and the quantity of sewage that remains untreated is about 3,162 MLD.
About 65 % of STPs are complying with environmental norms and the non-complying STPs were issued show cause notices. One case was filed against the STP violating the standards.
- vii. About 95 % of the Hazardous Waste Generators have valid authorization. Out of 2,46,456 MTA quantity of generated hazardous waste, about 67 % of hazardous waste is utilized / recycled and about 19 % of waste is disposed through TSDFs.
- viii. All the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. About 92 % of Bio-Medical Waste generated is being treated and disposed

through CBMWTFs. 85 % of Common Bio-medical Waste Treatment Facilities (CBWTFs) have installed online continuous emission monitoring systems (OCEMS).

- ix. Show-cause notices / Directions have been issued by Madhya Pradesh SPCB to all HCFs / CBWTFs violating environmental norms.
- x. MSW generation in the state is estimated as 8,000 TPD. Out of which, about 94 % of MSW is collected, about 81 % of the collected waste is treated and about 18 % of total waste is landfilled in 378 dumpsites.
- xi. SPCB has received about 67 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xii. SPCB has reported that there are 2 CETPs, 1 TSDF, 13 CBMWTFs and 378 MSW Dumpsites in the state.
- xiii. There were 1,209 industries needed ETPs and all 1,209 industries had functional ETPs. Out of 5 industries non-complying with the environmental norms, show-cause notices / directions were issued to 2 industries and legal cases filed against 3 industries.
- xiv. There are 6 non-attainment cities (Bhopal, Dewas, Indore, Sagar, Ujjain & Gwalior) in the state.

22.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 70 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State has prepared Environmental Status Report.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. State has provided citizen's charter and success stories of Industries / municipalities on technologies (BAT) and practices (BEP) are displayed in public domain.
- viii. State has been compiling environmental statement submitted by industries every year. State level monitoring committees on environmental issues are functioning.
- ix. State has Environmental Policy and advised State Govt. on environmental policy issues.
- x. State has environmental siting policy and prescribed guidelines for green belt development in industrial premises.

22.5 Capacity Building & Initiatives

- i. Madhya Pradesh SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes at regular intervals.
- iii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iv. SPCB has its own R & D activities and also tied up with State / Central institutes conducting R & D in the field of environmental pollution.

22.6 Areas of attention

- i. Robust & user-friendly software adopted which is a streamlined procedure for consent & related activities, there by substantially reduced visits of industrial representatives.
- ii. Believed in team work with well qualified & dedicated staff.
- iii. Well-equipped laboratory with sophisticated equipment / instruments.
- iv. Environmental surveillance centre with Real Time monitoring data display, storage & remote calibration facility for gaseous parameter on CEMS along with the PTZ cameras.
- v. Pro-active actions initiated for the monitoring of ambient air quality & water quality in all the 51 districts of states.
- vi. Capabilities to carry out R & D activities.
- vii. Lack of middle & junior level technical & scientific staff.
- viii. Suggested to speed-up the undertaking & supporting the third party audit of common facilities and industrial activities.

22.7 Recommendations

- i. SPCB shall make recruitment to 62 % of the total sanctioned posts lying vacant, 46 % of which are Scientific & Technical posts. The State Government should grant all approvals for the recruitment of the staff required by the State Board.
- ii. SPCB shall efficiently make use of its allocated funds and increase spending on plan activities for expected delivery of its mandated functions.
- iii. SPCB shall provide treatment to 87 % of its generated sewage.
- iv. The SPCB should prepare its action plans starting from the year 2020-21 for attending the issues listed in this report and the gaps in the implementation of the various rules notified under the EP Act 1986.

Important Information at a Glance**Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	6	17	2	26

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
224 + (64)*	119	1	0	1	3

*Number in the bracket indicates project staff

Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
43	22	0	65

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
133.45	91.84	225.29	16.38	52.27	68.64

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
39	17	252 (188 / 64)	1

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
91	11,468	5,242	3,157	744	2

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. Of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
3,651	565	489	21	18	3,162

Polluted River Stretches and Status of Action Plans received by CPCB*

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
22	22	3	3	1	1	18	18

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
2,732	2,46,456	1,65,262	48,025	15,333

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
3,427	3,009	6,436	95,421	3,723	3,710	2,713	4,623	15,847	14,547

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
8,000	7,500	6,100	1,400

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
2	1	13	378

Non- Attainment (Air Polluted) Cities

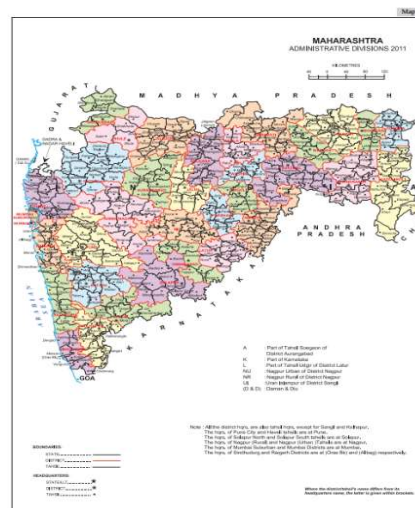
S. No.	Name
1	Bhopal
2	Dewas
3	Indore
4	Sagar
5	Ujjain
6	Gwalior

*

23.0 MAHARASHTRA

Located in the western part of India, Maharashtra is the third largest state in the country. The state covers an area of 3,07,713 sq. km. Maharashtra shares its borders with the states of Gujarat, Madhya Pradesh, Chhattisgarh, Telangana, Karnataka, Goa and the Union Territory of Dadra and Nagar Haveli and Daman and Diu. On the western side of the state lies the Arabian Sea.

The State is divided into thirty-six districts and grouped into six divisions: Aurangabad Division, Amravati Division, Konkan Division, Nagpur Division, Nashik Division and Pune Division. There are many cities such as Mumbai, Pune, Aurangabad, Kolhapur, Solapur, Nagpur, Thane, Jalgaon and Amravati which have a distinct place on the map of the world. There are number of National Parks, Pench, Tadoba, Nagzira, Nawegoan, Devlagaon, Gugamal rich in biodiversity. The important rivers flowing in the State are Godavari, Penganga, Bhima, Varna, Parvara and Mula.



Area: 3,07,713 km²	SEWAGE: 9,252 MLD
Population: 11,23,74,333	MUNICIPAL SOLID WASTE: 23,845 TPD
Districts: 36	PLASTIC WASTE: 4,09,630 TPA
Class-I cities: 06	HAZARDOUS WASTE: 11,21,182 TPA
Density: 365 persons/km²	BIOMEDICAL WASTE: 62.42 TPD
Water Management Index: 56	INDUSTRIES (RED+ORANGE): 25,299+27,785
SDG Index: 64	RIVERS & CANALS: 16,000 KM
Health Index: 63.99	WATER BODIES: 3.38 Lakh Ha
Percentage share of the Nation	GDP: 15.72 Population: 9.28 Area: 9.36

23.1 Maharashtra Pollution Control Board

- i. The State Board has Head Office in Mumbai and 12 Regional and 43 Sub-Regional Offices spread across the State.
- ii. MPCB has 295 Technical & Scientific manpower and 264 administrative staff. The SPCB has staff in IT, Legal, training and other streams.
- iii. The Board has 27 general purpose vehicles and 43 vehicles for sampling and monitoring.
- iv. State Board had Annual Budget of Rs. 307.5 Cr in FY 2018-19 and Reserve Funds of Rs. 2,082.75 Cr in terms of FDs. State had non-plan expenditure of Rs. 107.13 Cr. However, plan expenditure details were not provided.
- v. Maharashtra SPCB has its Central Laboratory at Navi Mumbai. It has 7 Regional Laboratories and 1 Sub-Regional Laboratory.
- vi. The central laboratory has applied for renewal of its recognition under E (P) Act after it is lapsed on 09-03-2020 and renewal is under process. Out of 7 Regional Laboratories, Pune Regional Laboratory (valid up to 10-12-2020) & Nagpur Regional Laboratory (valid up to 05-03-2022) have recognition. SPCB has notified 24 Board Analysts under Water Act and 14 under Air Act.
- vii. The central laboratory has sampling and analysis facilities for Physical – 5 parameters, Chemical – 42; Microbiology – 3, Toxicity – 1; Ambient Air – 12, Stack – 9; Hazardous Waste & MSW – 19 parameters.
- viii. Central Laboratory of SPCB does not have NABL Accreditation for any of the major group of parameters.

23.2 Environmental Monitoring

- i. State has 78 Air Quality Monitoring Stations (75 of national network NAMP and 3 of its own network SAMP) and 23 Continuous Ambient Air Quality Monitoring Stations (CAAQMS). About 78 % of the districts in the State have Air Quality Monitoring Stations and 23 % of which have facility for PM_{2.5} monitoring. State shares Air Quality Data with CPCB.
- ii. State has observed improvement in Air Quality with respect to PM₁₀ (17 % decrease) and PM_{2.5} (8 % decrease) in 2018-19 when compared to 2017-18. The Board has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB. Action plans have been prepared for identified polluted areas.
- iii. State has 250 water quality monitoring stations under national network (NWMP) and 44 stations under its own network (SWMP). It has highest network in the country and there is a need for more stations in view of large geographical area. State has reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB. Action plans have been prepared for identified polluted stretches.

23.3 Regulatory Setup / Mechanism

- i. The Maharashtra Board has identified 25,299 industries of red category; 27,785 industries of orange category; 39,040 industries of green category and 6,421 industries of white category following the CPCB guidelines. There are 474 industries of 17 categories and 3 grossly polluting industries identified along the rivers / lakes. About 98 % of the industries are having valid consents to operate.
- ii. About 92 % of 17 category industries have been complying with Environmental norms. In case of 40 non-complying industries, show-cause notices have been issued against to 29 industries and closure directions against to 11 industries.
- iii. About 72 % of industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.
- iv. All the Grossly Polluting Industries (GPI) have been complying with Environmental norms.
- v. OCEMS data is used by the Board for identification of the industries for inspections / actions.
- vi. About 60 % of the sewage generated in the state is reported as being treated and the quantity of sewage that remains untreated is about 3,712 MLD. All the STPs were reported complying with environmental norms.
- vii. About 98 % of the Hazardous Waste Generators have valid authorization. Out of 11,21,182 MTA of generated hazardous waste, only 12 % of hazardous waste is utilized / recycled and about 42 % of waste is disposed through TSDFs.
- viii. All the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. All the waste generated is being treated and disposed through CBMWTFs and about 80 % of Common Bio-medical Waste Treatment Facilities have installed online continuous emission monitoring systems (OCEMS).
- ix. Show-cause notices / Directions have been issued by SPCB to all the HCFs / CBWTFs violating environmental norms.
- x. MSW generation in the state was estimated as 23,845 TPD. Out of which, about 99 % of MSW is collected, about 53 % of the collected waste is treated and about 46 % of total waste is landfilled in 327 dumpsites.
- xi. SPCB has received about 26 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xii. The estimated plastic waste generation is approximately 409630 T/annum during 2018-19. Complete ban on certain plastic products like, Plastic bags,

Single Use disposable items, Non-woven Polypropylene bags. The efficiency of plastic waste collection is 67 %. There are 288 (276-plastic, 1-compostable & 11-MLP) registered manufacturing units and 162 (143 producers & 19 recyclers) units have neither registered with Maharashtra PCB, nor applied for registration.

- xiii. SPCB has reported that there are 26 CETPs, 4 TSDFs, 31 CBMWTFs and 327 MSW Dumpsites in the state.
- xiv. There were 16,597 industries needed ETPs and all 16,597 industries had functional ETPs. Out of 208 industries non-complying with the environmental norms, show-cause notices were issued to 116 industries, closure directions to 35 and action was under process against 3 industries.
- xv. There are 2 critically polluted industrial clusters (Chandrapur and Tarapur) and 4 severely polluted industrial clusters (Aurangabad, Nashik, Dombivli and Navi Mumbai). There are 18 non-attainment cities (Akola, Amravati, Aurangabad, Badlapur, Chandrapur, Jalgaon, Jalna, Kolhapur, Latur, Mumbai, Nagpur, Nashik, Navi Mumbai, Pune, Sangli, Solapur, Ulhasnagar & Thane) in the state.

23.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 93 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State has prepared Environmental Status Report.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. State has provided citizen's charter and success stories of Industries / municipalities on technologies (BAT) and practices (BEP) are displayed in public domain.
- viii. SPCB has been compiling environmental statement submitted by industries every year. State Level Monitoring Committees on Environmental issues are functional.
- ix. State has notified Environmental Policy and advised State Govt. on environmental policy issues.
- x. State has notified environmental siting policy and also prescribed guidelines for green belt development in industrial premises.

23.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes at regular intervals.
- iii. Maharashtra SPCB has conducted studies on impact of pollution on human health / ecosystems.
- iv. SPCB has its own R & D activities and has collaborated with state and central institutes conducting R & D in the field of environmental pollution.

23.6 Areas of attention

- i. Maharashtra is one of the most industrialized states of India. The coastal state has diversified commercial activities including shipping terminals for import / export activities. The state has vast activities resulting pollution and associated challenges. The role of Maharashtra Pollution Control Board is therefore crucial in performing mandate of prevention and control of pollution in the state.
- ii. The MPCB has three tier system of office establishment covering Head Office, Regional Offices and Sub-regional offices. The delegation of power is decentralized for granting consents with two committees namely Consent Appraisal Committee and Consent Committee at Head Office.
- iii. The financial soundness is one of the strengths, enabling self-reliance to take up initiatives and activities.
- iv. The MPCB also has added advantage of proximity and close association with Institutes of national repute like IIT and NEERI.
- v. The MPCB has been conducting various studies to resolve environment related problems.
- vi. The state also has good environmental infrastructure facilities like CETP, CHWTSDf, CBMWTF etc. which indirectly helps MPCB in addressing issues of treatment and disposal of waste to a large extent.
- vii. MPCB has significantly large number of posts vacant and thereby the surveillance activities are severely impacted.
- viii. The increase in number of regulatory provisions, public complaints and litigations proving shortage of manpower as big weakness.
- ix. The number of inspections is much less in terms of frequency prescribed for various categories of units / establishments.
- x. The weakness is also reflected in auto generation of authorisation to non-bedded health care facilities, purely on online application basis without physical verification.

23.7 Recommendations

- i. The board needs to prepare requirement of staff to strengthen it specially keeping in view the priorities needed in respect of the management of the sewage, MSW management, implementation of Battery Rules 2001, pollution control along the river stretches, pollution in polluted industrial clusters and pollution control in non-attainment cities.
- ii. A comprehensive review and plan of action are needed to bring all the efforts into a meaningful output.
- iii. SPCB shall make recruitment on 31 % of the total sanctioned posts lying vacant, 56 % of which are Scientific & Technical Posts. The Maharashtra State Government should grant all approvals for the recruitment of the staff required by the State Board.
- iv. SPCB shall make plan for utilization of reserve funds to the tune of ₹ 2,083 Crore.
- v. SPCB has to immediately initiate action for treatment / disposal of 46 % of hazardous waste generated.
- vi. SPCB shall provide treatment to 40 % of its generated sewage.
- vii. The board should get its laboratory accredited as per IS 17025 by NABL.

Important Information at a Glance

Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	12	43	56

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
293 + (2)*	264	3	1	2	1

*Number in the bracket indicates project staff

Associated Facilities

Library	Training Hall	Conference Hall
1	2	12

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
27	43	0	70

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
307.50	2,082.75	2,390.25	NIL	107.13	107.13

Number of Water / Air Quality Monitoring Stations / Locations

Air			Water		
NAMP	SAMP	CAAQMS	NWMP	SWMP	RTWQMS
75	3	23	250	44	0

Major Environmental Issues of Audit Concern

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
474	25,299	27,785	39,040	6,421	3

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
9,252	6,466	5,540	102	76	3,712

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
53	53	9	9	6	6	38	38

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
6,353	5,01,758	3,01,497	0	15,993

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for Authorization	Total No. of HCFs granted Authorization	Total No. of HCFs in operation without Authorization			
19,647	40,763	60,410	2,76,985	15,939	17,037	4,704	62,960	62,418	62,134

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
23,845	23,676	12,623	11,052

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
26	4	31	327

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Tarapur (93.69), Chandanpur (76.41)	Aurangabad (69.85), Dombivali (69.67), Nashik (69.49), Navi Mumbai (66.32)

Non-Attainment (Air Polluted) Cities

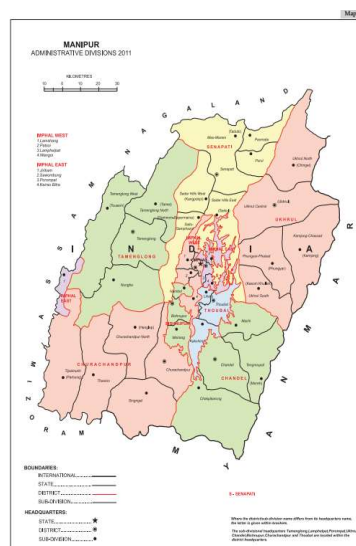
S. No.	Name
1	Akola
2	Amravati
3	Aurangabad
4	Badlapur
5	Chandrapur
6	Jalgaon
7	Jalna
8	Kolhapur
9	Latur
10	Mumbai
11	Nagpur
12	Nashik
13	Navi Mumbai
14	Pune
15	Sangli
16	Solapur
17	Ulhasnagar
18	Thane

*

24.0 MANIPUR

Manipur, surrounded by Nagaland, Mizoram, Assam and Mynamar, has Imphal as its capital. It has 16 districts: Bishnupur, Chandel, Churachandpur, Imphal East, Imphal West, Senapati, Tamenglong, Thoubal, Ukhul, Kangpokpi, Tengnoupal, Pherzawl, Noney, Kamjong, Jiribam, Kakching. The State is spread over 22,327 square kilometre and has a population of 25,70,390.

Agriculture is the single largest source of livelihood, for a majority of the rural masses, and the state economy also depends on it. Paddy, wheat, maize, pulses are major crops. Industry in Manipur is not very well developed. However, the state is striving towards industrialization, with the setting up of medium and small-scale industrial units. The main industries of Manipur are pharmaceuticals, steel re-rolling, plywood, bamboo chipping, cement, vanaspati and electronics and the service sector comprises of Real estate, Consultancies, Travel and Tourism, Hotel Industry and Insurance.



Area: 22,327 km²	SEWAGE: 150 MLD
Population: 28,55,794	MUNICIPAL SOLID WASTE: 219 TPD
Districts: 16	PLASTIC WASTE: 12,454 TPA
Class-I cities: 00	HAZARDOUS WASTE: -- TPA
Density: 115 persons/km²	BIOMEDICAL WASTE: 1,140 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 3+55
SDG Index: 60	RIVERS & CANALS: 3,360 KM
Health Index: 57.78	WATER BODIES: 0.06 Lakh Ha
Percentage share of the Nation	GDP: 0.15 Population: 0.24 Area: 0.68

24.1 Manipur Pollution Control Board

- i. Manipur SPCB has its Head Office in Imphal and has no other Zonal / Regional Office.
- ii. Manipur SPCB has a total manpower of 40; of which 7 are Technical, 4 Scientific, 7 Project staff and 20 Administrative. The SPCB has also staff in supporting streams of law and IT.
- iii. The Board has utilized more than annual budget (Rs 5.09 Cr) of FY 2018-19.
- iv. The existing man power is not adequate for the performing the board's functions and implementation of the Environment Acts / Rules.
- v. Manipur has Central Laboratory in its Head Office at Imphal. It has not yet obtained recognition under E (P) Act and also initiatives were not taken for NABL accreditation.

24.2 Environmental Monitoring

- i. Only one out of 16 districts of Manipur has Air Quality Monitoring Stations.
- ii. State has shared Air Quality Data with CPCB (for 2 years up to 31 March 2019) and has reviewed the Air Quality Data to identify polluted areas in addition to non-attainment cities and critically polluted areas (CPAs) identified by CPCB.
- iii. The state has 70 water quality monitoring stations per 1000 km length of medium and major rivers.
- iv. SPCB has its own Water Quality Monitoring Programme.
- v. SPCB has shared Water Quality Data with CPCB (for 2 years up to 31 March 2019).
- vi. SPCB has reviewed the Water Quality Data to identify polluted stretches in addition to polluted river stretches identified by CPCB.

24.3 Regulatory Setup / Mechanism

- i. The Board has reported to have identified 3 industries of red categories; 155 industries of orange category and 187 industries of green category following the CPCB guidelines. About 96 % of the industries are having valid consents to operate.
- ii. About 18 % of the sewage generated in the state is reported as being treated and the quantity of sewage that remains untreated is about 123 MLD.
- iii. About 50 % of the Hazardous Waste Generators have valid authorization. However, inventory of hazardous waste has not submitted by the SPCB.

- iv. All the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. About 80 % of Bio-Medical Waste generated is being treated and disposed through CBMWTFs.

Show-cause notices / Directions have been issued by Manipur SPCB to all the HCFs / CBWTFs violating environmental norms.

- v. MSW generation in the state is estimated to be 219 TPD. Out of which, about 58 % of MSW is collected, about 63 % of the collected waste is treated and about 21 % of total waste is landfilled in 21 dumpsites.
- vi. SPCB has not received half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- vii. SPCB has reported that there are 1 CBMWTF and 21 MSW Dumpsites in the state.

24.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 100 % of public complaints were addressed in stipulated time.
- ii. Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iii. State has success stories displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- iv. SPCB has organised stakeholder meeting / Awareness for new environmental Rules / Standards amended from time to time.
- v. The state has not notified Environmental Policy; however, it has a notified industrial siting policy / criteria.
- vi. SPCB has prescribed guidelines for green belt development in industrial premises.

24.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programme.
- iii. Manipur SPCB has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

24.6 Areas of Attention

- i. The Board has taken initiatives for issues like cleaning of Loktak Lake from plastic waste, installation of noise limiters for vehicular horns, etc.
- ii. Practical training is required for monitoring and inspections.

- iii. Environmental data available in the State is not examined and analysed for follow-up actions.
- iv. Laboratory is not equipped with advanced analytical instruments.
- v. Less number of industries result in inadequate revenue collection. Therefore, support from Govt. is required to carry out various activities.

24.7 Recommendations

- i. The State Govt. should appoint an expert to conduct an in-depth survey of the State for (i) identification of all the environmentally relevant issues and their regulatory needs in terms of the manpower, infrastructure including the laboratory facilities for the required environmental monitoring / analysis for the regulatory compliance and enforcement and the related data systems, training and development and other needs and (ii) preparation of an action plan for development of the what all gets recommended under (i) above.
- ii. Review and finalization of action plan by the Govt. of Manipur in consultation with CPCB.
- iii. Implementation of the plan for development of the complete set up required for the smooth performance of the functions of the SPCB.
- iv. SPCB shall make recruitment to 47 % of the total sanctioned posts lying vacant, 58 % of which are Scientific & Technical Posts.
- v. SPCB has to immediately initiate action for treatment / disposal of 21 % of Bio-medical Waste and 42 % of municipal solid waste.
- vi. SPCB shall provide treatment to 82 % of generated sewage.
- vii. The Board should obtain NABL accreditation and Laboratory recognition under E (P) Act, 1986.

Important Information at a Glance

Number of Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
11 + (7)*	20	1	0	1	0

*Number in the bracket indicates project staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
0	0	1

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
9	1	0	10

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
1	0	70	0

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
5.09	0.00	5.09	5.42	5.43	10.85

Major Environmental Issues of Audit Concern

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
0	3	155	187	0	0

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
150	27	27	1	1	123

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
9	9	0	0	1	1	8	8

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
	(* Quantities in metric tonnes)			
352	Information not provided by SPCB			

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
146	694	760	3,639	102	102	INP	97	1140	905

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
219	127	80	47

Common Waste Treatment / Disposal Facilities

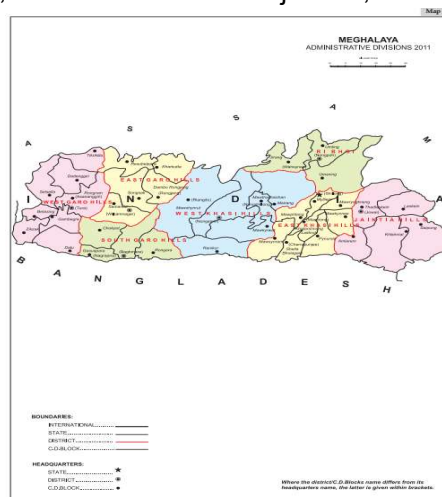
CETP	TSDF	CBMWTF	MSW Dumpsites
0	0	1	21

*

25.0 MEGHALAYA

Meghalaya State, a hilly strip in north-eastern India, covers a total area of just 22,429 sq. km. The population in the state was 3,211,000 as per 2011 Census. Meghalaya has 11 districts, divided into three divisions, Khasi Hills, Garo Hills and Jaintia Hills. Shillong, the capital of the state is a popular hill station and other towns in the State are Cherrapunjee, Tura, Nongpoh, Nongstoin, Mairang and Mankachar. Highest rainfall in the country was recorded at Cherrapunjee, also known as wettest spot in the country. The state has number of water bodies, including Bara Pani lake and rivers Simsang, Manda, Darming, Ringge, Gamol, Bugi.

It has predominantly an agrarian economy. The important crops of the state are potato, rice, maize, pineapple, banana etc. The state is also known for The service sector comprises of Real estate and Insurance companies.



Area: 22,429 km²	SEWAGE: 108 MLD
Population: 29,66,889	MUNICIPAL SOLID WASTE: 171 TPD
Districts: 11	PLASTIC WASTE: 1,263 TPA
Class-I cities: 00	HAZARDOUS WASTE: 487 TPA
Density: 132 persons/km²	BIOMEDICAL WASTE: 1,433 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 139+500
SDG Index: 54	RIVERS & CANALS: 3,194 KM
Health Index: 56.83	WATER BODIES: 0.10 Lakh Ha
Percentage share of the Nation	GDP: 0.23 Population: 0.25 Area: 0.68

25.1 Meghalaya Pollution Control Board

- i. The Board has a total staff of 95; of which 11 are Technical, 17 Scientific, 18 Project staff and 48 Administrative. The Board has one person for legal matters.
- ii. The Board has utilized 85 % of available budget (Rs. 9.82 Cr), about 25 % for the plan activities and the rest for non-plan expenses.
- iii. Meghalaya SPCB has Central Laboratory in its Head Office at Shillong and it is yet to obtain the recognition under E (P) Act, 1986 from MoEF&CC.
- iv. The SPCB has two designated Board / Govt. Analysts.
- v. The laboratory has sampling and analysis facilities for Physical Tests – 13 parameters; General & Non-Metallic - 15 parameters; Metals - 16 parameters; General and Trace Organics - 3 parameters; Microbiological Tests – 5 parameters; Ambient Air / Fugitive Emissions – 8 parameters; Stack / Source Emission – 8 parameters; Noise – 2 parameters; Meteorological – 5 parameters; Vehicular Emission – 3 parameters.
- vi. The Central Laboratory of SPCB has accreditation for four major groups of parameters i.e. Core, General, Trace Metals and Ambient Air Parameters.

25.2 Environmental Monitoring

- i. About 55 % of the districts are covered under the air quality monitoring network.
- ii. The air quality monitoring data are not analysed to enable their use in making action plans.
- iii. The state has identified river segments for their designated best use.
- iv. The water quality monitoring data are not analysed to enable their use in making action plans.
- v. The Board has very well equipped laboratory accredited by NABL.

25.3 Regulatory Setup / Mechanism

- i. The Board has identified 139 industries of red categories, 500 industries of orange category and 185 industries of green category following the CPCB guidelines. There are 22 industries of 17 categories and 2 grossly polluting industry identified along the rivers / lakes. About 55 % of the industries are having valid consents to operate.

About 95 % of 17 category industries have been complying with Environmental norms. In case of non-complying industry, show-cause notice was issued. About 80 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P)

Act, 1986 have been issued against the units which have not installed OCEMS.

Both the Grossly Polluting Industries (GPI) have been complying with Environmental norms.

- ii. The OCEMS data is used by the Board for identification of the industries for inspections / actions.
- iii. Entire quantity of sewage generated in the State about 108 MLD, remains untreated.
- iv. All the Hazardous Waste Generators have valid authorization. Out of 487 MTA quantity of generated hazardous waste, only 2 % of hazardous waste is utilized / recycled.
- v. About 88 % of the Health Care Facilities (HCFs) who applied for authorization under the Bio-Medical Waste Management Rules have been issued authorization. All the waste generated is being treated and disposed through CBMWTF and one facilities which have not installed online continuous emission monitoring systems (OCEMS).
- vi. MSW generation in the state is estimated to be 171 TPD. 100 % of MSW is collected, only 5 % of the collected waste is treated and the remaining 95 % waste is landfilled.
- vii. Meghalaya SPCB has received only 3 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. SPCB has reported that there are 1 CBMWTF and 6 MSW Dumpsites in the state.
- ix. There were 231 industries needed ETPs, 190 industries had functional ETPs and all were complying with environmental norms. The 41 industries operating without ETPs, SPCB has issued show-cause notices to 12 industries, closure directions to 20 industries, legal case filed against 2 industries and action was under process against 7 industries.
- x. There is 1 non-attainment city (Byrnihat) in the state.

25.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 77 % of public complaints addressed in stipulated time.
- ii. Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iii. The State Environmental Status Report has been prepared.
- iv. Public Hearing Proceedings by SPCB are displayed on website.
- v. SPCB has organised stakeholder meeting / Awareness for new environmental Rules / Standards amended from time to time.

- vi. SPCB has provided citizen's charter.
- vii. The State has not notified Environmental Policy; however, State has industrial siting policy / criteria.
- viii. SPCB has prescribed guidelines for green belt development in industrial premises.

25.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iv. SPCB has limited R & D activities and tied up with State / Central institutes conducting R & D in the field of environmental pollution.

25.6 Areas of Attention

- i. Meghalaya State Pollution Control Board has its own Laboratory cum Office Building. The laboratory is NABL Accredited for Core parameters, General Parameters and Trace metals in water quality and NAAQS parameters in Ambient Air.
- ii. Meghalaya SPCB needs to improved documentation, publication, record maintenance.
- iii. Development and operation of common facilities for Wastes management was inadequate and more efforts needed.

25.7 Recommendations

- i. SPCB shall make recruitment to 35 % of the total sanctioned posts lying vacant, 52 % of which are Scientific & Technical Posts. The State Government should grant all approvals for the recruitment of the staff required by the State Board and provide funds.
- ii. SPCB has to immediately initiate action for treatment / disposal of 98 % of its hazardous waste.
- iii. The State Govt. / SPCB should take necessary steps in treating 108 MLD of sewage and utilizing of treated sewage generation.
- iv. The Inventorization of all wastes, including e-waste should be strengthened to obtain credible data so as to plan an effective management.
- v. The Board should prepare its action plans starting from the year 2020-21 for attending the issues listed in this report and the gaps in the implementation of the various rules notified under the E (P) Act, 1986.

Important Information at a Glance

Number of Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
28 + (18)*	48	1	0	0	0

*Number in bracket indicates project staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	No	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
1	4	1	6

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
10	0	81	0

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
9.82	0.00	9.82	2.40	5.93	8.33

Major Environmental Issues of Audit Concern

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
22	139	500	185	-	2

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. Of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
108	0	0	0	0	108

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
7	7	2	2	0	0	5	5

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
19	487	9	0	INP

INP-Information not provided

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted Authorization	Total No. of HCFs in operation without Authorization			
177	632	809	6,716	438	385	371	22	1,433	1,433

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
171	171	9	162

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
NIL	NIL	1	6

Non- Attainment (Air Polluted) Cities

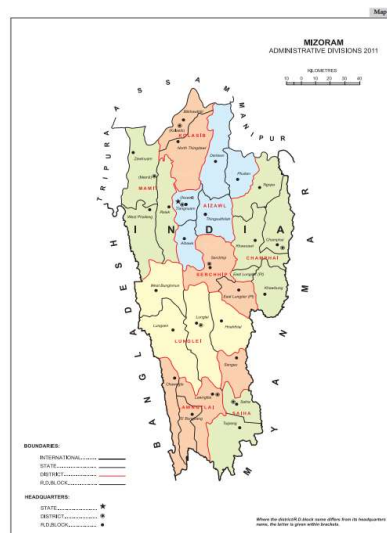
S. No.	Name
1	Byrnihat

*

26.0 MIZORAM

Mizoram is one of the seven north-eastern states of India and is enclosed by Myanmar, Bangladesh, Manipur, Assam and Tripura. The Mizo Hills, which dominate the state's topography, rise to more than 6560 feet near the Myanmar border. Aizawl, the state capital, is 4000 feet above sea level. The State has a population of 1,097,206 as per 2011 Census and an area of 21,081 square kilometre. The state is divided into 8 districts. Some of the local rivers are Tlwang, Tlau, Chhimtuipui, Tuichang and Tuiria.

About three-fourths of the population earns their livelihood from agriculture. Paddy, maize, mustard, sugarcane, sesame, fibre-less ginger and potatoes are the other prominent crops grown in this area. Small-scale irrigation projects are being developed to increase the crop yield. There are no major industries in the state. Small-scale industries include sericulture, handloom and handicrafts industries, sawmills and furniture workshops, oil refining, grain milling, and ginger processing. The service sector comprises of Tourism, Real Estate and Insurance.



Area: 21,081 km²	SEWAGE: 102 MLD
Population: 10,97,206	MUNICIPAL SOLID WASTE: 251 TPD
Districts: 08	PLASTIC WASTE: 13 TPA
Class-I cities: 00	HAZARDOUS WASTE: 0.02 TPA
Density: 52 persons/km²	BIOMEDICAL WASTE: 831 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 51+212
SDG Index: 56	RIVERS & CANALS: 1,750 KM
Health Index: 73.70	WATER BODIES: 0.02 Lakh Ha
Percentage share of the Nation	GDP: 0.11 Population: 0.09 Area: 0.64

26.1 Mizoram Pollution Control Board

- i. Mizoram SPCB has a total manpower of 41; of which 02 are Technical, 01 Scientific, 27 Project staff and 8 Administrative. The SPCB has 04 staff for ENVIS in supporting streams.
- ii. The Board has utilized 68 % of available budget (Rs. 5.50 Cr), about 43 % for the plan activities and about 25 % for non-plan activities during the FY 2018-19.
- iii. Mizoram SPCB has Central Laboratory in its Head Office at Aizawl.
- iv. The Central Laboratory of SPCB does not have recognition under E (P) Act, 1986 from MoEF&CC and also not initiated accreditation.
- v. The laboratory has sampling and analysis facilities for 20 physico-chemical and coliform parameters. Samples are sent to CPCB for analysis of heavy metals and pesticides.

26.2 Environmental Monitoring

- i. Half of the districts in the State are covered under the air quality monitoring network. The air quality monitoring data are reviewed for their use in making control plans.
- ii. River segments have been identified for their designated best use through a monitoring network of 46 out of total locations of 76. The water quality monitoring data is reviewed for their use.

26.3 Regulatory Setup / Mechanism

- i. The Board has reported to have identified 51 industries of red categories, 212 industries of orange category, 404 industries of green category and 33 industries of white category following the CPCB guidelines. About 95 % of the industries are having valid consents to operate.
- ii. All the sewage generated in the state is reported as not being treated and the quantity remains untreated is about 102 MLD.
- iii. All the Hazardous Waste Generators have valid authorization. Out of 0.2 MTA quantity of generated hazardous waste, about 50 % of hazardous waste is utilized / recycled.
- iv. All the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. All the waste generated is being treated and disposed through CBMWTFs.

Show-cause notices / Directions have been issued by SPCB to all the HCFs / CBWTFs violating environmental norms.
- v. MSW generation in the state was estimated as 251 TPD. Out of which, about 85 % of MSW is collected, only 14 % of the collected waste is treated.

- vi. Mizoram SPCB has received about 67 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- vii. SPCB has reported that there are 23 MSW Dumpsites in the state.
- viii. There were 59 industries needed ETPs and 55 industries had functional ETPs complying with environmental norms. Action was under process against 4 industries operating without ETPs.

26.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system 95 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. Public Hearing Proceedings by SPCB are displayed on website.
- v. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vi. State has Environmental Policy and has advised State Govt. on Policy Issues on Environment.
- vii. State has industrial siting policy / criteria.
- viii. There are State Level Monitoring Committees on Environmental issues.

26.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programme.
- iii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iv. SPCB has its own R & D activities.
- v. SPCB has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

26.6 Areas of Attention

- i. Poor implementation of waste management rules due to shortage of manpower and fund.
- ii. The Mizoram Board has got own laboratory cum office building. The laboratory needed upgradation and NABL accreditation.
- iii. The Board has good support from public in general and from local NGOs.
- iv. Good documentation of various works being carried out.

26.7 Recommendations

- i. The State Government should grant all approvals for the recruitment of the staff required by the State Board and provide funds.
- ii. The SPCB should prepare its action plans starting from the year 2020-21 for attending the issues listed in this report and the gaps in the implementation of the various rules notified under the E(P) Act, 1986.
- iii. SPCB is required to provide information on municipal solid waste disposed in landfill sites.
- iv. 102 MLD of sewage shall be subjected to appropriate treatment at the earliest possible time.
- v. The Board should obtain valid NABL accreditation and Laboratory reorganization under E(P) Act, 1986.

Important Information at a Glance

Number of Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation	ENVIS
3 + (27)*	8	0	0	0	0	4

*Number in the bracket indicates project staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
1	0	0

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
1	1	0	2

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
11	0	76	0

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
5.50	0.00	5.50	2.37	1.34	3.72

Major Environmental Issues of Audit Concern

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
-	51	212	404	33	NIL

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
102	10	0	1	0	102

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
9	9	0	0	0	0	9	9

Hazardous Waste Generation and Management (2018-19)

No. of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
37	0.02	0.01	0	0.01

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
102	14	116	3,295	23	23	1	Nil	831	831

Municipal Solid Waste (MSW) Management

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
251	213	29	INP

INP = Information not provided

Common Waste Treatment / Disposal Facilities

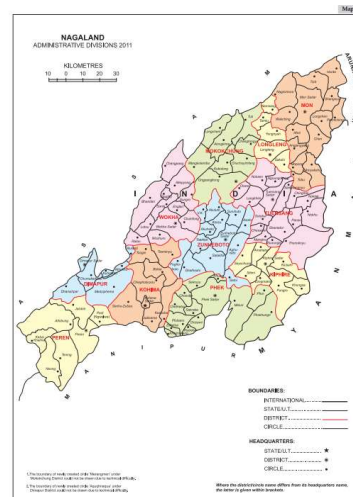
CETP	TSDF	CBMWTF	MSW Dumpsites
NIL	NIL	NIL	23

*

27.0 NAGALAND

Nagaland is the farthest lying state in northeast and spread over 16,579 square kilometre. The State is surrounded by Assam, Arunachal Pradesh, Manipur and Myanmar. It has a population of 1,978,502. Some of the local important rivers are Milak, Barak, Dhansiri, Oyang, Dikhu, Zungki and Tizu. It is a largely mountainous state. The state is divided into seven districts: Kohima, Phek, Mokokchung, Wokha, Zunheloto, Twensang and Mon.

Agriculture is the most important economic activity in Nagaland. Principal crops include rice, corn, millets, pulses, tobacco, oilseeds, sugarcane, potatoes and fibres. Other economy boosters are Forestry, Cottage industries, Insurance, Real estate and Tourism.



Area: 16,579 km²	SEWAGE: 104 MLD
Population: 19,78,502	MUNICIPAL SOLID WASTE: 340 TPD
Districts: 11	PLASTIC WASTE: 268 TPA
Class-I cities: 00	HAZARDOUS WASTE: 20 TPA
Density: 119 persons/km²	BIOMEDICAL WASTE: 632 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 79+412
SDG Index: 57	RIVERS & CANALS: 1,600 KM
Health Index: 37.38	WATER BODIES: 0.53 Lakh Ha
Percentage share of the Nation	GDP: 0.19 Population: 0.16 Area: 0.50

27.1 Nagaland Pollution Control Board

- i. Nagaland SPCB has a total staff of 29; of which 08 are Technical & Scientific manpower, 12 Project staff and 9 Administrative officials.
- ii. The existing manpower is not adequate for performance of the board's functions and implementation of the Environment Acts / Rules.
- iii. Nagaland SPCB utilized about 55 % of total budget allotted for Rs. 2.46 Cr on non-plan activities during the FY 2018-19. However, expenditure for the plan activities is shown as Nil.
- iv. Nagaland SPCB has Central Laboratory in its Head Office at Dimapur.
- v. Central Laboratory of SPCB does not have recognition under E (P) Act, 1986 and NABL Accreditation. There are no designated Board / Govt. Analysts.
- vi. The laboratory has sampling and analysis facilities for noise, Air – PM₁₀, SO₂, NO_x; Water – pH, TDS, Conductivity, Turbidity, Nitrate, Ammonical Nitrogen, Total Hardness, Calcium Hardness, Magnesium Hardness, Sulphate, Phosphate, Boron, Temperature, DO, BOD, COD, Alkalinity, Chloride, Fluoride, Iron, Potassium, Arsenic, Chromium, Lead, Zinc parameters.

27.2 Environmental Monitoring

- i. The State has limited Air Quality Monitoring network and the data so generated is not analysed by the Board.
- ii. Similarly, the water quality monitoring network is limited for only some water bodies and the generated data is not analysed.

27.3 Regulatory Setup / Mechanism

- i. The Board has reported to have identified 79 industries of red category, 412 industries of orange category, 473 industries of green category and 69 industries of white category following the CPCB guidelines. About 97 % of the industries are having valid consents to operate.
- ii. The OCEMS data is not used by the Board for identification of the industries for inspections / actions.
- iii. State has been reported that the entire quantity of 104 MLD sewage remains untreated.
- iv. All the Hazardous Waste Generators have valid authorization. Out of 20 MTA quantity of generated hazardous waste, about 50 % of hazardous waste is utilized / recycled.
- v. All the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued

authorization. Entire waste generated is being treated and disposed through CBMWTFs.

- vi. MSW generation in the state was estimated as 340 TPD. Out of which, about 64 % of MSW is collected, about 63 % of the collected waste is treated and only about 10 % of total waste is landfilled.
- vii. Nagaland SPCB has not received half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. SPCB has reported that there are 13 MSW Dumpsites in the state.
- ix. There were 29 industries needed ETPs and 25 industries had functional ETPs, complying with environmental norms. Action was under process against 4 industries operating without ETPs.
- x. There are and two non-attainment cities (Dimapur, Kohima) in the state.

27.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 100 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data and Technical Reports prepared by SPCB are displayed on website.
- iv. Environmental Status report has been prepared.
- v. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vi. SPCB has provided citizen's charter.
- vii. The state has not notified Environmental Policy and also has no criteria notified for siting industries.
- viii. SPCB has prescribed guidelines for green belt development in industrial premises.

27.5 Capacity Building & Initiatives

- i. Nagaland SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB doesn't have its own R & D activities but has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

27.6 Areas of Attention

- i. All documents are made available for public through newspaper, booklets and display in official website.

- ii. Built polymer-bitumen Road within the office complex, to demonstrate the use of waste plastic materials.
- iii. The NPCB is having Laboratory capable of monitoring core, general of water and PM₁₀, SO₂, NO₂ etc. in Air. It needed NABL accredited or recognised by MoEFCC under EPA.
- iv. Maintained good documentation system regarding environmental issues and involved in publications on regular basis.

27.7 Recommendations

- i. The Nagaland State Government should grant all approvals for the recruitment of the staff required by the State Board.
- ii. SPCB shall make budget allocation & plan for spending on mandated functions which was reported as NIL at the time of Audit.
- iii. The SPCB should prepare its action plans starting from the year 2020-21 for attending the issues listed in this report and the gaps in the implementation of the various rules notified under the E (P) Act, 1986.
- iv. SPCB has to immediately initiate action for treatment / disposal of 50 % of its hazardous waste and 50 % of municipal solid waste.
- v. 104 MLD of sewage shall be subjected to appropriate treatment at the earliest possible time.
- vi. The Board should obtain NABL accreditation and Laboratory recognition under E(P) Act, 1986 from MoEF&CC.

Important Information at a Glance

Number of Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
8 + (12)*	9	0	0	0	0

*Number in the bracket indicates project staff.

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	No	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
0	0	0	0*

* 4 Vehicles for Transport have been reported in Audit Questionnaire

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water		Total
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS	
9	0	28	0	37

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
2.46	0.00	2.46	0.00	1.33	1.33

Major Environmental Issues of Audit Concern Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
NIL	79	412	473	69	NIL

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
104	0	0	0	0	104

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
6	6	1	1	0	0	5	5

Hazardous Waste Generation and Management (2018-19)

No. of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
1	20	10	0	10

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
64	104	168	2,423	168	168	Nil	Nil	632	632

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
340	217	136	34

Common Waste Treatment / Disposal Facilities

CETP	TSDf	CBMWTF	MSW Dumpsites
NIL	NIL	NIL	13

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Dimapur
2	Kohima

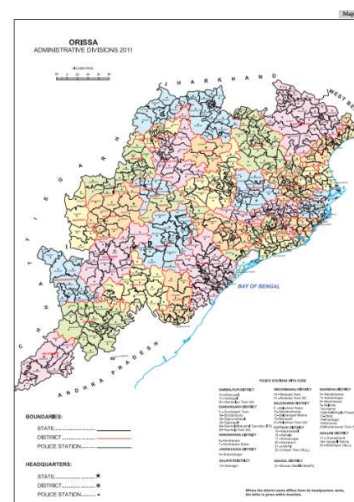
*

28.0 ODISHA

The major rivers of Odisha are Mahanadi, Kathajodi, Brahmani, Baitarani, Budhabalanga, Rushikulya, Vanshadhara, Bahuda, Nagavali, Kolab, Indravati, Salandi, and Tel. In addition, there are a number of lakes in the state such as the Chilka Lake, Pata Lake, Anshupa Lake, Indravati Dam, and Hirakud Dam. The capital of Orissa or Odisha is Bhubaneswar.

The total area of the state is 155,820 square kilometres. According to the census conducted in 2011, the population of was 4,19,47,358. In terms of population, the state is the eleventh biggest state in India and in terms of area, it holds the ninth rank.

The state houses a strong economy with plenty of natural resources and an extensive shoreline. The state is rich in natural resources like coal, bauxite, iron ore, and chromite. Steel manufacturing is a major industry in the state. Other industries include transportation, oil refinery, power, information technology and aluminium.



Area: 1,55,707 km²	SEWAGE: 1,273 MLD
Population: 4,19,74,218	MUNICIPAL SOLID WASTE: 2,564 TPD
Districts: 30	PLASTIC WASTE: 90,139 TPA
Class-I cities: 01	HAZARDOUS WASTE: 9,25,880 TPA
Density: 270 persons/km²	BIOMEDICAL WASTE: 14,564 KG/DAY
Water Management Index: 39	INDUSTRIES (RED+ORANGE): 1,488+3,322
SDG Index: 58	RIVERS & CANALS: 7,219 KM
Health Index: 35.97	WATER BODIES: 4.92 Lakh Ha
Percentage share of the Nation	GDP: 2.91 Population: 3.47 Area: 4.74

28.1 Odisha Pollution Control Board

- i. Odisha SPCB has a total staff of 205; of which 40 are Technical, 38 Scientific, 91 Project staff and 29 Administrative. The SPCB has also staff in supporting streams of law, training, IT and public relations.
- ii. The existing manpower is not adequate and necessary action needs to be taken to rework the manpower requirement considering the Regulatory requirements.
- iii. The Board has utilized 89 % of available budget (Rs 55.95 Cr) during the FY 2018-19, about 14 % for the plan activities and the rest for non-plan expenses.
- iv. The Board has Central Laboratory in its Head Office at Bhubaneswar. SPCB has arrangement with 4 private laboratories for analytical support and it has 11 Regional Laboratories for its 12 Regional Offices.
- v. Central Laboratory as well as 11 Regional Laboratories do not have recognition under E (P) Act, 1986 from MoEF&CC. Board notified 23 analysts under Water Act and 10 under Air Act.
- vi. The laboratory has sampling and analysis facilities for Physical Tests – 10 Mandatory, 4 Secondary parameters; General & Non-Metallic - 13 Mandatory, 5 Secondary parameters; Metals - 15 Mandatory, 4 Secondary parameters; General and Trace Organics - 5 Mandatory, 5 Secondary parameters; Microbiological Tests - 4 Mandatory, 3 Secondary parameters; Toxicological Tests - 1 Mandatory, 1 Secondary parameters; Biological Tests - 7 parameters; Hazardous Waste – 4 parameters; Soil / Sludge / Sediment and Solid Waste - 15 Mandatory, 14 Secondary parameters; Ambient Air / Fugitive Emissions – 4 Mandatory; 9 Secondary parameters Stack / Source Emission – 8 Mandatory, 6 Secondary parameters Noise – 3 parameters; Meteorological – 4 Mandatory, 2 Secondary parameters; Vehicular Emission – 3 parameters.
- vii. SPCB Laboratory does not have NABL Accreditation for any of the major group of parameters.

28.2 Environmental Monitoring

- i. The State has good network of ambient air and water quality monitoring.
- ii. The air and water quality monitoring data is reviewed and used for various purposes including plans for abatement of pollution.
- iii. The OCEMS data is used for identification of industries for inspections / actions.
- iv. OSPCB has launched a Star Rating Programme (one star to five star) of the Industries based on Online Continuous Emission Monitoring System data coming to the Real Time Data Acquisition Central Server of the Board in collaboration with EPIC (Energy Policy Institute of University of Chicago).

- v. The Odisha Board has developed Geo Database for Environmental Mapping and Web based GIS application in critically polluted areas of Odisha for decision support system of the Board.
- vi. The Central Laboratory of the Board is well equipped with many sophisticated instruments and having adequate accommodation for housing instruments, glassware, chemicals and supporting accessories.
- vii. A dedicated coastal laboratory developed by the Board is functioning at the Paradeep under ICZMP.
- viii. The Marine Vessel (MV) is developed and is used to carryout on-board monitoring to characterize sea water and sediments.

28.3 Regulatory Setup / Mechanism

- i. The Board has identified 1,488 industries of red categories; 3,322 industries of orange category and 1,665 industries of green category following the CPCB guidelines. There are 146 industries of 17 categories and 6 grossly polluting industry identified along the rivers / lakes. About 86 % of the industries are having valid consents to operate.
- ii. All 17 category industries have been complying with Environmental norms. About 87 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.
- iii. All the Grossly Polluting Industries (GPI) have been complying with Environmental norms.
- iv. The OCEMS data is used by the Board for identification of the industries for inspections / actions.
- v. About 97 % of the sewage generated in the state is reported as not being treated and the quantity of sewage untreated is about 1,240 MLD.
- vi. About 80 % of STPs are complying with environmental norms and the remaining non-complying STPs were issued show cause notices.
- vii. All the Hazardous Waste Generators have valid authorization. Out of 9,25,880 MTA quantity of generated hazardous waste, about 63 % of hazardous waste is utilized / recycled and about 7 % of waste is disposed through TSDFs.
- viii. About 80 % of the Health Care Faculties (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. Entire waste generated is being treated and disposed through CBMWTFs. Out of 5 facilities, only 1 has installed online continuous emission monitoring systems (OCEMS).
- ix. Show-cause notices / Directions have been issued by Odisha SPCB to all the HCFs / CBWTFs violating environmental norms.

- x. MSW generation in the state was estimated as 2,564 TPD. Out of which, about 88 % of MSW is collected, only 4 % of the collected waste is treated and about 84 % of total waste is landfilled.
- xi. SPCB has received 100 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xii. SPCB has reported that there are 1 TSDF, 5 CBMWTFs and 18 MSW Dumpsites in the state.
- xiii. There were 1,180 industries needed ETPs and 1,133 industries had functional ETPs. Out of 47 industries operating without ETPs, SPCB has issued show cause notices to 13 industries, closure directions to 29, legal case against one industry and action was under process against 4 industries.
- xiv. Out of 59 industries non-complying with the environmental norms, show-cause notices were issued to 48 industries, closure directions to 8 and action was under process against 3 industries.
- xv. There are 2 severely polluted industrial clusters (IB Valey, Paradeep) and 7 non-attainment cities (Angul, Balasore, Bhubaneswar, Cuttack, Rourkela, Talcher & Kalinga Nagar) in the state.

28.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 74 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State Environmental Status Report has been prepared.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / Awareness for new environmental Rules / Standards amended from time to time.
- vii. SPCB has provided citizen's charter.
- viii. There are success stories displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- ix. The State has not notified Environmental Policy; however, it has notified industrial siting policy / criteria.
- x. SPCB has advised State Govt. on Policy Issues on Environment.

28.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.

- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has conducted studies on impact of pollution on human health / ecosystems.
- iv. SPCB has its own R & D activities.
- v. SPCB has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

28.6 Areas of Attention

- i. The Board has developed Geo Database for Environmental Mapping and Web base GIS application in critically polluted areas of Odisha for decision support system of the Board.
- ii. The State has made provision for Septage Management for domestic waste water (480 KLD) by Faecal Sludge Treatment Plant (FSTP).
- iii. The coastal laboratory developed by the Board is functioning at Paradeep under ICZMP, The Marine Vessel (MV) is developed and is in operation to carryout on-board monitoring to characterize sea water and sediments.
- iv. SPCB has conducted Heat Island Studies in the Critically Polluted Areas of the State.
- v. OSPCB has launched a Star Rating Programme (one star to five star) of the industries based on Online Continuous Emission Monitoring System data coming to the Real Time Data Acquisition Central Server of the Board in collaboration with EPIC (Energy Policy Institute of University of Chicago).

28.7 Recommendations

- i. SPCB shall make recruitment to 34 % of the total sanctioned posts lying vacant, 45 % of which are Scientific & Technical Posts. The State Government should grant necessary approvals for the recruitment of the staff required by the Odisha State Board and provide funds.
- ii. SPCB shall make plan for increasing its spending on Plan activities which was only 14 % of its annual budget in 2019.
- iii. SPCB has to immediately initiate action for treatment / disposal of 30 % of its hazardous waste.
- iv. SPCB shall provide treatment to 97 % of its generated sewage.
- v. The Inventorization of e-waste generation though it is a dynamic process, should be strengthened to obtain credible data so as to plan an effective management solution.
- vi. The Board shall obtain NABL Accreditation for Core, General & Trace Metals Parameters of Water Quality and NAAQS Parameters in Ambient Air for its Laboratories.

- vii. The Board shall renew Laboratory recognition under E(P) Act, 1986 from MoEF&CC.
- viii. The SPCB should prepare its action plans starting from the year 2020-21 for attending the issues listed in this report and the gaps in the implementation of the various rules notified under the E (P) Act, 1986.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	12	0	13

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
78 + (91)*	29	2	1	2	2

*Number in the bracket indicates project staff.

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
23	2	1	26

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
39	3	212	3

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
62.75	311.25	374.00	7.91	48.04	55.95

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
146	1,488	3,322	1,665	-	6

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
1273	375.35	33.3	16	3	1239.7

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
19	19	1	1	0	0	18	18

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
360	9,25,880	5,81,525	64,452	2,63,069

Bio-medical Waste Management (As on March, 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for Authorization	Total No. of HCFs granted Authorization	Total No. of HCFs in operation without Authorization			
1,443	1,816	3,259	44,865	860	697	Nil	609	14,564	14,564

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
2,564	2,255	92	2,164

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
0	1	5	18

Polluted Industrial Cluster (S)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
-	IB Valley (66.35), Paradeep (60.61)

Non- Attainment (Air Polluted) Cities

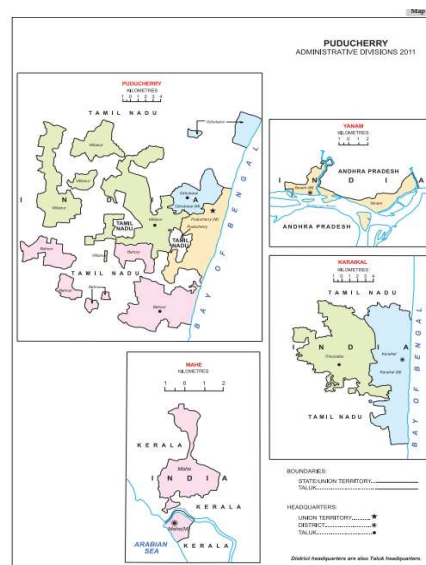
S. No.	Name
1	Angul
2	Balasore
3	Bhubaneswar
4	Cuttack
5	Rourkela
6	Talcher
7	Kalinga Nagar

*

29.0 PUDUCHERRY

The Union Territory of Puducherry is spread over 479 square kilometres with a population of 12,44,464. The UT has a long coastline of 45 kilometres. Puducherry city is the capital of the Union Territory. The territory of this former French Colony has four administrative districts of Puducherry, Karaikal, Mahe, and Yanam. All the districts are located in coastal areas and are unconnected pockets or enclaves embedded in the surrounding states. Karaikal district lies in the south of Puducherry on the East coast within the state of Tamil Nadu. Whereas Mahe, the smallest district is located on the Western Ghats. It lies in the Malabar Coast in Kerala, 603 kilometres away from Puducherry. Yanam district lies on the coast of Andhra Pradesh, 807 kilometres from Puducherry.

Various streams girdle the district such as Gingee, Mallatar, Chunambar which originate from the adjacent state of Tamil Nadu. Gingee, a seasonal river originates in the Villupuram district of Tamil Nadu and flows into the Bay of Bengal.



Area: 335 km²	SEWAGE: 155 MLD
Population: 395,200	MUNICIPAL SOLID WASTE: 599 TPD
Districts: 04	PLASTIC WASTE: 8,433 TPA
Class-I cities: 00	HAZARDOUS WASTE: 35,650 TPA
Density: 2,457 persons/km²	BIOMEDICAL WASTE: 4,320 KG/DAY
Water Management Index: 39	INDUSTRIES (RED+ORANGE): 132+1,336
SDG Index: 66	RIVERS & CANALS: 247 KM
Health Index: 49.69	WATER BODIES: 0.01 Lakh Ha
Percentage share of the Nation	GDP: 0.22 Population: 0.10 Area: 0.01

29.1 Puducherry Pollution Control Committee

- i. Puducherry PCC has a total staff of 12; of which 7 are Technical & Scientific, 05 Project staff and no staff in Administration. The PCC has also staff in supporting streams of law, training, IT and public relations.
- ii. The PCC has utilized entire budget (Rs 2.75 Cr), about 30 % for the planned activities and remaining for non-plan activities during the FY 2018-19.
- iii. Puducherry PCC has Central Laboratory in its Head Office. PCC has one Regional Laboratory in its lone Regional Office.
- iv. Central Laboratory and the regional laboratory do not have recognition under E (P). Act, 1986 from MoEF&CC. PCC has designated three Board Analysts.
- v. The laboratory has sampling and analysis facilities for 28 Physico-Chemical parameters and 22 pesticides. The PCC has made arrangements with outside laboratories for other parameters.
- vi. The PCC Laboratory has NABL Accreditation for three major group of parameters i.e. Core, General and NAAQS.

29.2 Environmental Monitoring

- i. All the UT area is covered under air quality monitoring network. However, all six NAMP stations are not equipped with PM_{2.5} monitoring facility. It was suggested to take immediate initiatives to monitor the same.
- ii. River segments have been identified for best use.
- iii. Green Skill Development Programme (GSDP) has been conducted for 20 participants in the area of water and air pollution monitoring systems
- iv. Laboratory is not equipped with facilities for the analysis of trace metals and microbial parameters.

29.3 Regulatory Setup / Mechanism

- i. The PCC has reported to have identified 132 industries of red category; 1,336 industries of orange category, 2,209 industries of green category and 71 industries of white category following the CPCB guidelines. There are 04 industries of 17 categories and 3 grossly polluting industries identified along the rivers / lakes. About 63 % of the industries are operating with valid consents.
- ii. About 67 % of 17 category industries have been complying with Environmental norms. In case of non-complying industries, closure directions have been issued by PCC. About 57 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of

Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.

- iii. All the three Grossly Polluting Industries (GPI) have been complying with Environmental norms.
- iv. The OCEMS data is being used by the Puducherry PCC for identification of the industries for inspections / actions.
- v. About 44 % of the sewage generated in the state is reported as being treated. The quantity of sewage that remains untreated is about 87 MLD. 100 % of STPs are complying with environmental norms.
- vi. About 70 % of the Hazardous Waste Generators have valid authorization. Out of 35,650 MTA quantity of generated hazardous waste, about 33 % of hazardous waste is utilized / recycled and about 5 % of waste is disposed through TSDFs.
- vii. About 86 % of the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. All the waste generated is being treated and disposed through CBMWTF and it has installed online continuous emission monitoring systems (OCEMS).
- viii. Show-cause notices / Directions have been issued by PCC to all the HCFs / CBWTFs violating environmental norms.
- ix. MSW generation in the state was estimated as 599 TPD. Out of which, about 84 % of MSW is collected, only 5 % of the collected waste is treated and about 80 % of total waste is landfilled.
- x. PCC has received only 14 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xi. PCC has reported that there are 1 CBMWTF and 3 MSW Dumpsites in the UT.
- xii. There were 94 industries needed ETPs, 91 industries had functional ETPs and 3 industries were operating without ETPs. PCC has issued show cause notice / directions to all three industries operating without ETPs. Out of 8 industries non-complying with the environmental norms, show-cause notices were issued to 4 industries, closure directions to 1 and action was under process against 3 industries.

29.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. PCC has public grievance registration and redressal system 93 % of public complaints addressed in stipulated time.
- ii. PCC has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by PCC are displayed on website.

- iv. Environmental Status Report has been prepared for the UT.
- v. Public Hearing Proceedings by PCC are displayed on website.
- vi. Puducherry PCC has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. PCC has provided citizen's charter.
- viii. UT has industrial siting policy / criteria.

29.5 Capacity Building & Initiatives

- i. PCC conducts orientation programme for newly recruited staff.
- ii. PCC organized mass awareness / education programme.
- iii. PCC has conducted studies on impact of pollution on human health / ecosystems.
- iv. PCC has limited R & D activities and tied up with State / Central institutes conducting R & D in the field of environmental pollution.

29.6 Areas of Attention

- i. In Puducherry, there is no critically polluted area, contaminated site and non-attainment cities which indicates better pollution control and monitoring by PPCC.
- ii. Restoration of beach to prevent erosion has been carried out in collaboration with National Institute of Ocean Technology (NIOT), Chennai.
- iii. Manufacture, supply, stock, distribution, transport, use and sale of five items of single use and throw plastics have been banned in the UT since December 2009.
- iv. Environmental awareness and public participation programmes have been well organized and frequently conducted.
- v. Rejuvenation of 32 Nos. of ponds and 20 Nos. of tanks in the urban areas and villages to increase the ground water recharge have been undertaken since three years.
- vi. Green Skill Development Programme (GSDP) has been conducted for 20 participants in the area of water and air pollution monitoring systems.
- vii. Green Initiative Protocol has been prepared in collaboration with Pondicherry University for promoting the Environmental Sustainability in Educational Institutions, Industries and communities through Puducherry Climate Change cell formed in 2018.
- viii. Environmental awards are instituted to encourage NGOs and individuals who performed exceptional works towards environmental protection.

- ix. Frequency of wastewater sampling and ambient air quality survey in industries needed to increase by following the CPCB guidelines.
- x. Issue of CTO, Authorization under Hazardous waste and Biomedical waste within the stipulated period is observed to be as low as 28 %, 33 % and 47 %, respectively.

29.7 Recommendations

- i. PCC shall make recruitment on 25 % of the total sanctioned posts lying vacant, all of which are Scientific & Technical Posts. The Government should grant all approvals for the recruitment of the staff required by the PCC.
- ii. PCC has to immediately initiate action for treatment / disposal of 62 % of its hazardous waste.
- iii. PCC shall provide treatment to 56 % of its generated sewage.
- iv. The Inventorization of all wastes, though it is a dynamic process, should be strengthened to obtain credible data so as to plan for an effective management.
- v. The Puducherry PCC should prepare its action plans starting from the year 2020-21 for attending the issues listed in this report and the gaps in the implementation of the various rules notified under the E (P) Act 1986.
- vi. The PCC should obtain valid NABL accreditation for all the parameters and Laboratory reorganization under E (P) Act, 1986 from MoEF&CC.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	1	0	2

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
7 + (5)*	0	1	1	2	1

*Number in the bracket indicates project staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
1	1	0	2

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
6	0	34	0

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
2.75	12.71	15.46	0.81	1.95	2.76

**Major Environmental Issues of Audit Concern
Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
6	132	1,336	2,209	71	3

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
155	69	67	6	6	87

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
2	2	0	0	0	0	2	2

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
129	35,650	11,809	1,717	2,805

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
86	108	242	12,112	208	178	34	437	43,19.8	5,834

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
599	505	24	481

Common Waste Treatment / Disposal Facilities

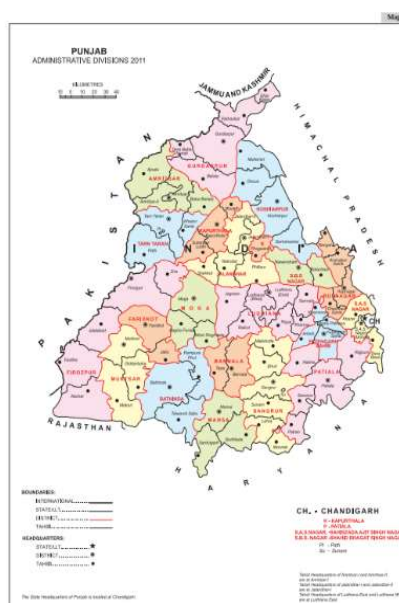
CETP	TSDf	CBMWTF	MSW Dumpsites
0	0	1	3

*

30.0 PUNJAB

Punjab is situated in the north-western corner of the country. It is bound on the north by the Indian state of Jammu and Kashmir, on the east by Himachal Pradesh and the Union Territory of Chandigarh, on the south by Haryana and Rajasthan, and on the west by Pakistan. The state of Punjab has 22 districts is divided into three regions namely Malwa, Majha and Doaba.

The city of Chandigarh is the administrative capital of Punjab. Agriculture is the main occupation of the people of Punjab and forms the backbone of the state economy. The principal industries include the manufacture of textiles, sewing machines, sporting goods, starch, fertilizers, bicycles, scientific instruments, electrical goods, and machine tools, and the processing of sugar and pine oil. Punjab is one of the most prosperous states in the country.



Area: 50,362 km²	SEWAGE: 1,891 MLD
Population: 2,77,43,338	MUNICIPAL SOLID WASTE: 4,634 TPD
Districts: 22	PLASTIC WASTE: 1,19,415 TPA
Class-I cities: 02	HAZARDOUS WASTE: 1,22,088 TPA
Density: 551 persons/km²	BIOMEDICAL WASTE: 15.98 TPD
Water Management Index: 52	INDUSTRIES (RED+ORANGE): 4,273+12,654
SDG Index: 62	RIVERS & CANALS: 15,270 KM
Health Index: 63.01	WATER BODIES: 0.07 Lakh Ha
Percentage share of the Nation	GDP: 3.38 Population: 2.29 Area: 1.53

30.1 Punjab Pollution Control Board

- i. The State Board has Central Office in Patiala, 07 zonal offices and 14 regional offices.
- ii. State has 43 general purpose vehicles but no vehicles are dedicated for sampling and monitoring.
- iii. State has 145 Technical & Scientific manpower, 3 Project staff and 115 administrative staff. The SPCB has also staff in supporting streams of law and IT.
- iv. State had Annual Budget of Rs. 89.27 Cr in FY 2018-19 and Reserve Funds of Rs. 142.55 Cr in terms of FDs. State had plan expenditure of Rs. 74.81 Cr and details of non-plan expenditure were not available during the audit period.
- v. Its Central Laboratory is located in Patiala and 2 regional laboratories at Ludhiana and Jalandhar.
- vi. Central Laboratory of SPCB has recognition under E (P) Act, 1986 from MoEF&CC, valid up to 18-06-2022. However, the regional laboratories have not taken recognition.
- vii. SPCB has six designated Board Analysts.
- viii. The central laboratory has sampling and analysis facilities for 33 Physico-Chemical parameters, 12 Pesticides, 20 Heavy Metals and 3 Biological parameters.
- ix. SPCB Laboratory has NABL Accreditation for three major group of parameters i.e. Core, General Parameters and Trace Metals.

30.2 Environmental Monitoring

- i. State has 48 Air Quality Monitoring Stations and 6 Continuous Ambient Air Quality Monitoring Stations (CAAQMS). 82 % of the districts in the State have Air Quality Monitoring Stations, but only 11 % of those have facility for PM_{2.5} monitoring. State has its own network of Air Quality Monitoring Stations and shares Air Quality Data with CPCB.
- ii. State has observed improvement in Air Quality with respect to PM₁₀ (decrease of 9 %) and PM_{2.5} (decrease of 23 %) in FY 2018-19 when compared to FY 2017-18. Board has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB and to enable their use in planning of control measures. However, state has not prepared action plans for identified non-attainment cities and critically polluted areas.
- iii. State has 54 river water quality monitoring stations under national network (NWMP). There are 52 stations / 1000 km length of major and medium rivers. State has its own network of water quality monitoring stations. There

was no improvement observed in locations not complying with designated best use in FY 2018-19 compared to FY 2017-18. State shares Water Quality Data with CPCB. State has reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB. State has prepared action plans for all of those identified polluted stretches.

30.3 Regulatory Setup / Mechanism

- i. The Punjab Board has reported to have identified 4,273 industries of red categories, 12,654 industries of orange category and 3,360 industries of green category following the CPCB guidelines. There are 76 industries of 17 categories and 5 grossly polluting industries identified along the rivers / lakes. About 62 % of the industries are having valid consents to operate.

About 93 % of 17 category industries have been complying with Environmental norms. SPCB has issued show cause notice / directions to 5 non-complying industries.

About 77 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.

Only two Grossly Polluting Industries (GPI) have been complying with Environmental norms whereas show-cause notices have been issued by SPCB to the remaining three non-complying industries.

- ii. OCEMS data is not used by the Board for identification of the industries for inspections / actions.
- iii. About 70 % of the sewage generated in the state is reported as being treated and the quantity of sewage that remains untreated is about 577 MLD.

About 52 % of STPs are complying with environmental norms and for the remaining 47 non-complying STPs, legal cases filed against 7 industries and action was under process against 40 industries.

- iv. About 63 % of the Hazardous Waste Generators have valid authorization. Out of 1,22,088 MTA quantity of generated hazardous waste, only 18 % of hazardous waste is utilized / recycled and about 22 % of waste is disposed through TSDFs.
- v. About 95 % of the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. 100 % of Bio-Medical Waste generated is being treated and disposed through CBMWTFs. About 50 % of Common Bio-medical Waste Treatment Facilities (CBWTFs) have installed continuous online emission monitoring systems (OCEMS).

Show-cause notices / Directions have been issued by SPCB to all the HCFs / CBWTFs violating environmental norms.

- vi. MSW generation in the state was estimated as 4,634 TPD. Out of which, about 99 % of MSW is collected, about 20 % of the collected waste is treated and remaining amount of waste is landfilled.
- vii. Punjab SPCB has received only 10 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. SPCB has reported that there are 3 CETPs, 1 TSDF, 4 CBMWTFs and 150 MSW Dumpsites in the state.
- ix. There are 1,796 industries needed ETPs, 1,717 industries are having functional ETPs and 79 industries are operating without ETPs. Out of 79 industries operating without ETPs, SPCB has issued show cause notice / directions to 43 industries, closure directions to 31 and action is under process against 5 industries.

Out of 143 industries non-complying with the environmental norms, show-cause notices were issued to 118 industries, closure directions to 3 and action was under process against 22 industries.
- x. There are 2 critically polluted clusters (Ludhiana & Jalandhar) and 1 severely polluted industrial cluster (Batala). There are 9 non-attainment cities (Dera Bassi, Gobindgarh, Jalandhar, Khanna, Ludhiana, Naya Nangal, Pathankot / DeraBaba, Patiala, Amritsar) in the state.

30.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 87 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. Public Hearing Proceedings by SPCB are displayed on website.
- v. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vi. State has provided citizen's charter and success stories of Industries / municipalities on technologies (BAT) and practices (BEP) are displayed in public domain.
- vii. State has not notified state-specific Environmental Policy.
- viii. State has industrial siting policy and prescribed guidelines for green belt development in industrial premises.

30.5 Capacity Building & Initiatives

- i. Punjab SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.

- iii. SPCB doesn't have its own R & D activities, however SPCB has collaborated with state and central institutes conducting R & D in the field of environmental pollution.

30.6 Areas of Attention

- i. PPCB is gradually moving towards an IT based approach in discharging their functions.
- ii. PPCB generally does not face any financial constraints for functioning of the Board, however, funds are not available for R & D activities.
- iii. The PPCB zonal laboratories needed improvement in terms of infrastructure and quality assurance & quality control.
- iv. The current mechanism for inventory of various categories of industries, plastic, hazardous and biomedical wastes etc. is generally based on secondary data, but not based on physical verification.
- v. The Conditions mentioned in consent documents, including the applicable standards, are not industry specific.
- vi. Air pollution due to crop residue burning activities.
- vii. Management of solid waste in association with various Government agencies and local bodies.
- viii. Strengthening of air, water and noise monitoring to cover all cities / towns up to ULB level.

30.7 Recommendations

- i. SPCB shall make recruitment to 39 % of the total sanctioned posts lying vacant, 40 % of which are Scientific & Technical Posts. Punjab PCB shall submit a detailed proposal to State Government for strengthening its infrastructure including the manpower and long-term actions and all the associated facilities.
- ii. SPCB Government should allow the infrastructural needs of the Board on urgent basis, including additional manpower. The Board may opt for engaging consultants and out-sources some of the routine works.
- iii. SPCB has to immediately initiate action for treatment / disposal of 40 % of its hazardous waste.
- iv. SPCB shall provide treatment to 30 % of its generated sewage.
- v. PPCB should examine the issues requiring attention and challenges and formulate Action Plans to resolve the issues in time-bound manner.

Important Information at a Glance

Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	14	0	15

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
145 + (3)*	115	2	0	4	0

*Number in the bracket indicates project staff.

Associated Facilities

Library	Training Hall	Conference Hall
1	0	1

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
43	0	0	43

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
89.27	142.55	231.82	74.81	-	74.81

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
48	6	100 (54 Surface Water, 46 Ground Water)	0

Major Environmental Issues of Audit Concern

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
76	4,273	12,654	3,360	No records	5

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
1,891	1,679	1,314	110	67	577

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
4	4	2	2	0	0	2	2

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
3,197	1,22,088	21,996	26,528	28,388

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for Authorization	Total No. of HCFs granted Authorization	Total No. of HCFs in operation without Authorization			
3,577	4,657	8,234	71,162	4,660	4,425	3,765	8,234	15,981	15,981

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
4,634	4,575	918	3,657

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
3	1	5	150

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Jalandhar (74.76), Ludhiana (73.48)	Batala (68.92)

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Dera Bassi
2	Gobindgarh
3	Jalandhar
4	Khanna
5	Ludhiana
6	Naya Nangal
7	Pathankot/Dera Baba
8	Patiala
9	Amritsar

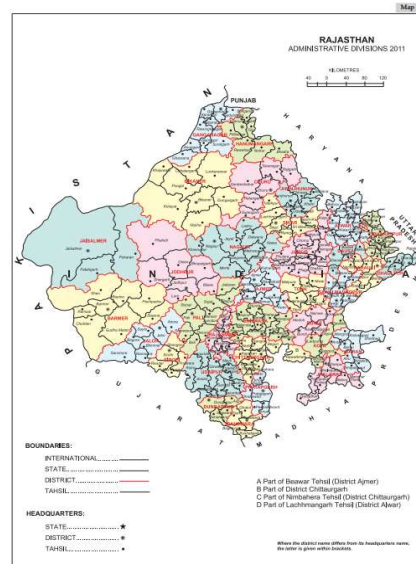
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31.0 RAJASTHAN

Located in Western India, Rajasthan is the largest state of the country. Covering an area of 3,42,239 square kilometres, Rajasthan is divided into 33 districts. Jaipur is the capital of the state. Rajasthan shares its borders with the Pakistani provinces of Punjab and Sindh and the Indian states of Punjab, Haryana, Uttar Pradesh, Madhya Pradesh and Gujarat.

The geographic features of Rajasthan include the Aravalli Range and the Thar Desert. Most of the North-western part of Rajasthan is landscaped by the sandy and dry Great Indian Desert, also known as the Thar Desert. Jodhpur is the most extensive city in the desert. The other prominent districts located in the desert are Bikaner, Jaisalmer, Barmer and Nagour. A famous hill station, Mount Abu is situated in the Aravalli Range. The major river systems of the Marwar and the Godwar regions are the Luni River and its tributaries.

The state economy is mainly agricultural and pastoral. Sugarcane, pulses, oilseeds, cotton and tobacco are the major crops of the region. Rajasthan is also the largest producer of marble and sandstone. Rajasthan has rich minerals such as salt at Sambhar and copper, zinc & lead mines at Khetri, Udaipur and Dariba. The service sector comprises industries like tourism and real estate.



Area: 3,42,239 km²	SEWAGE: 3,109 MLD
Population: 6,85,48,437	MUNICIPAL SOLID WASTE: 6,626 TPD
Districts: 33	PLASTIC WASTE: 1,04,704 TPA
Class-I cities: 03	HAZARDOUS WASTE: 6,23,998 TPA
Density: 200 persons/km²	BIOMEDICAL WASTE: 22.26 TPD
Water Management Index: 47	INDUSTRIES (RED+ORANGE): 25,029+12,333
SDG Index: 57	RIVERS & CANALS: 6,802 KM
Health Index: 43.10	WATER BODIES: 3.00 Lakh Ha
Percentage share of the Nation	GDP: 5.51 Population: 5.66 Area: 10.41

31.1 Rajasthan Pollution Control Board

- i. State has its Head Office and Central Laboratory in Jaipur and 15 regional offices.
- ii. The Board has 156 Technical & Scientific manpower and 104 Administrative Staff.
- iii. State has a total of 31 general purpose vehicles. Dedicated and field specific vehicles for sampling and monitoring were not provided.
- iv. State had Annual Budget of Rs. 92.72 Cr in FY 2018-19 and Reserve Funds of Rs. 622.80 Cr in the form of FDs. State had shown plan expenditure of only Rs. 1.10 Cr and non-plan expenditure of Rs. 31.22 Cr.
- v. Rajasthan SPCB has Central Laboratory in its Head Office at Jaipur. SPCB has 12 regional laboratories at Regional Offices.
- vi. The Central Laboratory and the 12 Regional laboratories have not obtained recognition under E (P) Act, 1986 from MoEF&CC.
- vii. The SPCB has 22 designated Board Analysts.
- viii. The laboratory has sampling and analysis facilities for Physical Tests – 8 Mandatory, 3 Secondary parameters; General & Non-Metallic - 11 Mandatory, 1 Secondary parameters; Metals - 15 Mandatory, 3 Secondary parameters; General and Trace Organics - 3 Mandatory parameters; Microbiological Tests - 2 Mandatory parameters; Toxicological Tests - 1 Mandatory parameters; Hazardous Waste – 1 parameter; Soil / Sludge / Sediment and Solid Waste - 6 Mandatory, 5 Secondary parameters.
- ix. SPCB Laboratory does not have NABL Accreditation for major group of parameters.

31.2 Environmental Monitoring

- i. State has 39 Air Quality Monitoring Stations and 10 Continuous Ambient Air Quality Monitoring Stations (CAAQMS). One third of the districts in the State have Air Quality Monitoring Stations and only 20 % of which have facility for PM_{2.5} monitoring. State has reported having its own network of air quality details were not provided. State shares Air Quality Data with CPCB at regular intervals.
- ii. State has observed improvement in Air Quality with respect to PM₁₀ (decrease by 8 %) and PM_{2.5} (decrease by 9 %) in 2018-19 when compared to 2017-18. State has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB. However, state has not prepared action plans for identified polluted areas.
- iii. State has 199 water quality monitoring stations under national network (NWMP). State has reported having its own network of water quality monitoring stations. State has reported improvement in 43 % of locations in

2018-19 compared to 2017-18. State shares Water Quality Data with CPCB. State has reviewed Water Quality Data for various purposes at regular intervals.

31.3 Regulatory Setup / Mechanism

- i. The Rajasthan Board has reported to have identified 25,029 (Industries) & 31,733 (Mining) industries of red category; 12,333 industries of orange category and 9,059 industries of green category following the CPCB guidelines. There are 149 industries of 17 categories and one grossly polluting industry identified along the rivers / lakes. About 70 % of the industries are having valid consents to operate.
- ii. About 87 % of 17 category industries have been complying with Environmental norms. In case of 20 non-complying industries, show-cause notices were issued to 17 units, closure directions to 2 and action was under process against one industry.
- iii. About 85 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.
- iv. 100 % of Grossly Polluting Industries (GPI) have been complying with Environmental norms.
- v. The OCEMS data is used by the Board for identification of the industries for inspections / actions.
- vi. About 15 % of the sewage generated in the state is reported as being treated and the quantity of sewage that remains untreated is about 2673 MLD.
- vii. About 57 % of STPs are complying with environmental norms and the remaining non-complying STPs, show-cause notices were issued to 10 STPs, legal cases filed against 4 STPs and action is under process against 16 STPs.
- viii. About 63 % of the Hazardous Waste Generators have valid authorization. Out of 6,23,998 MTA quantity of generated hazardous waste, about 100 % hazardous waste is utilized / recycled and 100 % waste is disposed through TSDFs.
- ix. About 83 % of the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. About 76 % of Bio-Medical Waste generated is being treated and disposed through CBMWTFs. About 63 % of Common Bio-medical Waste Treatment Facilities (CBWTFs) have installed online continuous emission monitoring systems (OCEMS).
- x. Show-cause notices / Directions have been issued by Rajasthan SPCB to about 67 % of HCFs / CBWTFs violating environmental norms.

- xi. MSW generation in the state was estimated as 6,626 TPD. Out of which, about 98 % of MSW is collected, only 12 % of the collected waste is treated and about 63 % of total waste is landfilled.
- xii. SPCB has received about 90 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xiii. SPCB has reported that there are 13 CETPs, 3 TSDFs, 8 CBMWTFs and 195 MSW Dumpsites in the state.
- xiv. There were 1369 industries needed ETPs, 1,257 industries had functional ETPs and 112 industries were operating without ETPs. Out of 112 industries operating without ETPs, SPCB has issued show cause notice / directions to 25 industries, closure directions to 84 and action was under process against 3 industries.
- xv. Out of 120 industries non-complying with the environmental norms, show-cause notices / directions were issued to 107 industries, closure directions to 10, legal cases filed against 2 industries and action was under process against one industry.
- xvi. There are 5 critically polluted industrial clusters (Bhiwadi, Jodhpur, Jaipur, Pali, Sanganer Industrial Area) and 5 non-attainment cities (Alwar, Jaipur, Jodhpur, Kota & Udaipur) in the state.

31.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system 64 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State has prepared Environmental Status Report.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. State has provided success stories of Industries / municipalities on technologies (BAT) and practices (BEP) are displayed in public domain.
- viii. SPCB has been compiling environmental statement submitted by industries every year.
- ix. SPCB has notified Environmental Policy and advised State Govt. on environmental policy issues.
- x. State has industrial siting policy and prescribed guidelines for green belt development in industrial premises.

31.5 Capacity Building & Initiatives

- i. Rajasthan SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has not conducted any study on impact of pollution on human health / ecosystems.
- iv. SPCB doesn't have its own R & D activities, however, SPCB has collaborated with state and central institutes conducting R & D in the field of environmental pollution.

31.6 Areas of Attention

- i. The Board is financially strong and established state of art laboratories and well-structured Regional Offices.
- ii. Laboratory facilities (equipment, instrumentation & supporting software) need special attention and accreditation / approve from NABL and MoEF&CC.
- iii. The SPCB has taken several initiatives in streamlining office work by brining technological changes in functioning.
- iv. Extensive data is generated and not able to take follow-up actions with limited technical / scientific staff.

31.7 Recommendations

- i. SPCB shall make recruitment to 33 % of the total sanctioned posts lying vacant, 43 % of which are Scientific & Technical Posts. Rajasthan PCB shall submit a detailed proposal to State Government for strengthening its infrastructure including the manpower, long-term actions and all the associated facilities.
- ii. SPCB Government should allow the infrastructural needs of the Board on urgent basis, including additional manpower. The Board may opt for engaging consultants and out-sources some of the routine works.
- iii. SPCB shall efficiently make use of its allocated funds and make plan for utilization of reserve funds to the tune of Rs. 623 Cr. State shall also make plan for increasing its spending on mandated functions which was merely 1 % of its annual budget in 2019 at the time of Audit.
- iv. SPCB has to immediately initiate action for treatment / disposal of 24 % of its Bio-medical Waste and 25 % of municipal solid waste.
- v. SPCB shall provide treatment to 86 % of its generated sewage.
- vi. The laboratory facilities (equipment, instrumentation and related software) need special attention and board obtain recognition under E(P) Act and accreditation from NABL.

Important Information at a Glance**Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	15	0	16

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
156	104	0	0	9	0

Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
31	0	0	31

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
92.72	622.80	715.52	1.10	31.22	32.32

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
39	10	199	0

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
149	25,029 (Industries) + 31,733 (Mining)	12,333	9,059	-	1

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
3,109	920	436	72	22	2,673

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
2	2	0	0	0	0	2	2

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(* Quantities in metric tonnes)				
1,633	6,23,998	6,19,898	6,84,606	72,826

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
4,939	1,537	6,476	1,19,524	1,396	1,155	1,702	3,109	22,262	16,913

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
6,626	6,475	780	4,187

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
13	3	8	195

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Jodhpur (81.16), Pali (80.48), Bhiwadi (79.63), Sanganer Industrial Area (79.10), Jaipur (77.40)	-

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Alwar
2	Jaipur
3	Jodhpur
4	Kota
5	Udaipur

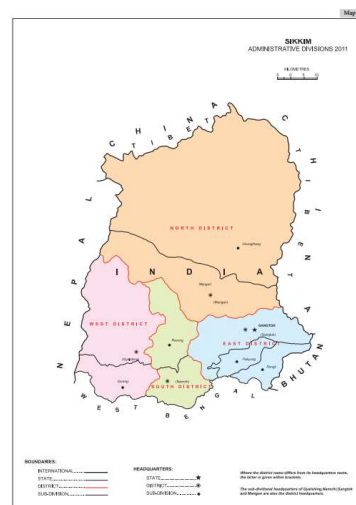
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32.0 SIKKIM

Sikkim is the second smallest state of India. This landlocked state is least populated and has Gangtok as its capital. The world's third highest peak, Kanchenjunga, is located here. The state has twenty-eight mountain peaks, twenty-one glaciers, 227 high altitude lakes, five hot springs, and over 100 rivers and streams, including the famous Teesta, which is also called "lifeline of Sikkim".

Sikkim's economy is mainly agrarian. It produces rice, cardamom, oranges, apples and tea. It is also a mineral rich state and has mines of copper, dolomite, limestone, graphite, mica, iron, and coal.

Over the years, Sikkim has become one of the states in India that is highly frequented by tourists.



Area: 7,096 km²	SEWAGE: 28 MLD
Population: 6,10,577	MUNICIPAL SOLID WASTE: 75 TPD
Districts: 04	PLASTIC WASTE: 6 TPA
Class-I cities: 00	HAZARDOUS WASTE: 1,467 TPA
Density: 86 persons/km²	BIOMEDICAL WASTE: 425 KG/DAY
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 30+138
SDG Index: 65	RIVERS & CANALS: 900 KM
Health Index: 53.20	WATER BODIES: 1.23 Lakh Ha
Percentage share of the Nation	GDP: 0.13 Population: 0.05 Area: 0.22

32.1 Sikkim Pollution Control Board

- i. Sikkim SPCB has Central Laboratory in its Head Office at Gangtok.
- ii. Sikkim SPCB has a total staff of 43; of which 06 are Technical & Scientific, 24 Project staff and 10 Administrative. The SPCB has also staff in supporting streams of law and IT.
- iii. The Board utilized about 57 % of total budget (Rs. 3.21 Cr) on plan activities during the FY 2018-19. However, expenditure for the non-plan activities is shown as Nil.
- iv. Central Laboratory of SPCB doesn't have recognition under E (P) Act, 1986 from MoEF&CC and there are no designated Board Analysts.
- v. The laboratory has sampling and analysis facilities for 14 Physico-chemical and 2 Microbiological parameters.
- vi. SPCB Laboratory has not initiated for NABL Accreditation.

32.2 Environmental Monitoring

- i. All the four districts are covered under Air quality monitoring network and the data generated are reviewed for their use in making control plans.
- ii. The river water quality is monitored at 16 locations and four polluted stretches (Priority III to V) identified by CPCB in the state.
- iii. The water quality monitoring data has been reviewed but no further actions are taken.

32.3 Regulatory Setup / Mechanism

- i. The Board has reported to have identified 30 industries of red category, 138 industries of orange category, 73 industries of green category and 03 industries of white category following the CPCB guidelines. About 99 % of the industries are operating with valid consents.
- ii. There is 1 industry categorised under 17 categories and it is complying with norms. It has also installed OCEMS and connected with CPCB. The OCEMS data is also being examined by the Board.
- iii. About 66 % of the sewage generated in the state is reported as being treated and the quantity of sewage that remains untreated is about 9.5 MLD. All the STPs are complying with environmental norms.
- iv. All the Hazardous Waste Generators have valid authorization. It has been reported that entire quantity of 1,467 MTA hazardous waste has been disposed of. However, details on disposal are not provided.
- v. All the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued

authorization. About 73 % of Bio-Medical Waste generated is being treated and disposed through CBMWTFs.

Show-cause notices / directions are being issued by Sikkim SPCB to all the HCFs / CBWTFs violating environmental norms.

- vi. MSW generation in the state was estimated as 75 TPD. Out of which, about 89 % of MSW is collected, only 19 % of the collected waste is treated and about 68 % of the generated waste is landfilled.
- vii. SPCB has received only 10 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. SPCB has reported that there are 2 MSW Dumpsites in the state.
- ix. There were 64 industries needed ETPs and all 64 industries had functional ETPs complying with the environmental norms.

32.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 100 % of public complaints addressed in stipulated time.
- ii. Environmental Quality and Technical Reports prepared by SPCB are displayed on website.
- iii. The state has prepared Environmental Status Report.
- iv. Public Hearing Proceedings by SPCB are displayed on website.
- v. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vi. State has Environmental Policy and also industrial siting policy / criteria.

32.5 Capacity Building & Initiatives

- i. Sikkim SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has conducted study on impact of pollution on human health / ecosystems.

32.6 Areas of Attention

- i. Full support from Government of Sikkim and allow environment friendly industries.
- ii. Highly polluted industries are not encouraged and strict regulatory mechanism adopted.
- iii. Climatic and geological constraints faced by the state.

- iv. Enforcement of Rules and regulations on local bodies for sewage and solid waste management.

32.7 Recommendations

- i. The SPCB should be granted all the required approvals for the recruitment of staff, development of laboratory and procurement of sampling / monitoring vans.
- ii. SPCB shall make plan for treatment / disposal of remaining 14 % of Municipal Solid Waste.
- iii. SPCB shall provide treatment to 34 % of its generated sewage.
- iv. The Sikkim SPCB should prepare its action plans starting from the year 2020-21 for attending the issues listed in this report and the gaps in the implementation of the various rules notified under the E (P) Act, 1986.
- v. The Board should renew NABL accreditation and obtain Laboratory reorganization under E(P) Act, 1986 from MoEF&CC.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	0	0	1

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
6 + (24)*	10	2	0	1	0

*Number in the bracket indicates project staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Under construction	1	1

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
0	1	0	1

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
9	0	14	0

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
3.21	0.00	3.21	1.82	0.00	1.82

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
01	30	138	73	03	0

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. Of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
28	25.95	18.52	10	5	9.48

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
4	4	0	0	0	0	4	4

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
51	1,467	0	1,347	121

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
35	249	284	1,568	232	232	52	Nil	397	315

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
75	67	13	51

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
0	0	0	2

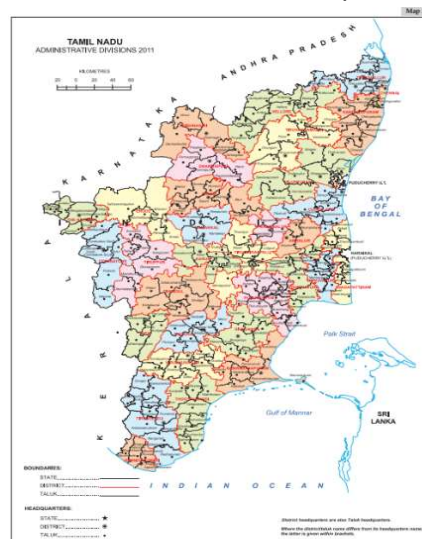
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33.0 TAMIL NADU

Tamil Nadu, a major state in southern India, is bordered with Puducherry, Kerala, Karnataka and Andhra Pradesh. Tamil Nadu covers total land area of 1,30,060 square kilometres and is divided into 32 districts. Regarded as the cradle of Dravidian culture with its cultural paraphernalia speckled all across the state in the form of magnificent temples, gateways and intricate carvings.

Tamil Nadu has the third largest urbanized population in the country after Maharashtra and Uttar Pradesh. Some of the major cities are Chennai -- Capital city, Coimbatore, Madurai, Tiruchirappalli, Tiruppur, Tirunelveli, Vellore, Tuticorin, Dindigul and Hosur. There are a number of rivers in Tamil Nadu, but some of the major ones include Kaveri River, Vaigai River, Palar River, Noyyal River, Bhavani River, Cheyyar River, and Thamirabarani River.

The key industries of the state are heavy engineering and manufacturing-based companies and textiles.



Area: 1,30,060 km²	SEWAGE: 6,362 MLD
Population: 7,21,47,030	MUNICIPAL SOLID WASTE: 13,968 TPD
Districts: 32	PLASTIC WASTE: 4,01,091 TPA
Class-I cities: 04	HAZARDOUS WASTE: 13,02,639 TPA
Density: 555 persons/km²	BIOMEDICAL WASTE: 47.2 TPD
Water Management Index: 58	INDUSTRIES (RED+ORANGE): 16,856+23,596
SDG Index: 67	RIVERS & CANALS: 7,420 KM
Health Index: 60.41	WATER BODIES: 3.15 Lakh Ha
Percentage share of the Nation	GDP: 9.10 Population: 5.96 Area: 3.96

33.1 Tamil Nadu Pollution Control Board

- i. TNPCB has Head Office in Chennai, 7 Regional Offices and 38 Sub-Regional Offices.
- ii. TNPCB has a total staff of 905; of which 188 are Technical manpower, 58 Scientific, 24 contractual staff and 291 Administrative. The SPCB has 08 staff for legal, 05 for trainings, 01 for IT and 03 for public relations in supporting streams.
- iii. The total revenue receipts of the Board in the year 2018-19 was Rs. 265.46 Cr out of which Rs. 45.46 Cr were on capital investment and Rs. 177.79 Cr shown as revenue expenditure.
- iv. Tamil Nadu SPCB has Central Laboratory in its Head Office at Chennai. SPCB has Regional Laboratories in all of its 7 Regional Offices and 9 Laboratories in 38 of its Sub-Regional Offices.
- v. All the 17 Laboratories in the State have not obtained recognition under E (P) Act, 1986 from MoEF&CC and SPCB has 4 designated Board Analysts.
- vi. The central laboratory has sampling and analysis facilities for Physical Tests – 10 Mandatory parameters; General & Non-Metallic - 13 Mandatory & 3 Secondary parameters; Metals - 15 Mandatory & 2 Secondary parameters; General and Trace Organics - 5 Mandatory & 1 Secondary parameters; Microbiological Tests - 3 Mandatory parameters; Soil / Sludge / Sediment and Solid Waste - 9 Mandatory parameters; Ambient Air / Fugitive Emissions – 3 Mandatory & 7 Secondary parameters; Stack / Source Emission – 7 Mandatory & 5 Secondary parameters; Noise – 2 parameters; Meteorological – 4 Mandatory & 2 Secondary parameters; Vehicular Emission – 3 Mandatory & 1 Secondary parameters.
- vii. SPCB Laboratory has NABL Accreditation for three major group of parameters i.e. Core, General and NAAQS.

33.2 Environmental Monitoring

- i. Three fourths of the districts have been covered in the Air quality monitoring network and all the stations have the PM_{2.5} monitoring facility.
- ii. The air quality monitoring data has been reviewed for identification of problem areas.
- iii. The state identified river segments for the designated best use by the public and civic authorities.
- iv. The water quality monitoring data has been reviewed in identification of polluted river stretches in addition to CPCB.
- v. The board has established 35 Continuous Ambient Air Quality Monitoring Stations (CAAQMS) covering major districts of the State.

33.3 Regulatory Setup / Mechanism

- i. The Tamil Nadu Board has identified 16,856 industries of red category, 23,596 industries of orange category, 9,500 industries of green category and 3,273 industries of white category following the CPCB guidelines. There are 156 industries of 17 categories identified in the state and all the units are complying with the norms. About 92 % of the industries are operating with valid consents.
- ii. About 89 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.
- iii. The OCEMS data is used by the Board for identification of the industries for inspections / actions.
- iv. About 80 % of the sewage generated in the state is reported as not being treated and the quantity of sewage that remains untreated is about 5,072 MLD.
- v. About 97 % of STPs are complying with environmental norms and the remaining non-complying STPs were issued show cause notices / directions by SPCB.
- vi. About 78 % of the Hazardous Waste Generators have valid authorization. Out of 1,302,639 MTA quantity of generated hazardous waste, about 52 % of hazardous waste is utilized / recycled and about 9 % of waste is disposed through TSDFs.
- vii. All the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. Entire Bio-Medical Waste is being treated and disposed through CBMWTFs. All the 08 Common Bio-medical Waste Treatment Facilities (CBWTFs) have installed online continuous emission monitoring systems (OCEMS).
- viii. Show-cause notices / Directions have been issued by SPCB to only 3 % of HCFs / CBWTFs violating environmental norms.
- ix. MSW generation in the state was estimated as 13,968 TPD. Out of which, about 92 % of MSW is collected, 56 % of the collected waste is treated and about 40 % of the generated waste is landfilled in 140 dumpsites.
- x. SPCB has received about 90 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xi. SPCB has reported that there are 36 CETPs, 2 TSDFs, 8 CBMWTFs and 140 MSW Dumpsites in the state.
- xii. There were 11,264 industries needed ETPs, 11,257 industries had functional ETPs and 7 industries were operating without ETPs. SPCB has issued closure directions to all 7 industries operating without ETPs.

- xiii. Out of 41 industries non-complying with the environmental norms, show-cause notices / directions were issued to 21 industries and closure directions to 20 industries.
- xiv. There are 4 critically polluted industrial clusters (Vellore-North Arcot, Manali, Tirupur & Mettur) and 4 severely polluted industrial clusters (Coimbatore, Cuddalore, Erode & Tuticorin). There are 2 non-attainment cities (Thoothukudi & Trichy) in the state.

33.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. Tamil Nadu State has public grievance registration and redressal system and 100 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State Environmental Status Report has been prepared.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. SPCB has provided citizen's charter.
- viii. There are success stories displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- ix. State has Environmental Policy and advised State Govt. on Policy Issues of Environment.
- x. State has industrial siting policy / criteria.
- xi. There are State Level Monitoring Committees on Environmental issues.
- xii. SPCB has prescribed guidelines for green belt development in industrial premises.

33.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes at regular intervals.
- iii. SPCB has conducted studies on impact of pollution on human health / ecosystems.
- iv. Tamil Nadu SPCB has its own R & D activities.
- v. SPCB has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

33.6 Areas of Attention

- i. The TNPCB has been able to implement the policy of Zero Liquid Discharge (ZLD) in CETPs, Tanneries and textiles sectors.
- ii. A number of single use plastic items have been banned in the State.
- iii. The TNPCB has established their own Environmental Training Institute.
- iv. The TNPCB has taken up collaborative R & D activities with institutions such as IIT, Madras and Anna University.
- v. TNPCB is presently issuing the consents under the Water & Air Acts and Authorization under the HWM Rules 2016 as separate documents.
- vi. Annual Reports mandated under Rules are not being submitted in time.

33.7 Recommendations

- i. SPCB shall make recruitment to 44 % of the total sanctioned posts lying vacant, 48 % of which are Scientific & Technical Posts. The State Government should grant necessary approvals for the recruitment of the staff required by the State Board.
- ii. SPCB shall make plan for spending on mandated functions and utilization of reserve funds to the tune of Rs. 700 Cr.
- iii. SPCB has to immediately initiate action for treatment / disposal of 39 % of its hazardous waste.
- iv. SPCB shall provide appropriate treatment to 80 % of its generated sewage.
- v. The Inventorization of waste generation (e-waste and plastic waste generated), though it is a dynamic process, should be strengthened to obtain credible data so as to plan an effective waste management.
- vi. The TNPCB should prescribe CETP Inlet standards to all the member industries.
- vii. The Board should obtain or renew recognition of its laboratories and also start the process of NABL Accreditation for remaining parameters.

Important Information at a Glance

Number of Offices

Central	Zonal	Regional	Sub-Regional	Total
1	0	7	38	46

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
246+(24)*	291	8	5	1	3

*Number in the bracket indicates project staff on contractual

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
81	15	1	97

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
28	35	55	3

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
265.46*	699.55	965.01	45.46**	177.79***	223.25

*Revenue Receipts, ** Capital Expenditure, *** Revenue Expenditure

Major Environmental Issues of Audit Concern

Industrial Pollution

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
156	16,856	23,596	9,500	3,273	0

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. Of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
6,362	1,634	1,290	73	44	5,072

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
6	6	4	4	0	0	2	2

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
3,607	13,02,639	6,75,250	1,13,615	2,84,761

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for Authorization	Total No. of HCFs granted Authorization	Total No. of HCFs in operation without Authorization			
3,949	358	4,307	1,44,731	4,307	4,307	715	4,607	47,197	47,197

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
13,968	12,850	7,196	5,654

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
36	2	8	140

Polluted Industrial Cluster(S)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Manali (84.15), Vellore-North Arcot (79.38), Tirupur (72.39), Mettur (71.82)	Tuticorin (66.34), Coimbatore (63.64), Cuddalore (62.56), Erode (60.33),

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Thoothukudi
2	Trichy

★

34.0 TELANGANA

Telangana became the 29th state of India on June 2, 2014. Before India became independent, the area now called Telangana was included in part of the state of Hyderabad, governed by the Nizams. The state of Telangana is surrounded by Maharashtra, Karnataka, Chhattisgarh and Andhra Pradesh and it is divided into 31 districts with an area spanning 114,840 square kilometres. The most important rivers of this province are Musi, Krishna, Manjira and Godavari. The largest cities of Telangana are Hyderabad, Nizamabad, Warangal and Karimnagar.

Agriculture is one of the most important sectors in Telangana. Crops like cotton, mango and tobacco are locally grown in the state. In the fiscal year 2015-16, the Gross Domestic Product (GDP) of Telangana was Rs 4.7 lakh crore. Nagarjun Sagar Dam and Godavari River Basin Irrigation Projects are the multi-state irrigation projects in the state. With a focus on information technology and biotechnology, Telangana is one of the top IT exporting states of India. Hyderabad is the biggest manufacturing centre of pharmaceuticals in the country. With the presence of the coal reserves in Singaerni Collieries, Telangana is also considered a mineral-rich state.



Area: 1,14,840 km ²	SEWAGE: 2,477 MLD
Population: 3,51,93,978	MUNICIPAL SOLID WASTE: 8,497 TPD
Districts: 31	PLASTIC WASTE: 1,83,015 TPA
Class-I cities: 01	HAZARDOUS WASTE: 3,67,529 KLA
Density: 306 persons/km ²	BIOMEDICAL WASTE: 16.24 TPD
Water Management Index: 50	INDUSTRIES (RED+ORANGE): 2,591+3,349
SDG Index: 67	RIVERS & CANALS: * KM
Health Index: 59.00	WATER BODIES: * Lakh Ha
Percentage share of the Nation	GDP: 4.17 Population: 2.91 Area: 3.49

* Length of Rivers & Canals and Water Bodies are included in part of Andhra Pradesh

34.1 Telangana Pollution Control Board

- i. Telangana SPCB has a total staff of 378, of which 64 are Technical officials, 46 Scientific and 35 Administrative. SPCB has 330 supporting staff; including Legal (01), training (01), public relation (03) and 225 associated with projects.
- ii. The Board has its own resources (consent fee, fixed deposit, etc.) to enable its functioning. However, the budget utilized was about 63 % (Rs. 49.81 Cr) of the available total budget (Rs. 78.59 Cr) during the year 2018-19. About 53 % (Rs. 42.24 Cr) expenditure was on non-plan activities.
- iii. Telangana SPCB has Central Laboratory in its Head Office at Hyderabad. SPCB has 2 Regional Laboratories in its 10 Regional Offices.
- iv. SPCB Laboratory has recognition under E (P) Act, 1986 from MoEF&CC, valid up to 07-02-2023. However, both the regional laboratories have not yet obtained recognition.
- v. SPCB has two designated Board Analysts and the central laboratory has facilities for all the parameters listed in Appendix 'A' of CPCB Guidelines for recognition of Laboratories.
- vi. SPCB Laboratory has accreditation for all four major groups of parameters i.e. Core, General, Trace Metals and Ambient Air parameters.

34.2 Environmental Monitoring

- i. Most of the urban areas in the State are covered under the Air Quality Monitoring network of 44 stations and the data is reviewed regularly.
- ii. The State has 224 locations under NWMP network and has its own network to monitor other water bodies. The river segments have been identified for their designated best use. The Water Quality data is examined regularly and actions are taken.
- iii. The Board also has a mobile laboratory and a well-equipped sampling van.
- iv. The infrastructure and laboratory facilities at zonal and regional offices needs further strengthening to cater regulatory requirements.

34.3 Regulatory Setup / Mechanism

- i. The Board has identified 2,591 industries of red category; 3,349 industries of orange category, 658 industries of green category and 2,692 industries of white category following the CPCB guidelines. There are 292 industries of 17 categories and 2 grossly polluting industries identified along the rivers / lakes. About 94 % of the industries are having valid consents to operate.
- ii. About 94 % of 17 category industries have been complying with Environmental norms. In case of 18 non-complying industries, closure

directions were issued to 14 industries and legal case filed against 4 industries.

- iii. About 87 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.
- iv. Both the Grossly Polluting Industries (GPI) have been complying with Environmental norms.
- v. The OCEMS data is used by the Board for identification of the industries for inspections / actions.
- vi. About 30 % of the sewage generated in the state is reported as being treated and the quantity of sewage that remains untreated is about 1,738 MLD.
- vii. About 87 % of STPs are complying with environmental norms and show cause notices / directions have been issued to the remaining non-complying STPs.
- viii. About 97 % of the Hazardous Waste Generators have valid authorization. Out of 3,67,529 MTA quantity of generated hazardous waste, about 55 % of hazardous waste is utilized / recycled and about 32 % of waste is disposed through TSDFs.
- ix. About 98 % of the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. All the waste generated is being treated and disposed through CBMWTFs and the Facilities have installed online continuous emission monitoring systems (OCEMS).
- x. Show-cause notices / Directions have been issued by Telangana SPCB to all the HCFs / CBWTFs violating environmental norms.
- xi. MSW generation in the state was estimated as 8,497 TPD. Out of which, about 98 % of MSW is collected, about 69 % of the collected waste is treated and about 10 % of generated waste is landfilled.
- xii. SPCB has received 100 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xiii. SPCB has reported that there are 7 CETPs, 1 TSDF, 11 CBMWTFs and 73 MSW Dumpsites in the state.
- xiv. There were 2,179 industries needed ETPs, 2,168 industries had functional ETPs and 11 industries were operating without ETPs. Action against these industries operating without functional ETPs is under process.
- xv. Out of 53 industries non-complying with the environmental norms, show-cause notices / directions were issued to 24 industries and closure directions to 29 industries.

- xvi. There is 1 critically polluted industrial cluster (Pattancheru-Bollaram) and two severely polluted industrial cluster (Kukatapally, Kattedan). There are 4 non-attainment cities (Hyderabad, Nalgonda, Patancheruvu & Sangareddy) in the state.

34.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. Telangana State has public grievance registration and redressal system and 99 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data and Technical Reports prepared by SPCB are displayed on website.
- iv. Annual Reports prepared by SPCB are not displayed on website.
- v. State Environmental Status Report has been prepared.
- vi. Public Hearing Proceedings by SPCB are displayed on website.
- vii. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- viii. SPCB has provided citizen's charter.
- ix. There are success stories displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- x. State does not have Environmental Policy; however, it advised State Govt. on Policy Issues of Environment.
- xi. State has industrial siting policy / criteria.
- xii. There are State Level Monitoring Committees on Environmental issues.
- xiii. SPCB has prescribed guidelines for green belt development in industrial premises.

34.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has conducted studies on impact of pollution on human health / ecosystems.
- iv. SPCB doesn't have its own R & D activities.
- v. SPCB has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

34.6 Areas of Attention

- i. It was observed that after bifurcation, Telangana SPCB inherited a well-developed office building cum a state of art laboratory. The Central

Laboratory is equipped with all necessary equipment and systems to monitor and analyse for air, water and Solid waste samples.

- ii. As part of “Ease of Doing Business (EoDB)” the Board has been able to draw its own time-lines for processing and issuing consents for different categories within maximum of 30 days.
- iii. The Board stipulated much stringent standards (115 mg/Nm³ for particulate matter for boilers as against national standard of 150 mg/Nm³).
- iv. The Board also evolved an online public grievance redressal system for registering complaints on 24 x 7 basis and attending the complaints in 72 hours.
- v. The Board has constituted night patrolling teams to monitor and identify unauthorized movement of vehicles and illegal discharges / dumping of effluents / hazardous waste and to address complaints received during the night times in and around Hyderabad.
- vi. The Board has installed 100 KWP Roof Top Solar Power System to cater about 50 % of power requirements of Head Office, Sanathnagar and also installed 25 KWP and 15 KWP Roof Top Solar Power Systems for Begumpet and Warangal office buildings, respectively.
- vii. Environmental Research and Development (R & D) focused on the type of industries in the State need to be further intensified.
- viii. Challenges before the Board to tackle the Odour nuisance mainly from Pharma & Chemical industries located in close proximity of Hyderabad city.

34.7 Recommendations

- i. SPCB shall make recruitment to 38 % of the total sanctioned posts lying vacant, 93 % of which are Scientific & Technical Posts. The State Government should grant necessary approvals for the recruitment of the staff required by the State Board and provide funds.
- ii. SPCB shall efficiently make use of its allocated funds.
- iii. SPCB has to immediately initiate action for treatment / disposal of 14 % of its hazardous waste and 22 % of municipal solid waste.
- iv. SPCB shall provide treatment to 70 % of its generated sewage.
- v. The annual action plans need to be prepared specially for –
 - a. better monitoring and control of odour problem for the pharma industries,
 - b. implementation of the action plans for control of pollution in river stretches, industrial clusters and non-attainment cities, and
 - c. improved regulatory controls in regard to sewage and MSW management in the State.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	2	10	0	13

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation	Project staff including field associates and support personnel
110	35	(1)*	(1)*	2	1(3)*	(225)*

**Number in the bracket indicates outsourced staff*

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
42	16	2	60

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
38	6	395	2

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
78.59	340.15	418.74	7.58	42.24	49.82

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
292	2,591	3,349	658	2,692	2

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
2,477	771	739	27	20	1,738

Polluted River Stretches and Status of Action Plans received by CPCB*

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
8	8	1	1	2	2	5	5

*Telangana State submitted one action plan for river Manjeera & river Nakkavagu

Hazardous Waste Generation and Management (2018-19)

No. of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
2,377	3,67,529	2,00,641	1,16,276	25,019

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
3,166	1,999	5,165	1,05,331	1,708	1,670	475	5,181	16,243	16,243

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
8,497	8,360	5,747	869

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
7	1	11	73

Polluted Industrial Cluster(S)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Pattancheru-Bollaram (75.42)	Kukatapally (66.46), Kattedan (60.17)

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Hyderabad
2	Nalgonda
3	Pattancheruvu
4	Sangareddy

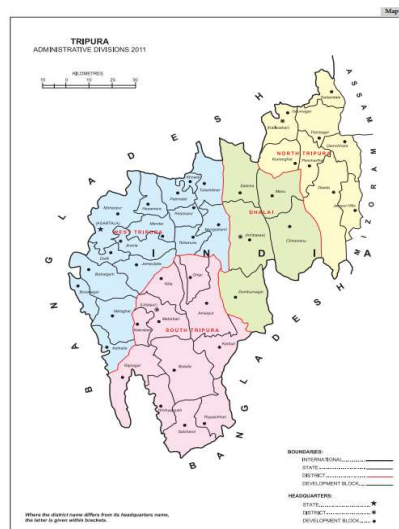
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35.0 TRIPURA

Tripura is a state in northeast India and has Agartala as its capital. With an area of 10,486 km, it is divided into 8 districts. The main hill ranges of Tripura are Sakham Tlang, Langtarai, Athara Mura and Bara Mura.

The chief occupation of the population in the state is agriculture. The major crops are paddy, wheat, jute, sugar cane, potato, turmeric, coconut and oil seeds. Handloom weaving is the single largest industry in Tripura. Bamboo Handicrafts also make a major contribution to the state economy.

Some quality timber like Sal, Garjan, Teak, Gamar are found abundantly in the forests of the State. The service sector comprises only real estate, insurance and tourism industry.



Area: 392 km²

Population: 9,61,453

Districts: 08

Class-I cities: 00

Density: 350 persons/km²

Water Management Index: 47

SDG Index: 58

Health Index: 43.51

SEWAGE: 175 MLD

MUNICIPAL SOLID WASTE: 446 TPD

PLASTIC WASTE: 26 TPA

HAZARDOUS WASTE: 293 TPA

BIOMEDICAL WASTE: 1,402 KG/DAY

INDUSTRIES (RED+ORANGE): 44+444

RIVERS & CANALS: 1,200 KM

WATER BODIES: 0.18 Lakh Ha

Percentage share of the Nation

GDP: 0.29

Population: 0.30

Area: 0.32

35.1 Tripura Pollution Control Board

- i. Tripura SPCB has a total staff of 29; of which 16 are Technical & Scientific, 4 Project staff and 9 Administrative.
- ii. The Board utilized about 97 % of the total budget available (Rs. 9.50 Cr) on the plan activities during the FY 2018-19. The expenditure of Rs. 2.75 Cr on non-plan activities was met from Reserve Funds.
- iii. Tripura SPCB has Central Laboratory in its Head Office at Agartala. SPCB doesn't have any field laboratories in its 3 Regional Offices.
- iv. The Central Laboratory does not have recognition under E (P) Act, 1986 from MoEF&CC and not yet obtained NABL Accreditation. SPCB has no designated Board Analysts.
- v. The laboratory has sampling and analysis facilities for water 35 parameters (6 Physical, 17 Chemical, 10 metals and 2 bacteriological) and air 4 parameters (PM₁₀, PM_{2.5}, SO₂ and NO₂).

35.2 Environmental Monitoring

- i. The state has good Air Quality Monitoring network, but the data is not reviewed for follow-up actions.
- ii. The Water Quality Monitoring in the state is very good with a network of 120 locations. The data generated from the activity is not reviewed for follow-up actions.

35.3 Regulatory Setup / Mechanism

- i. The Board has reported to have identified 44 industries of red category, 444 industries of orange category, 183 industries of green category and 08 industries of white category following the CPCB guidelines. Only 28 % of the industries are operating with valid consents.

There are 5 industries identified under 17 categories and all have been complying with Environmental norms. About 33 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.
- ii. The OCEMS data is not used by the Board for identification of the industries for inspections / actions.
- iii. About 95 % of the sewage generated in the state is reported as not being treated and the quantity is about 167 MLD. All operating STPs are complying with environmental norms.
- iv. Only 4 % of the Hazardous Waste Generators have valid authorization. Out of 293 MTA quantity of generated hazardous waste, about 93 % of

hazardous waste is utilized / recycled and about 3 % of waste is disposed of.

- v. All the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. Entire Bio-Medical Waste generated is being treated and disposed through CBMWTF. However, the one CBWTF has not installed online continuous emission monitoring systems (OCEMS).
- vi. MSW generation in the state was estimated as 446 TPD. Out of which, about 87 % of MSW is collected, about 39 % of the collected waste is treated and about 54 % of generated waste is landfilled in 17 dumpsites.
- vii. Tripura SPCB has received about 27 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- viii. SPCB has reported that there are 1 CETP, 1 CBMWTF and 17 MSW Dumpsites in the state.
- ix. There were 17 industries needed ETPs, 11 industries had functional ETPs and 6 industries were operating without ETPs. SPCB has initiated action against all the industries operating without ETPs.

35.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 100 % of public complaints addressed in stipulated time.
- ii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iii. State Environmental Status Report has been prepared.
- iv. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- v. There are success stories displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- vi. State has Environmental Policy and advised State Govt. on Policy Issues of Environment.
- vii. State has industrial siting policy / criteria.
- viii. Tripura SPCB has prescribed guidelines for green belt development in industrial premises.

35.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has conducted study on impact of pollution on human health / ecosystems.

- iv. SPCB doesn't have its own R & D activities.
- v. SPCB has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

35.6 Areas of Attention

- i. Tripura State Pollution Control Board (TSPCB) has its own Laboratory cum Office Building. The laboratory is capable to analyse Core & General parameters with 14 trace metals of Water and SO₂, NO₂, PM₁₀, PM_{2.5}, etc., of air parameters.
- ii. The 3 Zonal Offices and Laboratories are accommodated in limited area. The technical guidance to the staff is little because of limited interaction with others.
- iii. Performing with limited facilities and manpower in difficult terrain and climatic conditions.

35.7 Recommendations

- i. The State Govt. should appoint (in consultation with CPCB) an expert to conduct an in-depth survey of the State for (i) identification of all the environmentally relevant issues and their regulatory needs in terms of the manpower, infrastructure including the laboratory facilities for the required environmental monitoring / analysis for the regulatory compliance and enforcement and the related data systems, training and development and other needs and (ii) preparation of an action plan for development of the what all gets recommended under (i) above.
- ii. Review and finalization action plan by the Govt. of Tripura in consultation with CPCB.
- iii. SPCB shall make recruitment to 23 % of the total sanctioned posts lying vacant, 80 % of which are Scientific & Technical Posts.
- iv. SPCB shall make plan for treatment / disposal of remaining 13 % of Municipal Solid Waste.
- v. SPCB shall provide treatment to 95 % of its generated sewage.
- vi. The Tripura Board should obtain NABL accreditation and Laboratory recognition under E(P) Act, 1986 from MoEF&CC.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	3	0	4

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
16 + (4)*	9	0	0	0	0

*Number in the bracket indicates project staff

Availability of Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Number of Vehicles

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
2	6	0	8

Number of Water / Air Quality Monitoring Stations / Locations

Air		Water	
NAMP / SAMP	CAAQMS	NWMP / SWMP	RTWQMS
2	0	100	0

Budget Utilization Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
9.50	5.00	14.50	9.21	2.75	11.96

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
5	44	444	183	8	NIL

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
175	8	8	1	1	167

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
6	6	0	0	0	0	6	6

Hazardous Waste Generation and Management (2018-19)

No. of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
171	293	273	9	12

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
158	1,585	1,743	4,701	536	536	Nil	207	1,402	1,402

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
446	389	150	239

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
1	-	1	17

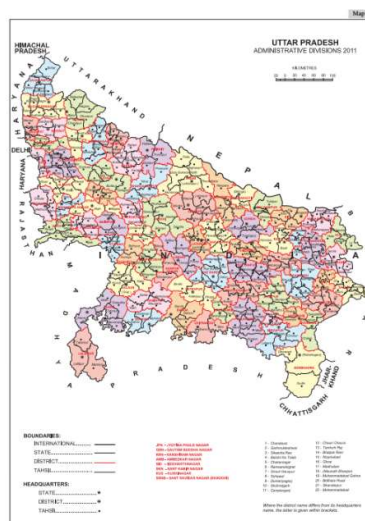
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36.0 UTTAR PRADESH

Uttar Pradesh is India's most populous state with a population of 19,95,81,477 (2011 census). It is divided into 75 districts with Lucknow as its capital. Other important cities in Uttar Pradesh are Agra, Prayagraj, Varanasi, Kanpur, Ayodhya and Mathura. Uttar Pradesh is bounded by Nepal on the North, HP on the northwest, MP on the south, Haryana on the west, Rajasthan on the southwest, and Bihar on the east. Wheat, rice, sugar cane, apples, mango, pulses, oilseeds and potatoes are the main crops of Uttar Pradesh.

The main rivers flowing through the State are Ganga, Yamuna, Gomti, Ghaghra, Ramganga, and Betwa. The State has industrial hubs all over State and known for manufacturing and export oriented units.

Uttar Pradesh boasts of a growing service sector, which includes tourism, healthcare, information technology services, financial services and insurance.



Area: 2,40,928 km²	SEWAGE: 8,095 MLD
Population: 19,98,12,341	MUNICIPAL SOLID WASTE: 17,377 TPD
Districts: 75	PLASTIC WASTE: 2,54,402 TPA
Class-I cities: 07	HAZARDOUS WASTE: 2,49,589 TPA
Density: 829 persons/km²	BIOMEDICAL WASTE: 52.5 TPD
Water Management Index: 39	INDUSTRIES (RED+ORANGE): 3,048+5,704
SDG Index: 55	RIVERS & CANALS: 28,500 KM
Health Index: 28.61	WATER BODIES: 4.32 Lakh Ha
Percentage share of the Nation	GDP: 9.19 Population: 16.50 Area: 7.33

36.1 Uttar Pradesh Pollution Control Board

- i. The State Board has Head Office in Lucknow and 28 Regional Offices in the State.
- ii. UPPCB has 340 Technical & Scientific manpower (including 70 Project staff) and 270 Administrative staff.
- iii. The Board has 40 general purpose vehicles and 38 vehicles for sampling and monitoring.
- iv. UPPCB had Annual Budget of Rs. 104.81 Cr during FY 2018-19 and Reserve Funds of Rs. 70.71 Cr in terms of FDs. State had plan expenditure of Rs. 4.70 Cr and non-plan expenditure of Rs. 79.94 Cr.
- v. UPPCB has Central Laboratory in its Head Office at Lucknow. SPCB has 21 Regional Laboratories in its 28 Regional Offices.
- vi. SPCB's Central Laboratory has recognition under E (P) Act 1986 from MoEF&CC, valid up to 02.10.2023. However, other 21 Regional Laboratories have not obtained the recognition.
- vii. The SPCB has 4 designated Board Analysts.
- viii. SPCB has sampling / analysis facilities for parameters as listed in Appendix 'A' of CPCB Guidelines for recognition of Laboratories under the Environmental (Protection) Act, 1986.
- ix. SPCB's Central Laboratory has accreditation for four major group of parameters i.e. Core, General, Trace Metals and Ambient Air parameters.

36.2 Environmental Monitoring

- i. State has 74 Air Quality Monitoring Stations (62 of national network NAMP and 12 its own network) and 21 Continuous Ambient Air Quality Monitoring Stations (CAAQMS). 32 % of the districts in the State have Air Quality Monitoring Stations, 23 % of which have facility for PM_{2.5} monitoring.
- ii. State has observed improvement in Air Quality, 6 % reduction with respect to PM_{2.5} in 2018-19 when compared to 2017-18. It has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB and to enable their use in planning of control measures. However, state has not prepared action plans for identified polluted areas.
- iii. State has 141 water quality monitoring stations, out of which 117 are under national network NWMP and 24 of its own network. There are 23 stations / 1000 km length of major and medium rivers. State shares Water Quality Data with CPCB. State has not reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB.

36.3 Regulatory Setup / Mechanism

- i. The Uttar Pradesh Board has reported 3,048 industries of red category; 5,704 industries of orange category and 3,646 industries of green category following the CPCB guidelines. About 84 % of the industries are having valid consents to operate.
- ii. There are 807 industries of 17 categories and 1,079 grossly polluting industries identified along the rivers / lakes. About 97 % of 17 category industries have been complying with Environmental norms. 25 non-complying industries, SPCB has issued show cause notice / direction to 1 industry and closure directions to 24 industries.
- iii. About 88 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.
- iv. About 88 % of Grossly Polluting Industries (GPI) have been complying with Environmental norms. Out of 129 non-complying industries, show-cause notices were issued to 5 industries, closure directions to 84 industries, legal case filed against one, and action was under process against 39 industries.
- v. The OCEMS data is used by the Board for identification of the industries for inspections / actions.
- vi. About 67 % of the sewage generated in the state is reported as not being treated and the quantity is about 5,434 MLD.

About 77 % of STPs are complying with environmental norms and show-cause notice was issued to one STP, while action was pending against 21 STPs.
- vii. About 91 % of the Hazardous Waste Generators have valid authorization. Out of 2,49,589 MTA quantity of generated hazardous waste, about 60 % of hazardous waste is utilized / recycled and about 41 % of waste is disposed through TSDFs.
- viii. About 96 % of the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. Entire Bio-Medical Waste generated is being treated and disposed through CBMWTFs and both the Facilities have installed online continuous emission monitoring systems (OCEMS).
- ix. Show-cause notices / Directions have been issued by SPCB to only 16 % of HCFs / CBWTFs violating environmental norms.
- x. MSW generation in the state was estimated as 17,377 TPD. Almost all of MSW is reported as collected and about 27 % of collected waste is treated.
- xi. SPCB has not received half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xii. Uttar Pradesh SPCB has reported that there are 5 CETPs, 4 TSDFs, 2 CBMWTFs and 609 MSW Dumpsites in the state.

- xiii. There are 9 critically polluted industrial clusters (Mathura, Kanpur, Moradabad, Varanasi-Mirzapur, Bulandsahar-Khurja, Firozabad, Gajraula Area, Agra, Ghaziabad) and 4 severely polluted industrial clusters (Noida, Meerut, Aligarh, Singrauli). There are 15 non-attainment cities (Agra, Allahabad, Anpara, Bareilly, Firozabad, Gajraula, Ghaziabad, Jhansi, Kanpur, Khurja, Lucknow, Moradabad, Noida, Raebareli & Varanasi) in the state.

36.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. State has public grievance registration and redressal system and 96 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. Public Hearing Proceedings by SPCB are displayed on website.
- v. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vi. SPCB has provided citizen's charter.
- vii. There are success stories displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- viii. State does not have Environmental Policy; however, it advised State Govt. on Policy Issues of Environment.
- ix. State doesn't have industrial siting policy / criteria.
- x. SPCB has prescribed guidelines for green belt development in industrial premises.

36.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has not conducted any study on impact of pollution on human health / ecosystems.
- iv. SPCB doesn't have its own R & D activities.
- v. SPCB has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

36.6 Areas of Attention

- i. Uttar Pradesh PCB has made efforts for using the OCEMS for regular monitoring of the industries, with a dedicated team in the Control Room.

Regular Surveillance through Web Cams and Action against defaulting units based upon inspection has been set up for effective working.

- ii. UPPCB working on Three-Tier Monitoring Framework for compliance of Environmental Laws in the state to enable monitoring at District, State and Chief Secretary level through a dedicated Web Portal and well defined periodicity.
- iii. UPPCB has successfully executed Action Plan for Kumbh for maintaining the river water quality and addressing the waste management issues for the Kumbh mass-bathing festival. It is intended to continue intensive monitoring of rivers and drains post-Kumbh throughout the State.
- iv. The Board has compiled status of Red, Orange, Green, GPIs, Hazardous waste generating industries based on consent and authorisation issued by it. There is a gap on compliance status in field and the records.
- v. The specific need was felt for Industrial Siting Policy based on environmental consideration and sensitivity of the area prescribing stringent standards based on location specificity as per CPCB guidelines.

36.7 Recommendations

- i. SPCB shall make recruitment to 32 % of the total sanctioned posts lying vacant, 51 % of which are Scientific & Technical Posts. The expeditious approval of the proposal by the State Government will facilitate strengthening of the Board as required immediately.
- ii. SPCB shall make plan for increasing its spending on mandated functions which was merely 5 % of its annual budget in 2019 at the time of Audit.
- iii. SPCB is required to provide information on municipal solid waste disposed in landfill sites.
- iv. SPCB shall provide treatment to 67 % of its generated sewage.
- v. A dedicated Waste Management Cell in UPPCB should expedite the efforts to meet the requirement of all Waste Management Rules. The same Cell may also adopt / follow protocol / guidelines to identify contaminated sites in the state and come out with Action Plan for remediation.
- vi. A comprehensive Action plan should be prepared by the State Board addressing the issues of sewage management, rejuvenation of water bodies, remediation of contaminated sites, air quality and scientific management of wastes.
- vii. As required, Uttar Pradesh PCB need to continue its effort to ensure adequate laboratory facilities at Regional level to analyse physical chemical and biological parameters, with respect to Air, Water and Wastes etc. for the purpose to obtain accreditation by NABL and recognition under E(P) Act, 1986.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	28	0	29

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
270 + (70)*	270	5	2	22	1

*Number in the bracket indicates project staff.

Associated Facilities

Library	Training Hall	Conference Hall
1	1	2

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
40	38	0	78

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
104.81	70.71	175.53	4.70	79.94	84.64

Number of Water / Air Quality Monitoring Stations / Locations

Air			Water		
NAMP	SAMP	CAAQMS	NWMP	SWMP	RTWQMS
62	12	21	117	24	16

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
807	3,048	5,704	3,646	-	1,079

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
8,095	3,335	2,661	104	85	5,434

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
12	12	4	4	0	0	8	8

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
2,460	2,49,589	1,50,762	1,02,321	4,615

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
11,246	4,289	16,075	2,23,905	10,964	9,540	6,535	9,397	46,401	46,401

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
17,377	17,329	4,615	INP

INP = Information not provided

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
5	4	2	609

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Mathura (91.10), Kanpur (89.46), Moradabad (87.80), Varanasi-Mirzapur (85.35), Bulandsahar-Khurza (85.23), Firozabad (81.62), Gajraula Area (80.14), Agra (76.22), Ghaziabad (72.30)	Noida (68.76), Meerut (66.09), Aligarh (64.42), Singrauli (62.59)

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Agra
2	Allahabad
3	Anpara

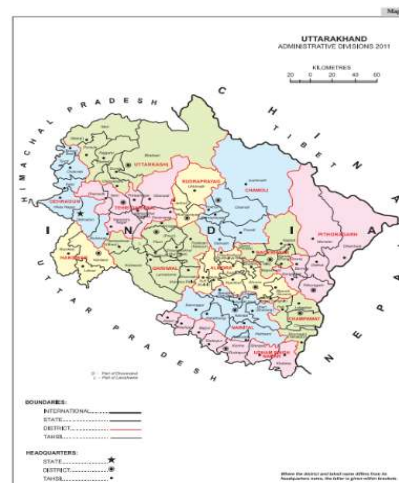
4	Bareilly
5	Firozabad
6	Gajraula
7	Ghaziabad
8	Jhansi
9	Kanpur
10	Khurja
11	Lucknow
12	Moradabad
13	Noida
14	Raebareli
15	Varanasi

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37.0 UTTARAKHAND

Uttarakhand, formerly known as Uttaranchal, was formed out of the north-western districts of Uttar Pradesh in the year 2000. It is one of the most naturally bestowed states in India. Uttarakhand shares its borders with Tibet in the north, Uttar Pradesh in the south, Nepal in the east, Haryana in the west and HP in the North West.

The state stretches over an area of 20,682 sq. mi of land. Dehradun is the capital and the state has 13 districts which are grouped into two divisions namely Garhwal and Kumaon. The state is spread over 53,483 square kilometres and has a population of 1,00,86,292 as per 2011 Census. The important rivers flowing through the state are Ganga, Yamuna, Ramganga and Kali.



Area: 53,483 km²	SEWAGE: 563 MLD
Population: 1,00,86,292	MUNICIPAL SOLID WASTE: 1,527 TPD
Districts: 13	PLASTIC WASTE: 31,093 TPA
Class-I cities: 00	HAZARDOUS WASTE: 24,001 TPA
Density: 189 persons/km²	BIOMEDICAL WASTE: 4,111 KG/DAY
Water Management Index: 49	INDUSTRIES (RED+ORANGE): 2,837+2,905
SDG Index: 64	RIVERS & CANALS: 2,686 KM
Health Index: 40.20	WATER BODIES: 0.20 Lakh Ha
Percentage share of the Nation	GDP: 1.31 Population: 0.83 Area: 1.63

37.1 Uttarakhand Pollution Control Board

- i. The Board has its Head Office in Dehradun and 4 Regional Offices.
- ii. SPCB has 51 Technical & Scientific manpower (including 33 project staff) and 7 Administrative staff.
- iii. It has 4 general purpose vehicles and 7 vehicles for sampling and monitoring.
- iv. State had Annual Budget of Rs. 31.90 Cr in FY 2018-19 and Reserve Funds of Rs. 144.26 Cr in terms of FDs. State had non-plan expenditure of Rs. 11.53 Cr and details on plan expenditure were not provided.
- v. Uttarakhand SPCB has Central Laboratory in its Head Office at Dehradun. SPCB has also one Regional Laboratory.
- vi. The SPCB's Laboratory does not have recognition under E (P) Act, 1986 from MoEF&CC and not initiated for NABL Accreditation.
- vii. SPCB has no designated Board Analysts.
- viii. The laboratory has sampling and analysis facilities for 16 parameters under General & Non-Metallic category and three parameters under Microbiological Tests.

37.2 Environmental Monitoring

- i. The State has 8 Air Quality Monitoring Stations in network of NAMP. One third of the district had Air Quality Monitoring Stations and only three stations had facility for PM_{2.5} monitoring. State shares Air Quality Data with CPCB.
- ii. State has observed improvement in Air Quality as 17 % reduction with respect to PM_{2.5} was observed in 2018-19 in comparison to 2017-18. It has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB and to enable their use in planning of control measures. It has been reported that State has prepared action plans for identified polluted areas.
- iii. State has 58 water quality monitoring stations under national network (NWMP). State has its own water quality monitoring programme. State shares Water Quality Data with CPCB on regular basis. State has reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB. But, has not provided details on the action plans prepared.

37.3 Regulatory Setup / Mechanism

- i. The Board has reported to have identified 786 industries of red categories, 2,837 industries of orange category, 2,905 industries of green category and

249 industries of white category following the CPCB guidelines. About 52 % of the industries are having valid consent to operate.

- ii. There are 43 industries of 17 categories and 64 grossly polluting industries identified along the rivers / lakes. About 91 % of 17 category industries have been complying with Environmental norms. In case of 4 non-complying industries, show-cause notice was issued to one unit, closure directions issued to one and action under process against 2 industries.
- iii. About 88 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.

About 84 % of Grossly Polluting Industries (GPI) have been complying with Environmental norms. Out of 10 non-complying industries, show-cause notice was issued to one unit, closure directions to another unit and action under process against 8 industries.

- iv. The OCEMS data is used by the Board for identification of the industries for inspections / actions.
- v. About 79 % of the sewage generated in the state is reported as not being treated and the quantity untreated is about 446 MLD.

About 96 % of STPs are complying with environmental norms and show cause notices / directions have been issued to the remaining non-complying STPs.

- vi. About 90 % of the Hazardous Waste Generators have valid authorization. Out of 24,001 MTA quantity of generated hazardous waste, about 96 % of hazardous waste is utilized / recycled and about 39 % of waste is disposed through TSDFs.
- vii. About 56 % of the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. Almost all waste (99 %) is being treated and disposed through CBMWTFs and 50 % of the Facilities have installed online continuous emission monitoring systems (OCEMS).

Show-cause notices / Directions have been issued by Uttarakhand SPCB to only 6 % of HCFs / CBWTFs violating environmental norms.

- viii. MSW generation in the state was estimated as 1,527 TPD. Out of which, about 94 % of MSW is collected and about 34 % of the total waste is landfilled.
- ix. SPCB has received about 94 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- x. SPCB has reported that there are 3 CETPs, 1 TSDF, 18 CBMWTFs and 42 MSW Dumpsites in the state.

- xi. There were 830 industries needed ETPs, all the 830 industries had functional ETPs and all are complying environmental norms except 2 ETPs. Uttarakhand SPCB has issued show-cause notice to one unit and closure directions to another unit for non-complying environmental norms of ETPs.
- xii. There is one critically polluted industrial cluster (Udham Singh Nagar) and 3 non-attainment cities (Kashipur, Rishikesh & Dehradun) in the state.

37.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. Uttarakhand State has public grievance registration and redressal system and 100 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State has prepared Environmental Status Report.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. SPCB has provided citizen's charter.
- viii. Success stories are not displayed on public domain on technologies (BAT) or practices (BEP) by industries / municipalities.
- ix. SPCB has not been compiling environmental statement submitted by industries every year.
- x. State does not have Environmental Policy and it has advised State Govt. on Policy Issues of Environment.
- xi. State doesn't have industrial siting policy / criteria.
- xii. SPCB has prescribed guidelines for green belt development in industrial premises.

37.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iv. SPCB doesn't have its own R & D activities.
- v. SPCB has not tied up with any State / Central institutes conducting R & D in the field of environmental pollution.

37.6 Areas of Attention

- i. The Uttarakhand Board has compiled reports on inventory of industries, waste management and published other study reports.
- ii. The Board has identified Air Pollution hotspots, followed by formulation of Action Plan, based on ambient air quality data generated by it.
- iii. There is an immediate need for development of 'A' class Central Laboratory infrastructure at UEPPCB headquarter at Dehradun, with trained manpower and facilities to analyse all the necessary physical, chemical and biological parameters, with respect to Air, Water and Wastes etc.
- iv. Being a hilly state, it is essential that the planning of industrial estate / parks should be done as per CPCB guidelines and the identification of industrial categories that can be permitted in concerned industrial estate / parks.
- v. UEPPCB is required to expand its monitoring network for ambient air and water quality in the entire state. Further, an assessment is necessary to establish additional Regional Offices to have active presence in the entire area of the State.

37.7 Recommendations

- i. SPCB shall make recruitment to 71 % of the total sanctioned posts lying vacant, 80 % of which are Scientific & Technical Posts. The Board should prepare a comprehensive proposal to strengthen its infrastructure, long-term plans & funds and obtain approval from State Government.
- ii. SPCB is required to provide information on municipal solid waste subjected to treatment.
- iii. SPCB shall provide treatment to 79 % of its generated sewage.
- iv. UEPPCB has been in the process of granting consent to different industrial sectors with a condition of "Zero Liquid Discharge". There is a need to develop a policy / guidelines to rationalise such approach to eliminate any possibility of adverse impact on recipient environment.
- v. Being a hilly state, it is essential that the planning of industrial estate / parks should be done as per CPCB guidelines and the identification of industrial categories that can be permitted in concerned industrial estate / parks.
- vi. SPCB specific issues such as high inflow of religious, adventure and other tourists almost throughout the year and on specific occasions is required to be considered for preparing specific environmental action plans and their implementation in a time bound manner.
- vii. UEPPCB is required to collaborate with premier Indian Academic / Research Institutions to undertake R & D studies addressing State Specific Environmental issues.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
1	0	4	0	5

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
18 + (33)*	7	0	0	1	0

*Number in the bracket indicates project staff.

Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
4	7	0	11

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
31.90	144.26	176.16	0.00	11.53	11.53

Number of Water / Air Quality Monitoring Stations / Locations

Air			Water		
NAMP	SAMP	CAAQMS	NWMP	SWMP	RTWQMS
8	0	0	58	12	1

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 Category	Red	Orange	Green	White	GPI
43	786	2,837	2,905	249	64

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. Of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
563	151	117	25	17	446

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
9	9	3	3	1	1	5	5

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
4,214	24,001	23,121	9,409	2,581

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
1,015	1,297	2,312	19,765	582	328	1,730	1,341	4,111	4,075

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
1,527	1,437	INP	524

INP = Information not provided

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
3	1	18	42

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
Udham Singh Nagar (81.26)	-

Non- Attainment (Air Polluted) Cities

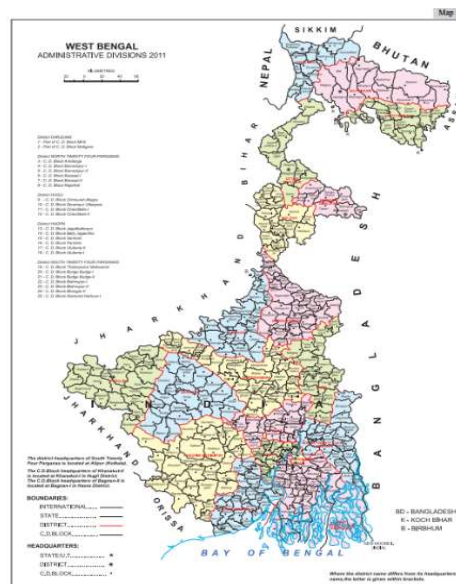
S. No.	Name
1	Kashipur
2	Rishikesh
3	Dehradun

*

38.0 WEST BENGAL

West Bengal state extends from Bay of Bengal in the south to the Himalayan mountain ranges in the north. The capital of the state of West Bengal is Kolkata and in terms of population, West Bengal ranks as the fourth most populated state in India. There are 23 districts in the state and these are distributed into three divisions in the state, Jalpaiguri, Burdwan, and Presidency. The state covers a total area of 88,752 km². According to the census performed in 2011, the population of the state was 9,13,47,736.

The state has diverse geographical features which include towering summits of the Himalayan Mountain Range, flat terrain, rivers, and sea. The main rivers of the State are Hooghly, Teesta, Torsa, Subarnarekha and Joldhara.



Area: 83,632 km²	SEWAGE: 5,303 MLD
Population: 6,21,83,113	MUNICIPAL SOLID WASTE: 14,613 TPD
Districts: 23	PLASTIC WASTE: 3,00,236 TPA
Class-I cities: 02	HAZARDOUS WASTE: 1,85,744 TPA
Density: 1,028 persons/km²	BIOMEDICAL WASTE: 34.12 TPD
Water Management Index: NA	INDUSTRIES (RED+ORANGE): 3,900+12,185
SDG Index: 60	RIVERS & CANALS: 2,526 KM
Health Index: 57.17	WATER BODIES: 3.35 Lakh Ha
Percentage share of the Nation	GDP: 7.53 Population: 7.54 Area: 2.70

38.1 West Bengal Pollution Control Board

- i. The State Board has Head Office in Kolkata and 11 Regional Offices.
- ii. The SPCB has 114 Technical & Scientific manpower (including 15 Project staff) and 58 Administrative staff.
- iii. The Board has 11 general purpose vehicles and 40 vehicles for sampling and monitoring.
- iv. WBPCB had Annual Budget of Rs. 112.58 Cr in 2018-19 and Reserve Funds in the form of FDs of Rs. 603.77 Cr. State had plan expenditure of Rs. 72.13 Cr and non-plan expenditure of Rs. 40.45 Cr.
- v. WBSPCB has Central Laboratory at Head Office, Kolkata and 6 Regional Laboratories at regional offices.
- vi. The Central and 6 Regional Laboratories have not obtained recognition under E (P) Act, 1986 from MoEF&CC and SPCB does not have designated Board Analysts.
- vii. SPCB's Central Laboratory has accreditation for four major group of parameters i.e. Core, General, Trace Metals and Ambient Air parameters.

38.2 Environmental Monitoring

- i. State has 79 Air Quality Monitoring Stations (72 of national network NAMP and 7 its own network) and 14 Continuous Ambient Air Quality Monitoring Stations (CAAQMS). All the districts in the State have Air Quality Monitoring Stations, 31 % of which have facility for PM_{2.5} monitoring. State shares Air Quality Data with CPCB.
- ii. State has not observed improvement in Air Quality with respect to PM_{2.5} and PM₁₀ levels in FY 2018-19 when compared to FY 2017-18. It has reviewed Air Quality Data to identify non-attainment cities and critically polluted areas in addition of those identified by CPCB and to enable their use in planning of control measures. State has prepared action plans for 80 % of those identified polluted areas.
- iii. State has 154 water quality monitoring stations, out of which 137 are under national network NWMP and 17 of its own network of stations. There are 10 Real Time Water Quality Monitoring Stations (RTWQMS) of CPCB in the State. There are 39 stations / 1000 km length of major and medium rivers. It has observed improvement in water quality in 11 % of locations in 2018-19 compared to 2017-18. State shares Water Quality Data regularly in its own format with CPCB. State has not reviewed Water Quality Data to identify polluted stretches in addition of those polluted river stretches identified by CPCB and to enable their use in planning of control plans.

38.3 Regulatory Setup / Mechanism

- i. The West Bengal Board has identified 3,900 industries of red category; 12,185 industries of orange category and 19,351 industries of green category following the CPCB guidelines. About 96 % of the industries are having valid consents to operate.
- ii. There are 97 industries of 17 categories and 38 grossly polluting industry identified along the rivers / lakes. About 75 % of 17 category industries have been complying with Environmental norms. The 24 non-complying industries, show-cause notices were issued to 15 industries and closure directions to 9 industries.
- iii. About 81 % of 17 category industries have installed online continuous emission monitoring systems (OCEMS) and connected with CPCB server. Closure directions under section 5 of Environment (P) Act, 1986 have been issued against the units which have not installed OCEMS.
- iv. About 71 % of Grossly Polluting Industries (GPI) have been complying with Environmental norms. Out of 11 non-complying industries, show-cause notices were issued to 9 industries and closure directions to 2 industries.
- v. The OCEMS data is not used by the Board for industrial inspections / follow-up actions.
- vi. About 96 % of the sewage generated in the state is reported as not being treated and the quantity is about 5,094 MLD.
- vii. Only 5 % of STPs are complying with environmental norms and action is under process against the remaining non-complying STPs.
- viii. About 65 % of the Hazardous Waste Generators have valid authorization. Out of 1,85,744 MTA quantity of generated hazardous waste, about 50 % of hazardous waste is utilized / recycled and about 33 % of waste is disposed through TSDFs.
- ix. About 98 % of the Health Care Facilities (HCFs) who have applied for authorization under the Bio-Medical Waste Management Rules were issued authorization. All the waste generated is being treated and disposed through CBMWTFs and these facilities have installed online continuous emission monitoring systems (OCEMS).
- x. Show-cause notices / Directions have been issued by SPCB to almost all the HCFs / CBWTFs (99 %) violating environmental norms.
- xi. MSW generation in the state was estimated as 14,613 TPD. Out of which, about 89 % of MSW is collected, only 7 % of the collected waste is treated and about 2 % of generated waste is landfilled.
- xii. SPCB has received about 40 % of the half yearly returns from stakeholders during last year under the Batteries (Management and Handling) Rules, 2001.
- xiii. SPCB has reported that there are 1 CETP, 1 TSDF, 6 CBMWTFs and 100 MSW Dumpsites in the state.

- xiv. There were 21 industries needed ETPs, 21 industries are having functional ETPs and non-complying 2 ETPs with the environmental norms, show-cause notice / directions were issued.
- xv. There are three severely polluted industrial clusters (Bandel, Durgapur & Howrah) and 7 non-attainment cities (Kolkata, Asansol, Barrackpore Durgapur, Haldia, Howrah & Raniganj) in the state.

38.4 Policy Initiatives, Public Outreach & Information Disclosure

- i. West Bengal State has public grievance registration and redressal system and 100 % of public complaints addressed in stipulated time.
- ii. SPCB has online complaint management system.
- iii. Directions issued, Environmental Quality Data, Technical Reports and Annual Reports prepared by SPCB are displayed on website.
- iv. State has prepared Environmental Status Report.
- v. Public Hearing Proceedings by SPCB are displayed on website.
- vi. SPCB has organised stakeholder meeting / awareness for new environmental Rules / Standards amended from time to time.
- vii. State has not provided citizen's charter and has not displayed any success stories of Industries / municipalities on technologies (BAT) and practices (BEP) in public domain.
- viii. SPCB has not been compiling environmental statement submitted by industries every year.
- ix. State has industrial siting policy.
- x. SPCB has advised State Government on environmental policy issues.
- xi. There are state level monitoring committees on environmental issues.
- xii. SPCB has not prescribed guidelines for green belt development in industrial premises.

38.5 Capacity Building & Initiatives

- i. SPCB conducts orientation programme for newly recruited staff.
- ii. SPCB organized mass awareness / education programmes.
- iii. SPCB has conducted study on impact of pollution on human health / ecosystems.
- iv. SPCB has its own R & D activities.
- v. SPCB has tied up with State / Central institutes conducting R & D in the field of environmental pollution.

38.6 Areas of Attention

- i. The West Bengal Board has well equipped laboratory having NABL accreditation for most of the required parameters.
- ii. WBPCB has taken several initiatives beyond their regulatory activities e.g. installation of solar photovoltaic cell in different institutions, implementation of rain water harvesting system, installation of bio-methanation plant, bioremediation of abandoned solid waste dumpsite of Kolkata and providing coal-bed methane operated buses in polluted industrial areas.
- iii. Mass awareness programmes are also being organised on regular basis by the Board to educate police personnel and students.
- iv. In spite of WBPCB regularly monitoring the STPs, the performances of the STPs were not satisfactory.
- v. The board usually gives emphasis on compliance by issuing necessary directions to non-Compliant industries. The board deploys regulatory and financial instruments including closure before opting for Court cases.

38.7 Recommendations

- i. The Board needs strengthening in terms of manpower for effective performance of its functions. State shall make recruitment to 42 % of the total sanctioned posts lying vacant, 49 % of which are Scientific & Technical Posts. The State Government should grant all approvals for the recruitment of the staff required by the State Board.
- ii. SPCB shall make plan for utilization of reserve funds in banks to the tune of ₹ 604 Crore.
- iii. SPCB shall make plan for treatment / disposal of remaining 91 % of Municipal Solid Waste.
- iv. SPCB shall provide treatment to 96 % of its generated sewage.
- v. The SPCB should prepare its action plans starting from the year 2020-21 for attending the issues listed in this report and the gaps in the implementation of the various rules notified under the E (P) Act 1986.

Important Information at a Glance**Number of Offices**

Central	Zonal	Regional	Sub-Regional	Total
2	0	11	0	13

Manpower

Technical & Scientific	Administrative	Legal	Training	IT	Public Relation
99+ (15)*	58	1	0	4	1

*Number in the bracket indicates project staff.

Associated Facilities

Library	Training Hall	Conference Hall
Yes	Yes	Yes

Transport

General Vehicles	Sampling / Monitoring Vehicle	Mobile Laboratories	Total
11	40	0	51

Financial Status (2018-19)

Available (Rupees Crore)			Expenditure (Rupees Crore)		
Annual	Reserved	Total	Plan	Non-Plan	Total
112.58	603.77	716.35	72.13	40.45	112.58

Number of Water / Air Quality Monitoring Stations / Locations

Air			Water		
NAMP	SAMP	CAAQMS	NWMP	SWMP	RTWQMS
72	7	14	137	17	10*

*(in the scope of CPCB)

Major Environmental Issues of Audit Concern**Industrial Pollution**

Category wise No. of Industries					
17 category	Red	Orange	Green	White	GPI
97	3,900	12,185	19,351	-	38

Sewage (As on March, 2018)

Sewage Generation of Urban Population (MLD)	Installed Treatment Capacity (MLD)	Operational Capacity (MLD)	No. of STPs	No. of STPs operational	Actual gap between Generation and Treatment (MLD)
A	B	C	D	E	A-C
5,303	558	209	43	10	5,094

Polluted River Stretches and Status of Action Plans received by CPCB

Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
		No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w.r.to P-III to V
17	17	1	1	1	1	15	15

Hazardous Waste Generation and Management (2018-19)

No of HW generating Units	Total quantity Generated / received	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
(Quantities in metric tonnes)				
716	1,85,744	92,709	60,585	50,127

Bio Medical Waste Management (As on 2018)

Total No. of Bedded Health Care Facilities (HCFs)	Total No. of Non-Bedded Health Care Facilities (HCFs)	Total No. of Health Care Facilities (HCFs)	Total No. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
				Total No. of HCFs applied for authorization	Total No. of HCFs granted authorization	Total No. of HCFs in operation without authorization			
2,990	4,757	7,747	1,16,991	7,747	7,619	Nil	7,747	34,123.62	34,123.62

Municipal Solid Waste (MSW) Management (2018-19)

Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
14,613	13,065	916	334

Common Waste Treatment / Disposal Facilities

CETP	TSDF	CBMWTF	MSW Dumpsites
1	1	6	100

Polluted Industrial Cluster(s)

Critically Polluted (CEPI > 70)	Severely Polluted (CEPI 60-70)
-	Bandel (67.64), Durgapur (65.56), Howrah (61.76)

Non- Attainment (Air Polluted) Cities

S. No.	Name
1	Kolkata
2	Asansol
3	Barrackpore
4	Durgapur
5	Haldia
6	Howrah
7	Raniganj

*

39.0 Overall Observations / Findings

39.1 Performance

- (i) Many States / UTs have not yet felt the need for state specific Environment Policy. The existing Environment Policies at other States need a review to address changes in recent past after year 2000. The new thrust areas are related to the civic issues and waste management practices.
- (ii) There are many SPCBs / PCCs who have not yet prepared the Environment Status Reports. There is a strong need of preparing such reports regularly incorporating the inventory of wastes and management regulations revised in the year 2016.
- (iii) Most of the SPCBs / PCCs (exceptions NE States and UTs such as Lakshadweep) do not have any kind of financial constraints and the budget utilization is mostly for the non-plan activities. There are many SPCBs which have built reserves funds.
- (iv) A number of States still do not have the industrial siting policy / criteria. It is very important step in regulating industrial growth, specially for the hilly states in view of the very sensitive ecology.
- (v) The SPCBs / PCCs are not submitting annual reports as per the timelines specified in the various rules. This in-turn affects the timely compilation and preparation of the National Status Report by CPCB. Considerable improvement in compliance with reference to the submissions was seen after 2018.
- (vi) The difference in the number of consents and the authorizations issued to the industries indicates that many of the SPCBs / PCCs have still not adopted the practice of issuing the integrated / consolidated consents. It may be mentioned here the prevailing legislation do not permit any industry to operate only with consents under the Water or Air Acts, in case the industries generating hazardous waste and not have obtained authorization.
- (vii) SPCBs / PCCs are not conducting regular inspections of the industries for timely identification and action against the defaulters. In some states, the “Ease of Doing Business” policy has stopped mandatory inspections.
- (viii) Many SPCBs having CETPs have not yet prescribed the inlet standards. This implies that the uncertainty, of the member industries discharging their effluents into the CETP not complying these standards, continues to prevail. Moreover, the CETP facility has no

way to stop the inflow of the waste water coming for treatment even if a default in the inlet standards is noticed.

- (ix) The quantity of the hazardous waste shown as 'sent to the TSDF' in the returns filed by the industries needs verification or tracking. It was reported in some cases the waste didn't reach the final designated TSDF. This not only leaves the risk for the hazardous waste to be disposed in an illegal manner, but also the very sustainability of the TSDF facility.
- (x) It has been 19 years since the Batteries Management Rules got notified in 2001 but, the compliance with the Rules is very poor. There are only very few SPCBs which have received the half yearly returns to the extent of 100 %.
- (xi) The implementation of the Bio-Medical Waste Management Rules 2016, is reasonably satisfactory. Most of the SPCBs / PCCs have inventorized the health care facilities and issued authorizations for the environmentally sound management of this waste.
- (xii) The present number / distribution of the Air / Water Quality Monitoring Stations is not adequate for getting the representative status of the Air / Water Quality of the State / UT. The Class II towns and stagnant water bodies in States are not part of the monitoring networks.
- (xiii) Majority of the SPCBs / PCCs do not have well-equipped laboratories required for the quality assurance in the analysis & data generation. It may be mentioned here that generation of representative analysis data is essential for the preparation of action plans for abatement and control of pollution. There are few laboratories that made extra efforts for obtaining recognition under E (P) Act and NABL accreditation.
- (xiv) The monitoring of coastal waters presently is practically insignificant, looking at the country's long coastline of more than 7500 kilometres. It has been reported that the sewage and solid waste management issues are more prevalent in coastal districts
- (xv) There is a big gap between the capacity of the STPs installed and the sewage generated in various states. Moreover, in many States the treatment / disposal of the sewage through its anaerobic digestion in the septic tanks followed by soak pits is also permitted. The latter however is not reflected anywhere for collection and compilation of the data in regard to the sewage generation & its management.
- (xvi) The analysis of the municipal waste data indicates that although the collection of this waste is satisfactory but the details about the further accounting of its treatment & disposal are not available.

39.2 Major Limitations

- (i) Most of the SPCBs / PCCs reported shortage of manpower impacting their performance. It may be mentioned here that the recruitment of the staff by the SPCBs / PCCs requires approval of their respective Governments.
- (ii) There are few SPCBs / PCCs which need guidance in regard to their entire setup and functions.
- (iii) Some of the SPCBs have real challenges in effective performance of their functions in view of the varying geographical, climatic & other such conditions of the State / UT.
- (iv) The boards have adopted different procedures and processes in consent management and other regulatory functions.
- (v) The Boards and Committees constituted by the State Governments have not met regularly to review the functioning and provide much needed vision.

40.0 Overall Recommendations

- (i) The State / UT Governments should allow the recruitment of the staff required by the respective SPCB / PCC and if needed, comprehensive assessments may be made by the States.
- (ii) Based on the information collected on manpower at SPCBs / PCCs, it was observed that large number of sanctioned posts are still vacant. It is recommended that recruitment process may be outsourced availing professional services.
- (iii) The State / UTs should prepare / revisit their Environmental Policies incorporating all the current aspects concerning the sustainability of the development, conservation of the resources and the objectives of the Environment Legislation of the country.
- (iv) The State Environmental Status Reports should be prepared / updated by all the SPCBs / PCCs incorporating the aspects of environmental quality parameters.
- (v) The States / UTs should prepare / update their industrial siting policies / criteria.
- (vi) The SPCBs / PCCs should ensure preparation and submission of their annual reports as per the deadlines specified in the various rules.

- (vii) All the SPCBs / PCCs should ensure issuing the consolidated consents & authorization from the year 2021. All applications should be processed online in transparent manner.
- (viii) The SPCBs / PCCs should prepare / update the protocols for regular inspection of the polluting industries for timely identification of & action against the defaulters. The inspections reports may also be placed in public domain for transparency and better governance.
- (ix) The Online CEMS system should be strengthened and ensure to fix the identified shortcomings. The data generated from the system should be used for surveillance and monitoring.
- (x) The SPCBs / PCCs should review the consents of all those industries which are discharging their effluents into CETPs and should prescribe the standards according to the inlet standards.
- (xi) The States and UTs should adopt 'Online Tracking' for all wastes from generation point to final disposal point. A national tracking system initiated by CPCB may be shared with SPCBs.
- (xii) The SPCBs / PCCs should immediately take up an extensive exercise to ensure 100 % compliance of the Batteries Management Rules, 2001 and submission of the report to CPCB by December, 2020.
- (xiii) The SPCBs / PCCs should develop their laboratories and obtain the NABL Accreditation / MoEF&CC recognition on top priority by 2021.
- (xiv) The SPCBs / PCCs should establish the Air / Water Quality monitoring locations covering all the districts & rivers of the State / UT.
- (xv) The SPCBs / PCCs, situated along the main coastline, should establish a representative number of stations / locations for the monitoring of coastal waters.
- (xvi) The sewage management status should be reviewed and revised by each SPCB / PCC, to incorporate the permitted method of septic tanks / soak pits for treatment & disposal.
- (xvii) The municipal waste management status should be reviewed and updated to incorporate all the practices of its treatment & disposal to the extent of at least 90 % of the waste generated in the State / UT.
- (xviii) Each SPCB should have a dashboard displaying the status of environmental parameters at important offices.

*

Annexure - A

Status of Sewage Management in India (as on 2018)

S. No.	State	Sewage Generation (in MLD)	Total Treatment Capacity (in MLD)	Operational Treatment Capacity (in MLD)	Number of STPs	Number of Operational STPs	Gap between Generation and Treatment (MLD)
		A	B	C	D	E	A-C
1	Andaman & Nicobar Island	25	0	0	0	0	25
2	Andhra Pradesh	2,684	500	298	32	18	2,386
3	Arunachal Pradesh	57	0	0	0	0	57
4	Assam	799	1	1	2	2	798
5	Bihar	2,135	120	80	5	2	2,055
6	Chandigarh	187	231	231	6	6	0
7	Chhattisgarh	1,081	71	71	2	2	1,010
8	Daman, Diu, Dadra & NH	62	27	0	3	0	62
9	NCT of Delhi	4,420	3,104	2,753	41	33	1,667
10	Goa	165	133	41	13	5	124
11	Gujarat	4,680	2,662	1,904	53	33	2,776
12	Haryana	1,606	1,859	1,859	150	150	0
13	Himachal Pradesh	125	123	91	68	43	34
14	Jammu & Kashmir	621	133	96	20	18	525
15	Jharkhand	1,443	188	86	25	15	1,357
16	Karnataka	4,292	1,370	1,300	65	63	2,992
17	Kerala	2,900	124	121	10	9	2,779
18	Lakshadweep	9	0	0	0	0	9
19	Madhya Pradesh	3,651	565	489	21	18	3,162
20	Maharashtra	9,252	6,466	5,540	102	76	3,712
21	Manipur	150	27	27	1	1	123
22	Meghalaya	108	0	0	0	0	108
23	Mizoram	102	10	0	1	0	102
24	Nagaland	104	0	0	0	0	104
25	Odisha	1,273	375	33	16	3	1,240
26	Pondicherry	155	69	69	6	6	87
27	Punjab	1,891	1,679	1,314	110	67	577
28	Rajasthan	3,109	920	436	72	22	2,673
29	Sikkim	28	26	19	10	5	9
30	Tamil Nadu	6,362	1,634	1,290	73	44	5,072
31	Telangana	2,477	771	739	27	20	1,738
32	Tripura	175	8	8	1	1	167
33	Uttar Pradesh	8,095	3,335	2,661	104	85	5,434
34	Uttarakhand	563	151	117	25	17	446
35	West Bengal	5,303	558	209	43	10	5,094
Total		70,089	27,240	21,883	1,107	774	48,206

Note: i) Population projection was made @ 3 % urban growth rate w.r.t 2011 urban population; Per capita sewage generation assume @ 148 lpcd, Sewage generation for Delhi was estimated @ 225 lpcd

ii) Septage waste not accounted in treatment capacity

Annexure - B

Status of the Polluted River Stretches

Name of State	Total No. of Identified Polluted River stretches (PRS)	Total Action Plans Received	Priority I Identified Polluted River stretches		Priority II Identified Polluted River stretches		Priority - III to V Identified Polluted River stretches	
			No. of P-I PRS	Action Plans w.r.to P-I Approved by CPCB Task Team	No. of P-II PRS	Action Plans w.r.to P-II Approved by CPCB Task Team	No. of P-III to V	RRC approved Action Plans received w. r. to P-III to V
Andhra Pradesh	5	5	0	0	0	0	5	5
Assam	44	44	3	3	1	1	40	40
Bihar	6	6	0	0	0	0	6	6
Chhattisgarh	5	5	0	0	0	0	5	5
Daman, Diu, Dadra & NH	1	1	1	1	0	0	0	0
Delhi	1	1	1	0	0	0	0	0
Goa	11	11	0	0	0	0	11	11
Gujarat	20	20	5	5	1	1	14	14
Haryana	2	2	2	2	0	0	0	0
Himachal Pradesh	7	7	1	1	1	1	5	5
Jammu & Kashmir	9	9	0	0	1	1	8	8
Jharkhand	7	7	0	0	0	0	7	7
Karnataka	17	17	0	0	0	0	17	17
Kerala	21	21	1	1	0	0	20	20
Madhya Pradesh	22	22	3	3	1	1	18	18
Maharashtra	53	53	9	9	6	6	38	38
Manipur	9	9	0	0	1	1	8	8
Meghalaya	7	7	2	2	0	0	5	5
Mizoram	9	9	0	0	0	0	9	9
Nagaland	6	6	1	1	0	0	5	5
Odisha	19	19	1	1	0	0	18	18
Puducherry	2	2	0	0	0	0	2	2
Punjab	4	4	2	2	0	0	2	2
Rajasthan	2	2	0	0	0	0	2	2
Sikkim	4	4	0	0	0	0	4	4
Tamil Nadu	6	6	4	4	0	0	2	2
Telangana	8	8	1	1	2	2	5	5
Tripura	6	6	0	0	0	0	6	6
Uttar Pradesh	12	12	4	4	0	0	8	8
Uttarakhand	9	9	3	3	1	1	5	5
West Bengal	17	17	1	1	1	1	15	15

Annexure - C

Status of Hazardous Waste Generation and Management in India (2018-19)

Name of State	No. of HW generating Units	Total quantity of HW Generated #	Quantity of HW Recycled / Utilized	Quantity of HW disposed	Quantity of HW Stored at the end of the year 2018-19
		(Quantities in Metric Tonnes)			
Andaman and Nicobar Islands	2	0.16	0	0	0.16
Andhra Pradesh	2,683	5,86,883	4,45,986**	1,52,302	35,737
Arunachal Pradesh		Annual Inventory 2018-19 not submitted			
Assam	105	45,540	9,525*	0	0
Bihar	138	16,349	4,644*	95*	5,065
Chandigarh	253	1,798	790*	161*	0
Chhattisgarh	377	2,43,615	48,126	178*	1,14,200
Daman, Diu, Dadra & NH		Annual Inventory 2018-19 not submitted			
Delhi	3,503	42,568	21*	79*	42,466
Goa	1,561	29,316	1,272*	16,292*	3,280
Gujarat	18,769	33,73,813	11,16,711*	13,25,692	11,86,286
Haryana	4,550	1,32,296	2,34,777**	13,206	22,338
Himachal Pradesh	2,508	27,169	17,850**	18,264	718
Jammu & Kashmir	236	2,715	34,331**	373*	1,345
Jharkhand	561	4,81,672	9,934**	3,463	4,10,270
Karnataka	3,451	4,14,687	2,27,209**	62,368**	17,638
Kerala	1,345	1,06,695	34,823*	81,184	55,580
Lakshadweep	46	48	0	0	48
Madhya Pradesh	2,732	2,46,456	1,65,262**	48,025	15,333
Maharashtra	6,910	11,21,182	1,29,746**	4,73,716**	73,377
Manipur	352	Information not provided (INP)			
Meghalaya	19	487	9*	0	INP
Mizoram	37	0.02	0.01	0	0.01
Nagaland	1	20	10	0	10
Odisha	360	9,25,880	5,81,525**	64,452**	2,63,069
Puducherry	129	35,650	11,809*	1,717*	2,805
Punjab	3,197	1,22,088	21,996**	26,528*	28,388
Rajasthan	1,633	6,23,998	6,18,928**	6,84,606*	72,826
Sikkim	51	1,467	0	1,347*	120
Tamil Nadu	3,607	13,02,639	6,34,836**	1,13,615	2,84,761
Telangana	2,377	3,67,529	1,92,036**	1,16,276	25,019
Tripura	171	293	273*	9*	12
Uttar Pradesh	2,460	2,49,589	1,50,762	1,02,321**	4,615
Uttarakhand	4,214	24,001	23,121*	9,409	2,581
West Bengal	716	1,85,744	92,709**	60,585**	50,127
Total	69054	107,12,168	48,08,720	33,72,326	27,18,012

Includes quantity of hazardous waste Imported & Stored at the beginning of Financial year.

* Sent to Other State for recycling / utilisation / co-processing / disposal.

** Also includes quantity of hazardous waste received or received and sent to other State for recycling / utilization / co-processing / disposal.

Annexure - D

Status of Biomedical Waste Management in India (as on 2018)

S. No.	Name of the State / UT and	Total no. of Bedded Health Care Facilities (HCFs)	Total no. of Non-bedded Health Care Facilities (HCFs)	Total no. Health Care Facilities (HCFs)	Total no. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
						Total no. of HCFs applied for authorization	Total no. of HCFs granted authorization	Total no. of HCFs in operation without			
I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.
1	Andaman and Nicobar Islands	48	71	119	1,269	59	51	60	Nil	199	199
2	Andhra Pradesh	4,892	2,571	7,463	1,17,184	3,040	3,002	1,940	7,463	15,144	15,144
3	Arunachal Pradesh	208	129	337	3,185	261	90	76	Nil	889	889
4	Assam	605	820	1,408	25,667	352	352	1,046	300	7,821	5,869
5	Bihar	4,821	20,175	24,996	70,653	1,336	4,135	20,484	3,364	34,813	10,038
6	Chandigarh	46	763	809	4,347	193	194	471	752	3,188	3,188
7	Chhattisgarh	254	465	719	6,132	455	341	Nil	1,428	16,096	4,597
8	Daman, Diu, Dadra & NH	36	104	140	1,061	105	81	INP	181	331	331
9	Delhi	1,100	5,329	6,429	54,185	1,002	818	2,110	6,429	26,758	26,758
10	Goa	177	541	INP	INP	141	76	582	Nil	1,837	1,837
11	Gujarat	10,882	18,840	28,960	1,93,599	9,460	8,973	3,365	28,496	33,706	33,706
12	Haryana	2,723	1,356	4,079	53,249	3,946	3,874	133	5,376	14,218	14,218
13	Himachal Pradesh	503	3,299	3,802	14,150	1,832	1,569	1,970	1,500	2,570	2,570
14	Jammu & Kashmir	992	5,463	6,445	15,135	836	545	5,609	718	4,483	4,280
15	Jharkhand	1,066	492	1,558	26,550	509	143	106	INP	12,788	6,721
16	Karnataka	7,132	27,995	35,869	1,87,772	15,631	15,369	9,055	22,980	65,621	65,621
17	Kerala	2,287	10,308	12,595	1,10,114	6,861	6,673	498	13,386	71,976	42,226
18	Lakshadweep	10	15	25	250	INP	INP	25	Nil	527	110

S. No.	Name of the State / UT and	Total no. of Bedded Health Care Facilities (HCFs)	Total no. of Non-bedded Health Care Facilities (HCFs)	Total no. Health Care Facilities (HCFs)	Total no. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)
						Total no. of HCFs applied for authorization	Total no. of HCFs granted authorization	Total no. of HCFs in operation without			
I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.
19	Madhya Pradesh	3,427	3,009	6,436	95,421	3,723	3,710	2,713	4,623	15,847	14,547
20	Maharashtra	19,647	40,763	60,410	2,76,985	15,939	17,037	4,704	62,960	62,418	62,134
21	Manipur	146	694	760	3,639	102	102	INP	97	1,140	905
22	Meghalaya	177	632	809	6,716	438	385	371	22	1,433	1,433
23	Mizoram	102	14	116	3,295	23	23	1	Nil	831	831
24	Nagaland	64	104	168	2,423	168	168	Nil	Nil	632	632
25	Orissa	1,443	1,816	3,259	44,865	860	697	Nil	609	14,564	14,564
26	Puducherry	86	108	242	12,112	208	178	34	437	4,320	5,834
27	Punjab	3,577	4,657	8,234	71,162	4,660	4,425	3,765	8,234	15,981	15,981
28	Rajasthan	4,939	1,537	6,476	1,19,524	1,396	1,155	1,702	3,109	22,262	16,913
29	Sikkim	35	249	284	1,766	232	232	52	Nil	425	312
30	Tamil Nadu	3,949	358	4,307	1,44,731	4,307	4,307	715	4,607	47,197	47,197
31	Telangana	3,166	1,999	5,165	1,05,331	1,708	1,670	475	5,181	16,243	16,243
32	Tripura	158	1,585	1,743	4,701	536	536	Nil	207	1,402	1,402
33	Uttar Pradesh	14,454	11,148	25,602	2,53,927	21,881	20,927	4,675	9,590	52,500	52,500
34	Uttarakhand	1,015	1,297	2,312	19,765	582	328	1,730	1,341	4,111	4,075
35	West Bengal	2,990	4,757	7,747	1,16,991	7,747	7,619	Nil	7,747	34,124	34,124
36	DGAFMS	225	368	593	38,506	593	571	Nil	Nil	6,351	6,351
	Total	97,382	1,73,831	2,70,416	22,06,362	1,11,122	1,10,356	68,467	2,01,137	6,14,743	5,34,278

INP : Information not provided

Annexure - E

Status of the Solid Waste Management in India (2018-19)

S. No.	Name of State	Solid Waste Generation (TPD)	Collected (TPD)	Treated (TPD)	Land Filled (TPD)
1	Andaman & Nicobar Islands	120	117	65.1	37.9
2	Andhra Pradesh	6,440	6,140	548	203
3	Arunachal Pradesh	271	215	INP	INP
4	Assam	1,294	1,119	INP	INP
5	Bihar	2,272	INP	INP	INP
6	Chandigarh	470	459	150	361
7	Chhattisgarh	1,650	1,386	1,271	115
8	Daman, Diu, Dadra & NH	98	95	5	90
9	Delhi	10,817	10,614	5,714	5,225
10	Goa	236	236	155	1
11	Gujarat	10,759	10,716	6,574	4,142
12	Haryana	4,636	4,430	816	3,614
13	Himachal Pradesh	389	340	150	190
14	Jammu & Kashmir	1,531	1,453	INP	INP
15	Jharkhand	2,205	2,043	837	0
16	Karnataka	11,958	10,011	4,515	INP
17	Kerala	3,903	742	438	INP
18	Lakshadweep	35	18	18	INP
19	Madhya Pradesh	8,000	7,500	6,100	1,400
20	Maharashtra	23,845	23,676	12,623	11,052
21	Manipur	219	127	80	47
22	Meghalaya	171	171	9	162
23	Mizoram	251	213	29	INP
24	Nagaland	340	217	136	34
25	Odisha	2,564	2,255	92	2,164
26	Puducherry	599	505	24	481
27	Punjab	4,634	4,575	918	3,657
28	Rajasthan	6,626	6,475	780	4,187
29	Sikkim	75	67	13	51
30	Tamil Nadu	13,968	12,850	7,196	5,654
31	Telangana	8,497	8,360	5,747	869
32	Tripura	446	389	150	239
33	Uttar Pradesh	17,377	17,329	4,615	INP
34	Uttarakhand	1,527	1,437	INP	524
35	West Bengal	14,613	13,065	916	334
	Total	1,62,836	1,49,346	60,683	44,835

INP= Information Not Provided

Annexure - F

List of 122 Non-Attainment Cities (Air Pollution)

State	S. No.	City	State	S. No.	City
Andhra Pradesh (13)	1	Guntur	Jharkhand (1)	39	Dhanbad
	2	Kurnool	Karnataka (4)	40	Bangalore
	3	Nellore		41	Devanagere
	4	Vijayawada		42	Gulburga
	5	Vishakhapatnam		43	Hubli-Dharwad
	6	Anantapur	Madhya Pradesh (6)	44	Bhopal
	7	Chittoor		45	Dewas
	8	Eluru		46	Indore
	9	Kadapa		47	Sagar
	10	Ongole		48	Ujjain
	11	Rajahmundry		49	Gwalior
	12	Srikakulam	Maharashtra (18)	50	Akola
	13	Vizianagaram		51	Amravati
Assam (5)	14	Guwahati		52	Aurangabad
	15	Nagaon		53	Badlapur
	16	Nalbari		54	Chandrapur
	17	Sibsagar		55	Jalgaon
	18	Silchar		56	Jalna
Bihar (3)	19	Patna		57	Kolhapur
	20	Gaya		58	Latur
	21	Muzaffarpur		59	Mumbai
Chandigarh (1)	22	Chandigarh		60	Nagpur
Chhattisgarh (3)	23	Bhilai		61	Nashik
	24	Korba		62	Navi Mumbai
	25	Raipur		63	Pune
Delhi (1)	26	Delhi		64	Sangli
Gujarat (3)	27	Surat		65	Solapur
	28	Ahmedabad		66	Ulhasnagar
	29	Vadodara		67	Thane
Himachal Pradesh (7)	30	Baddi	Meghalaya (1)	68	Byrnihat
	31	Damtal	Nagaland (2)	69	Dimapur
	32	Kala Amb		70	Kohima
	33	Nalagarh			
	34	Paonta Sahib			
	35	Parwanoo			
	36	Sunder Nagar			
Jammu & Kashmir (2)	37	Jammu			
	38	Srinagar			

State	S. No.	City	State	S. No.	City
Odisha (7)	70	Angul	Uttar Pradesh (15)	98	Agra
	71	Balasore		99	Allahabad
	72	Bhubaneswar		100	Anpara
	73	Cuttack		101	Bareilly
	74	Rourkela		102	Firozabad
	75	Talcher		103	Gajraula
	76	Kalinga Nagar		104	Ghaziabad
Punjab (9)	77	Dera Bassi		105	Jhansi
	78	Gobindgarh		106	Kanpur
	79	Jalandhar		107	Khurja
	80	Khanna		108	Lucknow
	81	Ludhiana		109	Moradabad
	82	Naya Nangal		110	Noida
	83	Pathankot / Dera Baba		111	Raebareli
	84	Patiala		112	Varanasi
Rajasthan (5)	85	Amritsar	Uttarakhand (3)	113	Kashipur
	86	Alwar		114	Rishikesh
	87	Jaipur		115	Dehradun
	88	Jodhpur	West Bengal (7)	116	Kolkata
	89	Kota		117	Asansol
Tamil Nadu (2)	90	Udaipur		118	Barrackpore
	91	Thoothukudi		119	Durgapur
Telangana (4)	92	Trichy		120	Haldia
	93	Hyderabad		121	Howrah
	94	Nalgonda		122	Raniganj
	95	Patancheruvu			
	96	Sangareddy			

Annexure - G

Status of the Critically Polluted Areas (CPA)

State / UT	S. No.	CPA (CEPI Score)
Assam (1)	1	Byrnihat (78.31)
Chhattisgarh (2)	2	Siltara Industrial Area (79.94)
	3	Raipur (70.77)
Delhi (1)	4	Najafgarh-Drain basin (92.65) including Anand Parbat, Naraina, Okhla, Wazirpur
Gujarat (6)	5	Vadodara (89.09)
	6	Ankleshwar (80.21)
	7	Vapi (79.95)
	8	Surat (76.43)
	9	Vatva (70.94)
	10	Rajkot (70.62)
Haryana (2)	11	Gurgaon (85.15)
	12	Panipat (83.54)
Karnataka (2)	13	Peenya (78.12)
	14	KIADB Industrial Area, Jigini, Anekal (Bengaluru) (70.99)
Maharashtra (2)	15	Tarapur (93.69)
	16	Chandanpur (76.41)
Punjab (2)	17	Jalandhar (74.76)
	18	Ludhiana (73.48)
Rajasthan (5)	19	Jodhpur (81.61)
	20	Pali (80.48)
	21	Bhiwadi (79.63)
	22	Sanganer Industrial Area (79.10)
	23	Jaipur (77.40)
Tamil Nadu (4)	24	Manali (84.15)
	25	Vellore-North Arcot (79.38)
	26	Tirupur (72.39)
	27	Mettur (71.82)
Telangana (1)	28	Pattancheru-Bollaram (75.42)
Uttar Pradesh (9)	29	Mathura (91.10)
	30	Kanpur (89.46)
	31	Moradabad (87.80)
	32	Varanasi-Mirzapur (85.35)
	33	Bulandshahr-Khurza (85.23)
	34	Firozabad (81.62)
	35	Gajraula Area (80.14)
	36	Agra (76.22)
	37	Ghaziabad (72.30)
Uttarakhand (1)	38	Udham Singh Nagar (81.26)

CEPI: Comprehensive Environmental Pollution Index

Item No. 05

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 95/2018
(M.A. No. 1029/2018)

Aryavart Foundation

Applicant(s)

Versus

M/s Vapi Green Enviro Ltd. & Ors.

Respondent(s)

Date of hearing: 11.01.2019

CORAM: **HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON**
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

For Applicant(s): Mr. Raj Panjwani, Senior Advocate with Dr.
 Surender Singh Hooda, Advocate

For Respondent (s): Mr. M.S. Kalra, Advocate for R-1
 Mr. Shlok Chandra with Mr. Ritesh Kumar
 Sharma, Advocates for CPCB
 Mr. Dhruv Pal, Advocate for GPCB

ORDER

1. The issue for consideration in this matter is discharge of untreated/partially treated trade effluents by more than 500 industrial units in Vapi Industrial Cluster into Daman Ganga River in District Valsad in Gujrat which meets the Arabian Sea. The effluents comprise of untreated coloured chemical liquids. Apart from Daman Ganga River, the other water body in which effluents are discharged is the *Bill Khadi* (a drain) which also falls into the Arabian Sea.
2. Case of the Applicant is that Common Effluent Treatment Plant (CETP) is being operated in the area by Respondent No. 1, M/s. Vapi Green Enviro Limited (Old name – Vapi Waste & Effluent Management Co. Ltd.) reportedly since 01.01.1997. The impact of discharge is serious threat to the aquatic life in the river as well as in the sea.

3. A study was carried out in February 2017 by the National Environmental Engineering Research Institute (NEERI). It was found that:

"The fish bioassay study on the final treated effluent sample discharged from Vapi CETP into the river indicates 100% mortality at 50, 75 and 100% waste water concentrations within 24 h exposure time (Plate 4.56). The experimental results presented in Table 9.6 reveal toxic nature of the treated effluent from Vapi CETP. Thus, it can be concluded from the fish bioassay study that the final treated effluent from Vapi CETP with high colour intensity, organic and inorganic matters is having toxic effect on aquatic life of Daman Ganga River. Therefore, Vapi CETP effluent must be treated adequately to remove the pollution parameters before discharging into Daman Ganga River."

"The final treated effluent discharge from the existing Vapi CETP (D-11A) has not only caused deterioration of the river water quality with respect to the colour and recalcitrant parameters but also has imparted toxic effect on aquatic life of Daman Ganga River (segment-II). Therefore, Vapi CETP must be scientifically upgraded for colour and recalcitrant pollutants removal including reject management with a final aim of achieving zero liquid effluent discharge as delineated under Section 11.0. This will result in recovery of good quality water, which can be reused as process water by the industries, leading to fresh water conservation."

4. Further case set out in the application is that Respondent No. 2, Gujarat Pollution Control Board (GPCB), carried out inspection and tested the water quality from P-Equalization Tank (Inlet) on 25.10.2017 and found that the same was not meeting the standards. Samples were also taken from overflow of primary clarifier (Inlet) and the storage tank and similar results were noticed. Tests were also carried out on 06.11.2017, 28.11.2017, 07.12.2017, 27.12.2017, 30.12.2017, 23.01.2018, 29.01.2018, 31.01.2018 and 05.02.2018 and same results were found. From the final outlet also similar results were seen on 27.12.2017, 30.12.2017, 23.01.2018 and 29.01.2018.
5. GPCB issued show cause notice dated 25.10.2017 and 01.11.2017 and direction under Section 33A of the Water (Prevention and Control

of Pollution) Act, 1974 requiring steps to be taken so that inlet and outlet norms are maintained. Applicants have annexed letter of the GPCB dated 23.12.2013 under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 to the CETP unit for renewing consent to operate for the CETP for the period upto 06.09.2018, subject to the norms laid down therein being maintained. The letter specifies the standards of inlet to be met by the units as well as outlet for which CETP is responsible. Various steps/reports from October 2017 onwards, however, show that the prescribed norms were not maintained.

6. The applicant accordingly seeks direction for taking appropriate steps, including up-gradation of CETP, restraining the CETP from receiving effluents from member units not conforming to the norms, recovering cost of damage to the environment.
7. The application was filed before this Tribunal on 26.02.2018 and notice was issued.
8. The parties appeared before the Tribunal including the CETP operator, GPCB, MoEF&CC, Gujarat Industrial Development Corporation (GIDC) and the Central Pollution Control Board (CPCB). Due opportunity has been given to file pleadings.
9. The Respondent No. 1, CETP operator for the industrial area of Vapi has stated that the CETP was commissioned in the year 1997. By 2001, all waste water generated in the industrial area was linked to the CETP. It also caters to the domestic sewage. It has complied with the earlier directions of NGT, Pune Bench in O.A. No. 109/2014, order dated 01.04.2014 to lay pipeline from existing discharge point to downstream 4.5 km. It is maintaining discharge norms. The

discharge was on the higher side as tanks had not been cleaned for many years.

10. The GPCB has referred to the order of the NGT dated 01.04.2014 in O.A. No. 34/2013 directing the Respondent no. 1 to maintain the laid down standards of effluent discharge. The industrial units were directed to set up/up-grade treatment plants. The GPCB was directed to use Bank Guarantee regime for improvement in pollution control systems.
11. The GPCB further submitted that the Vapi industrial estate is spread over 1117 hectares and is largest industrial area in Asia. It has industrial units of small, medium and large size in diverse sectors, such as Chemicals, Pharmaceuticals, Pesticides, Dyes & Dyes Intermediate and Pulp & Paper. There is substantial consumption of water in the production processes and resultantly there is discharge of effluents. The CETP was set up in the year 1997 and is operated by Respondent No. 1. The industrial units are required to do basic treatment of their effluents in their own premises which refers to Primary Effluent Treatment Plant (PETP). The Respondent No. 1 collects effluents through underground pipeline network and after primary, secondary and tertiary treatment at CETP, discharges effluents into Daman Ganga River at designated place. Each member industry is to provide basic treatment facilities to meet CETP inlet norms. Five hundred and nineteen (519) industrial units are members of CETP. Due to unsatisfactory treatment of effluents by CETP, and also based on Comprehensive Environmental Pollution Index (CEPI), Vapi industrial cluster was declared critically polluted Area on 13.01.2010. Major up-gradation was undertaken by the CETP by investing Rs. 464 Crores which led to improvement in the quality of effluent discharge. Accordingly, vide order dated 25.11.2016, the MoEF&CC lifted the moratorium on setting up of new

industries and expansion of existing industries. Certain industries have been identified as generating high COD. Common spray dryers have been developed in March 2018.

12. On earlier hearing, the Tribunal had before it the Order dated 01.04.2014 in O.A. No. 34/2013 of this Tribunal which showed that the CETP was not satisfactorily working.¹ There was need to take innovative enforcement measures by the GPCB.² It was held therein that though the Pollution Control Board could not apply the of “Polluter Pays” Principle as a punitive measure, it could take Bank Guarantee for non-compliance for ensuring improvement since the CETP was continuously not meeting the norms and such norms could not be relaxed.³ The CPCB in its reply dated 25.04.2018 stated that average value of inlet and outlet were not as per norms.⁴

13. In view of above, on 29.08.2018, the Tribunal directed the GPCB to take appropriate action in accordance with law in the matter for failure of mandatory requirements laid down by the Hon’ble Supreme Court in *Paryavaran Suraksha Samiti and Ors. vs. Union of India (UOI) and Ors.*⁵, for operational and effective ETPs. CPCB was to oversee the compliance of the order and action taken report was required to be filed.

14. In compliance of above order, the GPCB and the CPCB have filed their reports. The GPCB in its report dated 28.09.2018 states as follows:

“It is observed that Inlet quality - COD, NH₃-N and TSS are not meeting with inlet norms whereas COD and TSS at outlet of CETP are not meeting with Outlet norms.

CPCB, RD, Vadodara carry out quarterly monitoring of CETP, Vapi. The latest monitoring carried out on 11.08.2018 and results are provided at Annexure-III. It is observed that Inlet quality - TSS, FDS, BOD, COD and NH₃-N are not meeting

¹ Para 5

² Para 23

³ Para 32 & 33

⁴ Para 10

⁵ (2017) 5 SCC 326

with inlet norms whereas TSS, FD, COD, NH₃-N & Phenols at outlet of CETP are not meeting with outlet norms.

M/s VGEL (CETP) reportedly takes internal actions among the defaulting member units as per M/s VGEL monitoring but so far not provided the list of defaulting industries to GPCB though it is expected as per the Hon'ble NGT Order dated 29.08.2018, and also as per notices of direction issued by GPCB.

M/s VGEL (CETP) has not provided any action plan to comply with both inlet as well as outlet norms during the above review.”

15. GPCB has also stated that it has issued notice under Section 33A of the Water (Prevention and Control of Pollution) Act, 1974 for up-gradation of the CETP to achieve the standard of discharge and till then to take preventive action.
16. There is also a report dated 10.01.2019 of inspection carried out on 03.01.2019. The inspection team at the time of inspection comprised Regional Director, CPCB,-; Scientist-D, CPCB,-; Unit Head-Vapi, GPCB,-; Regional Officer, GPCB,-; AEE, GPCB, -; AGM, (Process) and CEO, VGEL(CETP) Vapi, -; three Directors of VGEL, Vapi and President Director, VIA, VGEL, Vapi
17. The frequency of compliance and non-compliance in the context of BOD, COD, NH₃N and TSS are as follows:

“

BOD			
Inlet		Outlet	
Compliance	Non-compliance	Compliance	Non-compliance
12	1	6	7
COD			
Inlet		Outlet	
Compliance	Non-compliance	Compliance	Non-compliance
0	13	3	10
NH ₃ -N			
Inlet		Outlet	
Compliance	Non-compliance	Compliance	Non-compliance
0	13	9	4
TSS			
Inlet		Outlet	
Compliance	Non-compliance	Compliance	Non-compliance
4	9	6	7

”

18. As noted earlier, notice under Section 33A of the Water (Prevention and Control of Pollution) Act, 1974 was issued to the CETP while internal action is to be taken by the CETP itself.
19. We have heard the learned Counsel for the parties.
20. Learned Counsel for the applicant submitted that discharge of untreated effluents is beyond any doubt from the reports to which not only CPCB and GPCB but also the representatives of the CETP are party. The CETP operator, the polluting units and the GPCB may be made accountable for preventive and remedial steps, including punitive action and recovery of damages for restoration of the environment and by way of deterrent action.
21. Learned Counsel for Respondent No. 1 submitted that the operator of CETP is taking all such steps as are possible and no direction is called for. Learned Counsel for GPCB has not disputed the inspection reports which clearly demonstrates that the standards are not being met. On that basis, the GPCB has already issued notice to the CETP as well as to some of the industrial units for remedial actions. Thus, the GPCB has done its job. Learned Counsel for CPCB submitted that in view of the report of inspection carried out on 03.01.2019, CETP as well as the industrial units are clearly proved to be non-compliant with the laid down parameters for which appropriate directions may be issued by this Tribunal. There is continued failure of enforcement of law.
22. The questions that arise for consideration are as follows:
- Whether the CETP operator and its member units have failed to comply with the conditions of consent and norms of environment and caused pollution? If so, the manner in which they are to be held accountable?

- ii. Does the functioning of CETP in the present case and of CETPs in general in the country calls for review and modification?
- iii. Whether the State Pollution Control Board in the present case and regulatory authorities have not performed their duties as per the expectation and if so, what are the steps necessary to achieve the objects for which the Pollution Control Boards/Committees have been constituted under the Water Air and the Air Act?
- iv. What are the conclusions and what are the directions required to be issued by this Tribunal?

23. We now proceed to deal with the questions for consideration seriatim.

Re (i): Whether the CETP operator and its member units have failed to comply with the conditions of consent and caused pollution? If so, the manner in which they are to be held accountable?

24. We have reproduced the reports of inspections dated 28.09.2018 and 10.01.2019 clearly showing the CETP as well as the industrial units to be non-compliant. In support of the said reports, test reports have also been annexed. There is no reason to doubt the veracity of reports of inspections conducted by the joint team of representatives of CPCB, GPCB and the CETP operators. Thus, it is concluded that the CETP operator and the member units generally have failed to comply with the environmental norms for which they are held to be accountable.

25. Though, there are observations in order dated 01.04.2014 by the two-member Pune Bench of this Tribunal referred to earlier, that “Polluter Pays” principle cannot be invoked as a punitive measure and only ‘Precautionary Principle’ of requiring Bank Guarantee can be applied, the said view is in ignorance of the binding legal precedents in the judgment of the Hon’ble Supreme Court⁶ which lay down that

⁶ Indian Council for Enviro Legal Action & Ors. v. Union of India & Ors. (1996) 3 SCC 212 Para 16, Vellore Citizens Welfare Forum v. Union of India & Ors. (1996) 5 SCC 647 Para 12 to 18 - holding that ‘Polluter Pay’ principle is

'Polluter Pays' principle is ingrained in the environmental jurisprudence of the country as well as statutory mandate under Section 20 of the NGT Act, 2010. This was considered in the recent order of the Tribunal (by four Member Bench) in *Paryavaran Suraksha Samiti and Anr. Vs. Union of India & Ors.*⁷, *Parveen Kakar & Ors. Vs. Ministry of Environment & Forests & Ors.*⁸ and in *News Item published in "The Asian Age" Authored by Sanjay Kaw titled "CPCB to rank industrial units on pollution levels"*⁹ wherein this Tribunal held that:

"11. Needless to say that it will be open to the SPCBs/Committees and CPCB to take coercive measures including recovery of compensation for the damage to the environment on 'Polluter Pays' principle as well as also to direct taking of such precautionary measures as may be necessary on the basis of 'Precautionary principle'."

26. This Tribunal has to follow principles of natural justice if it is to finally assess the damages. The Tribunal can also require the statutory authorities to perform their duty in the matter. We have heard the CETP operators but we have not heard the individual industrial units though CETP represents such units. The reports indicate deficiency in inlet as well as outlet which is evidence of failure of CETP operators as well as individual industrial cluster. Thus, there is objective material available to act against both- CETP operator and individual units. While on proved facts, interim arrangement is proposed, statutory authorities may finally determine the extent of accountability of the industrial units and such units may be given opportunity of hearing by the SPCB and the CPCB. To enable this to be done, we propose to constitute a Committee to hear

accepted principle and part of environmental law of the country, even without specific statute. *M.C. Mehta v. Union of India & Ors.*, W.P.(C) No. 13029/2015 order dated 24.10.2017 of Supreme Court of India

⁷ O.A. No. 593/2017 Order dated 03.08.2018: The Tribunal directed CPCB to take penal action against those accountable for failure in setting up CETPs/ETPs/STPs and to recover compensation for damage to the environment.

⁸ O.A. No. 661/2018, Order dated 08.01.2019: The Tribunal stated that the Pollution Control Board had failed to perform its duties in taking statutorily mandated coercive measures under Section 31A of the Air (Prevention and Control of Pollution) Act, 1981 and 33B of the Water (Prevention and Control of Pollution) Act, 1974 or initiating prosecution. This Tribunal directed CPCB to exercise its statutory powers to determine and recover damages for violation of environmental norms by the respondent therein.

⁹ O.A. No. 1038/2018, Order dated 13.12.2018.

individual polluting units not meeting the norms and to quantify the amount of liability on “Polluter Pays” principle which can clearly be invoked by the regulatory body to enforce pollution norms not only as a ‘Precautionary Principle’ but also as remedial action if the unit is found to be polluting and not meeting the prescribed norms. Any other interpretation would grant immunity to the polluters and will not be conducive to the protection of the environment. We answer the question accordingly.

Re(ii): Does the functioning of CETP in the present case and of CETPs in general in the country calls for review and modification?

27. CETP Scheme was developed primarily to meet specific objectives under the Environment (Protection) Rules, 1986. It has, however, been found that inspite of setting up of CETPs, the environmental norms have not been maintained at several places in the country. The MoEF&CC itself imposed a moratorium for grant of permissions for setting up of industries in critically polluted areas/industrial clusters identified by the CPCB as shown by letter dated 25.11.2016. Time bound action plans were required to be prepared for improvement of environment quality in such clusters/areas. Moratorium was, thereafter, lifted in respect of certain clusters from time to time based on CEPI score subject to certain conditions.
28. The recent experience shows that situation at several places in the country is far from being satisfactory. This Tribunal has taken cognizance of the serious pollution caused on account of failure of CETPs vide order dated 13.12.2018 in *News Item published in “The Asian Age” Authored by Sanjay Kaw titled “CPCB to rank industrial units on pollution levels”*. It was noted that 43 industrial clusters in 16 States were identified as Critically Polluted Areas and 32 industrial clusters were categorized as Seriously Polluted Areas. In 2017-18, the number of identified polluted industrial clusters went

upto 100. Accordingly, the Tribunal directed the State Pollution Control Board to finalize time bound action plan to restore the environmental quality as per norms laid down by the CPCB and directed CPCB and SPCBs /PCCs to take coercive measures against the violators on the basis of 'Precautionary Principle' and 'Polluter Pays' principle.

29. This apart, in *Arvind Pundalik Mhatre v. Ministry of Environment, Forest and Climate Change & Ors.*¹⁰ the CETP was found not fully functional and effluents were being discharged at Taloja in the river *Kasaradi*. This Tribunal directed imposition of an amount of Rs. 5 Crores for severe impact on environment on account of non-functioning of the CETP resulting in imminent danger to the life of local population.
30. In *Rashid Ali Warsi Vs. UPSIDC & Ors.*¹¹, the Tribunal dealt with discharge of untreated effluents by textile units in Tronica City, Ghaziabad. CETP was not functional to the extent of requisite capacity and operating without valid consent. Member industries of CETP were directed to comply with PETP standards as prescribed by UPPCB.
31. In *Sidhgarbyang Kalyan Sewa Samiti, Sitargang, District – Udham Singh Nagar Vs. State of Uttarakhand & Ors.*¹², the Tribunal dealt with was pollution in Sitarganj by industries. The STPs/CETP were not functional and untreated effluents and hazardous chemical were being discharged in open drain. It was noted that CETP was working without valid Consent to Operate (CTO). CPCB was directed to carry out fresh inspection of the CETP and the industries. The State PCB

¹⁰ O.A. No. 125/2018 Order dated 11.07.2018

¹¹ O.A. No. 317/2015 Order dated 13.11.2018

¹² O.A. No. 123/2018 Order dated 13.11.2018

was directed to take appropriate legal action against CETP and erring industries.

32. In *Indian Council for Enviro-Legal Action & Ors. Vs. Jammu and Kashmir State Pollution Control Board & Ors.*¹³, the Tribunal considered discharge of effluents by industries in river Basantar, Jammu. The industries were operating without valid consent. There was delay in establishment of CETP and STP. As a result, untreated sewage waste and effluents were discharged in the river. The SIDCO and Municipal Council were held liable to pay compensation for restoration of environment and failure in installing STPs respectively.
33. In *Paryavaran Suraksha Samiti and Anr. Vs. Union of India & Ors.*¹⁴, the Tribunal dealt with the issue of establishment and functioning of CETPs/ETPs/STPs in all the States and the question whether the effluents were treated as per prescribed limits or not. This Tribunal noted the requirements of continuous monitoring of CETPs/ETPs/STPs by the statutory authorities and directed that CPCB to take penal action against those accountable for failure in setting up CETPs/ETPs/STPs and to recover compensation for damage to the environment.
34. In *Stench Grips Mansa's Sacred Ghaggar River (Suo-Motu Case) and Yogender Kumar*¹⁵, the matter dealt with River Ghaggar which had turned into a polluted water body on account of discharge of effluents. The Tribunal noted failure of authorities in taking action against persons responsible for violation of law and directed to constitute Special Task Force to submit action taken report. The Tribunal directed that an action plan be prepared for preventing

¹³ O.A. No. 483/2016 Order dated 22.11.2018

¹⁴ O.A. No. 593/2017 Order dated 03.08.2018

¹⁵ O.A. No. 138/2016 (Case No. 559/19/11/14) and O.A. No. 139/2016 (Case No. 600/19/11/14) (TNHRC) Order dated 07.08.2018

discharge of untreated effluents in the river by setting up CETPs/ETPs/STPs.

35. In *Hero Motocorp Limited Vs. Union of India & Ors.*¹⁶, the Tribunal directed the Uttarakhand Pollution Control Board to regularly monitor the appellant unit for discharge of effluents.
36. From the above, it is clear that there is a large-scale failure of the CETP which calls for an extensive review regarding the functioning of CETPs in the country, reasons for its failure in meeting the prescribed norms and possible solutions to rectify the problems by the MoEF&CC and the CPCB. In the light of this, Expert Committee may be constituted for the purpose and be asked to submit its report in six months. Question No. (ii) is answered accordingly.

Re(iii): Whether the State Pollution Control Board in the present case and regulatory authorities have not performed their duties as per the expected norms and if so, what are the steps necessary to achieve the objects for which the Pollution Control Boards/Committees have been constituted under the Water Air and the Air Act?

37. The test reports compiled by a joint inspection team clearly shows the non-compliance by the CETP and industrial units as already noticed. We have also noted frequent failure of CETP mechanism while considering Question No. (ii). The SPCB has not shown that it took any stringent action as required which can act as deterrent against violation of pollution norms. Simply issuing notice has not brought about the desired results. No closures have been ordered, nor prosecution launched nor other adequate preventive and remedial measures, including assessment and recovery of damages taken. In this respect, there is failure of GPCB. We may only observe that even a regulatory authority may be held accountable if it colludes with polluters by being required to pay damages or errant officers being held liable for action, including prosecution. Frequent failures of

¹⁶ Appeal No. 55/2018 Order dated 27.09.2018

regulatory bodies need to be remedied for meaningful enforcement of environmental norms. This Tribunal in *Threat to life arising out of coal mining in South Garo Hills district Vs. State of Meghalaya & Ors.*¹⁷, held that State machinery is also required to compensate for their negligence and failure which may act as deterrent against the officers who neglected their basic duty of protecting the environment or colluded with the polluters and law violators. The polluters as well as colluding officers are to be made accountable not only by prosecution or closure of industry but also by assessing and recovering such damages for loss to the environment as it may not only compensate the environment or victims but also act as deterrent to prevent further damage.

38. It is well acknowledged that there is serious threat to the environment in this country. Studies show huge number of pollution related deaths and diseases¹⁸. Any violation of laid down environmental norms has to be seriously viewed and sternly dealt with.
39. It was in the year 1974 that the Water (Prevention and Control of Pollution) Act, 1974 was enacted after noticing that problem of pollution of rivers and streams had assumed considerable importance and urgency on account of growth of industries, threatening the sources of drinking water, the aquatic life and sources of irrigation. After considering the Expert Committee reports on the subject, the statutory framework was adopted giving enormous powers to the Pollution Control Boards (PCBs) for closure, prohibition or regulation of any industries operation or process as well as filing of complaints for prosecution. Minimum sentences have been laid down for violation

¹⁷ O.A. No. 110(T_{HC})/2012 Order dated 04.01.2019 para 28-29

¹⁸ https://niti.gov.in/writereaddata/files/new_initiatives/presentation-on-CWMI.pdf- India ranks 120th in 122 countries in Water Quality Index as per Niti Ayog Report, <https://www.thehindu.com/sci-tech/energy-and-environment/india-ranked-no-1-in-pollution-related-deaths-report/article19887858.ece>- Most pollution-linked deaths occur in India, <https://www.hindustantimes.com/india-news/delhi-world-s-most-polluted-city-mumbai-worse-than-beijing-who/story-m4JFT063r7x4Ti8ZbHF7mM.html>- Delhi's most polluted city, Mumbai worse than Beijing as per WHO; http://www.un.org/waterforlifedecade/pdf/global_drinking_water_quality_index.pdf- WHO Water Quality Index.

of the norms. Polluter Pays Principle is an accepted norm within the purview of regulatory regime. The statutory functions of the PCBs, include programs for prevention, abatement and control of pollution and exercise all incidental powers. The CPCB has powers to issue directions to the State Boards. Needless to say, that similar provisions have been made for protection of air quality under the Air (Prevention and Control of Pollution) Act, 1981 as well as for other environmental issues under the Environment (Protection) Act, 1986.

40. As already noted, the SPCB is equally accountable for its failure and in appropriate cases can be prosecuted for conspiracy or collusion with other offenders causing pollution. The pollution cannot be allowed to be profitable activity and deterrent action must be taken wherever pollution is found so as to render causing of pollution unprofitable and unacceptable to prevent damage to the health and lives of the citizens. Any polluter must be subjected to heavy and deterrent economic sanctions. Unfortunately, this is not happening as expected for which failure the regulatory authority cannot disown their responsibility.
41. We note that the State of Environment in the country, even as per official figures, is alarming. As many as 351 river stretches have been declared to be polluted by the CPCB. Vide order dated 20.09.2018 in *Original Application No. 673/2018, News item published in 'The Hindu' authored by Shri. Jacob Koshy Titled "More river stretches are now critically polluted: CPCB"*, this Tribunal considered the issue of such polluted stretches and noticed the directions of the Hon'ble Supreme Court from time to time for stopping discharge of untreated sewage and effluents in water bodies. Such discharge causes serious diseases, including Cholera and Typhoid. Sewage treatment capacity was disproportionate to the sewage generated. As per some studies noted in the order, 75 to 80% water is polluted in India. Pollution of

River Yamuna¹⁹, Ganga²⁰, Hindon²¹, Ghaggar²², Sutlej and Beas²³, Son²⁴, Subarnarekha²⁵, Ami²⁶ were also noted. The States were directed to prepare action plans to make the water of the polluted river stretches atleast fit for bathing within six months from the dates of preparation of approved action plans. When the matter was reviewed on 19.12.2018, it was found that only 16 States had prepared action plans, most of which were not complete. The direction was issued for payment of environmental compensation per month by every State/UT for failure to prepare action plan and also to furnish Performance Guarantees for execution of the action plans within the stipulated time.

42. This Tribunal in *News Item Published in "The Times of India" Authored by Shri Vishwa Mohan Titled "NCAP with Multiple timelines to Clear Air in 102 Cities to be released around August 15"*²⁷ has dealt with the issue of 102 air polluted cities identified by the CPCB. Taking into account eminent threat to human health as a result of air pollution, this Tribunal directed all the States/UTs with non-attainment cities to prepare action plans for bringing down the standards of air quality within the prescribed norms within six months. The Tribunal further constituted the Air Quality Monitoring Committee to ensure implementation of such action plans. The CPCB and the SPCBs were entrusted with the responsibility to design a robust nation-wide ambient air quality monitoring program to strengthen the existing monitoring network.

¹⁹ Manoj Mishra Vs. Union Of India O.A. No. 6/2012 order dated 26.07.2018

²⁰ M.C. Mehta vs. Union of India O.A. No. 200/2014 order dated 06.08.2018

²¹ Doaba Paryavaran Samiti vs. State of U.P. and Ors. O. A. No. 231/2014 Order dated 08.08.2018

²² Stench Grips Mansa's Sacred Ghaggar River (Suo-Motu Case) and Yogender Kumar O.A. No. 138/2016 Order dated 07.08.2018

²³ Sobha Singh and Ors. Vs. State of Punjab and Ors. O.A. No. 916/2018 Order dated 14.11.2018

²⁴ Amarshakti vs. State of Bihar and Ors. O.A. No. 596/2016 Order dated 24.08.2018

²⁵ Sudarsan das vs. State of West Bengal and Ors. O.A. No. 173/2018 Order dated 04.09.2018

²⁶ Meera Shukla vs. Municipal Corporation, Gorakhpur and Ors. O.A. No. 116/2014 Order dated 25.10.2018

²⁷ Original Application No. 681/2018 Order dated 08.10.2018

43. In re: *Compliance of Municipal Solid Waste Management Rules, 2016*²⁸, the Tribunal directed preparation of action plans for solid waste management consistent with the Solid Waste Management Rules, 2016 in view of the fact that as per annual report of the CPCB prepared in April 2018, most of the States were not complying with the statutory rules.
44. As already noted earlier, this Tribunal considered the matter of polluted industrial clusters in *News Item published in "The Asian Age" Authored by Sanjay Kaw titled "CPCB to rank industrial units on pollution levels"* vide order dated 13.12.2018. It was noted that 43 industrial clusters in 16 States were identified as Critically Polluted Areas and 32 industrial clusters were categorized as Seriously Polluted Areas. In 2017-18, the number of identified polluted industrial clusters went upto 100. Accordingly, the Tribunal directed the State Pollution Control Board to finalize time bound action plan to restore the environmental quality as per the norms laid down by the CPCB and directed CPCB and SPCBs to take coercive measures against the violators on the basis of 'Precautionary Principle' and 'Polluter Pays Principle'.
45. In *Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors.*²⁹, the Hon'ble Supreme Court noted that the State Pollution Control Boards (SPCBs) continued to be manned by persons not having expertise or

²⁸ Original Application No. 606/2018 Order dated 31.08.2018

²⁹ (2018) 11 SCC 734 para 3-4, 28-34: The judgment takes into consideration various Committees appointed laying down guidelines for the functioning of SPCBs viz.,

- (a) Bhattacharya Committee (1984) proposed that the structural organization of SPCBs should consist of technical services, scientific services, planning, legal services, administrative services, accounts, training cell and research and development.
- (b) The Belliappa Committee (1990) - Recommended (i) introducing elaborate monitoring, reporting and organizational systems at the national level along with four regional centres and one training cell in each Board, (ii) effecting suitable changes in the Boards recruitment policy to enable them induct persons with suitable academic qualifications, and (iii) ensuring that the Chairman and Member-Secretary are appointed for a minimum of three years.
- (c) The Administrative Staff College of India (1994) - Recommended, inter alia, that (i) the SPCBs be reoriented for implementing the instrument mix of legislation and regulation, fiscal incentives, voluntary agreements, information campaigns and educational programmes.
- (d) The Menon Committee - Recommending that the State Governments should not interfere with recruitment policies of the SPCBs, especially where the Boards are making efforts to equip their institutions with more and better trained engineering and scientific staff.

professional experience. The State Governments were not able to appoint qualified, impartial, and politically neutral persons of high standing to the crucial regulatory posts. Political appointments were being made in blatant violation of Apex Court guidelines to debar favorable persons being appointed.³⁰ The appointments being made did not inspire the confidence of the people. The Hon'ble Supreme Court directed all the States to frame guidelines and recruitment rules within six months. It may be pertinent to lay emphasis on the following observations of the Hon'ble Supreme Court in the aforesaid judgment:

“Unless corrective measures are taken at the earliest, the State Governments should not be surprised if petitions are filed against the State for the issuance of a writ of quo warranto in respect of the appointment of the Chairperson and members of the SPCBs. We make it clear that it is left open to public spirited individuals to move the appropriate High Court for the issuance of a writ of quo warranto if any person who does not meet the statutory or constitutional requirements is appointed as a Chairperson or a member of any SPCB or is presently continuing as such.”

46. In addition to this, the Parliamentary Standing Committee on Science and Technology, Environment and Forest, August 2012 in its recommendations on the working of the SPCBs was perturbed to note that the SPCBs were not performing their duties vigilantly and recommended that MoEF&CC must ensure proper and effective coordination between the CPCB and SPCBs and take necessary steps to make the Pollution Control Boards functional and ensure that the discharge their duties effectively and efficiently.³¹

³⁰ *Ibid.* The judgment notes the report of the Tata Institute of Social Sciences published in 2013 titled “Environmental Regulatory Authorities in India: An Assessment of State Pollution Control Boards” which stated about the appointments to the SPCBs that time and again across state governments have not been able to choose a qualified, impartial, and politically neutral person of high standing to this crucial regulatory post. The recent appointments of chairpersons of various State Pollution Control Boards are in blatant violation of the Apex Court guidelines. The primary lacuna with this kind of appointment was that it did not evoke any trust in the people that decisions taken by an ex-official of the State or a former political leader, appointed to this regulatory post through what appeared to be a totally non-transparent unilateral decision. Many senior environmental scientists and other officers of various State Pollution Control Boards have expressed their concern for appointing bureaucrats and political leader as Chairpersons who they feel not able to create a favourable atmosphere and an effective work culture in the functioning of the Board.

³¹ Accessible at:
<http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20S%20and%20T,%20Env.%20and%20Forests/230.pdf>

47. During the hearing it was stated by the learned Counsel for the GPCB that guidelines in terms of *Techi Tagi Tara* (supra) have been issued and thus, the judgment has been complied with. However, he has not been able to dispute that the persons appointed are not having technical or professional qualifications or background as expected.
48. This Tribunal, on 20.07.2018, in *Satish Kumar vs. U.O.I & Ors.*³² also observed that persons of judicial background may be required in key position in PCBs as several functions of the SPCBs are quasi-judicial.
49. The order of this Tribunal dated 07.08.2018 in *Stench Grips Mansa's Sacred Ghaggar River (Suo-Moto Case)*³³ noted that a task force must be constituted in every district and State to give reports on the environmental issues which should be published on the websites.
50. The Tribunal in the order on 08.08.2018 in *Doaba Paryavaran Samiti Vs. State of U.P. & Ors.*³⁴ noted that statutory authorities had miserably failed and were required to be held accountable for their failure.
51. In view of the fact clean environment, apart from other statutory provisions, is a mandate of Article 21 of the Constitution, causing of pollution having serious implications on health of the citizens cannot be accepted and no responsible authority could simply throw its hands in despair.³⁵
52. Thus, there being far from satisfactory governance on the part of the SPCBs, as depicted by the compiled data, resulting in large number of deaths and diseases in the country, remedial measures are required. Lack of effective governance in the present case is patent from absence of steps for prosecution of the guilty persons or recovery of

³² O.A No. 56 (THC) of 2013

³³ O.A. No. 138/2016 (T_{NHRC})

³⁴ O.A. No. 231/2014

³⁵ *Supra* note 18

damages for restoration of the environment which is primary responsibility of the SPCB. Appointment process does contribute to such ineffectiveness.

53. There is, thus, urgent need to review the qualification and appointment procedure so as to realistically comply with the mandate of the judgment of the Hon'ble Supreme Court. There is also need to carry out performance audit of functioning of all the Pollution Control Boards and Pollution Control Committees in the country and to identify remedial steps required in manning and functioning of SPCBs and PCCs or otherwise. Unless strong effective regulatory regime is in place, and shortcomings identified and remedied to expect clean environment would be unrealistic and merely a dream.

Re(iv): What are the conclusions and what are the directions required to be issued by this Tribunal?

54. The above observations lead us to conclude as follows:
- i. CETP operator and the concerned industrial units have failed to comply with the pollution norms and are required to be made accountable for their failure within the framework of the regulatory regime with the assistance of experts making the CPCB as nodal agency to determine the extent of damage caused to the environment and cost of restoration.
 - ii. The CETP and polluting industrial units must be required to deposit an interim amount for damage to the environment and for the cost of restoration pending further orders to be passed in the light of Expert Committee Report proposed to be constituted.
 - iii. Functioning of CETP in the country generally calls for review in view of the fact that there are large number of failures in the existing CETP mechanism, as earlier noted. The abovementioned cases cannot be taken to be only isolated

cases. As many as 100 industrial clusters have been identified by the CPCB itself as critically polluted which supports the need for review.

- iv. The regulatory regime in the form of SPCBs has not been as effective as expected as noted by the Hon'ble Supreme Court in *Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors.* (supra). This is partly on account of appointments not being upto the mark as well as absence of audit of performance and monitoring mechanism. This needs to be remedied in light of performance audit and study by an Expert Committee.

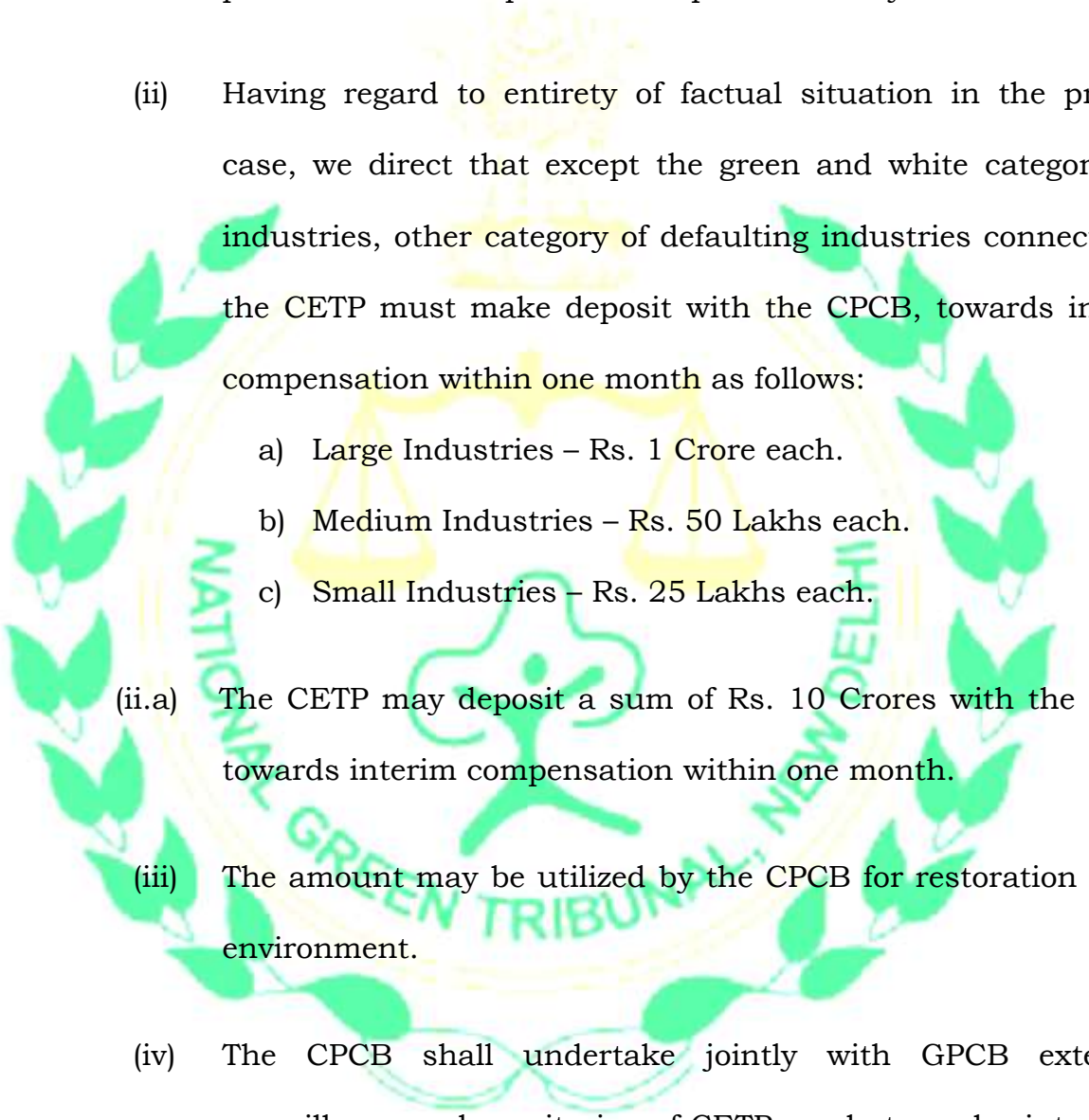
55. Accordingly, we direct as follows:

- (i) We direct constitution of following Committee to assess the extent of damage and cost of restoration of the environment and individual accountability of CETP and polluting industrial units:

- a) Representative of CPCB.
- b) Representative of IIM, Ahmadabad.
- c) Nominee of IIT, Ahmadabad.
- d) Scientist nominated by NEERI.
- e) Representative of GPCB.

- (i.a) The Committee may give its report within three months. The Committee will be entitled to take any factual or technical inputs in the manner found necessary. CPCB will be the nodal agency for the purpose. The Committee may also suggest steps for restoration of the environment.

- (i.b) The Committee may give hearing to the CETP operator and the units identified as polluting by the GPCB for which list will be furnished by the GPCB to the Committee indicating the period and nature of default within one month.

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- (i.c) The GPCB may inform the defaulting units for compliance of this order.
- (i.d) The Committee may also consider data already available with it since the affidavit filed by the CPCB does indicate availability of such data with the CPCB.
- (i.e) The GPCB may also consider exercise of its statutory powers of prosecution which power is coupled with duty.
- (ii) Having regard to entirety of factual situation in the present case, we direct that except the green and white categories of industries, other category of defaulting industries connected to the CETP must make deposit with the CPCB, towards interim compensation within one month as follows:
- a) Large Industries – Rs. 1 Crore each.
 - b) Medium Industries – Rs. 50 Lakhs each.
 - c) Small Industries – Rs. 25 Lakhs each.
- (ii.a) The CETP may deposit a sum of Rs. 10 Crores with the CPCB towards interim compensation within one month.
- (iii) The amount may be utilized by the CPCB for restoration of the environment.
- (iv) The CPCB shall undertake jointly with GPCB extensive surveillance and monitoring of CETPs and at regular interval of three months and submit its report to this Tribunal.
- (v) We direct constitution of following Committee to review the functioning of the CETP in the country and to suggest modifications, if necessary:
- a) Representative of the MoEF&CC.
 - b) Representative of the CPCB.

- c) Representative of NEERI.
- (v.a) The representative of the CPCB will be the nodal agency. The report may be furnished within three months.
- (vi) The CPCB may conduct Performance Audit of all the SPCBs and Pollution Control Committees (PCCs) within six months by constituting appropriate expert inspection teams and furnish a report to this Tribunal. The CPCB may consider making Performance Audit at suitable intervals a regular feature of its working.
- (vii) We direct the MoEF&CC to constitute a three-member Expert Committee to consider steps to be taken to comply with the mandate of directions of the Hon'ble Supreme Court in *Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors. (supra)* and suggestions for improvement, if any to remedy the existing deficiencies in the effective functioning of the regulatory bodies for meaningful protection of the environment.
- (vii.a) The Committee may suggest guidelines for functioning of the SPCBs and broad steps required for bringing air and water quality in polluted stretches and cities and industrial clusters and coastal/eco-sensitive zones within the prescribed norms and measures to be adopted, including recovery of damages, prosecution of offenders, restitution of contaminated and degraded environmental sites.
- (vii.b) The report of the Committee may be furnished before the next date.
- (viii) The CPCB may consider issuing appropriate directions in exercise of its statutory powers in the light of expert studies which may be carried out.

56. Copy of the order may be sent to CPCB by email and all reports in pursuance of the above directions be sent to this Tribunal at filing.ngt@gmail.com

List for further consideration on 19.08.2019.

Adarsh Kumar Goel, CP

S.P. Wangdi, JM

K. Ramakrishnan, JM

Dr. Nagin Nanda, EM

January 11, 2019
Original Application No. 95/2018
DV



Item No. 01

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 95/2018
(M.A. No. 1029/2018 & I.A. No. 326/2019)

Aryavart Foundation

Applicant(s)

Versus

M/s Vapi Green Enviro Ltd. & Ors.

Respondent(s)

Date of hearing: 28.08.2019

CORAM: **HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON**
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

For Applicant(s): Mr. Raj Panjwani, Sr. Advocate with Mr. Jitendar Singh, Advocate

For Respondent (s): Mr. Gopal Jain, Sr. Advocate, Mr. M.S Kalra, Mr. Sandeep Mishra, Advocates for R-1
Ms. Nidhi Jaswal, Advocate for GPCB
Mr. Ritvij Bhatt, Advocate for R-6
Mr. Shlok Chandra, Advocate for CPCB

ORDER

1. The question for consideration is remedial measures against pollution of river Daman Ganga and drain *Bill Khadi* in District Valsad in Gujarat on account of discharge of effluents by industries and CETP in Vapi Industrial Cluster.
2. The matter was earlier reviewed vide order dated 13.05.2019. It will be appropriate to refer to the relevant part of the said order:

“BACKGROUND

2. According to the applicant, pollution is being caused by discharge of untreated polluting industrial effluents by more than 500 industrial units in Vapi Industrial Cluster. The CETP operator, Respondent No. 1, M/s. Vapi Green Enviro Limited (Old name – Vapi Waste & Effluent Management Co. Ltd.) and the defaulting individual industrial unit are liable to be rendered accountable by way of prohibitory and remedial measures. The river and the drain in question are required to be restored. The applicant has referred to a study carried out in February, 2017 by NEERI finding huge water pollution in the river as follows:-

“The fish bioassay study on the final treated effluent sample discharged from Vapi CETP into the river indicates 100% mortality at 50, 75 and 100% waste water concentrations within 24 h exposure time (Plate 4.56). The experimental results presented in Table 9.6 reveal toxic nature of the treated effluent from Vapi CETP. Thus, it can be concluded from the fish bioassay study that the final treated effluent from Vapi CETP with high colour intensity, organic and inorganic matters is having toxic effect on aquatic life of Daman Ganga River. Therefore, Vapi CETP effluent must be treated adequately to remove the pollution parameters before discharging into Daman Ganga River.

The final treated effluent discharge from the existing Vapi CETP (D-11A) has not only caused deterioration of the river water quality with respect to the colour and recalcitrant parameters but also has imparted toxic effect on aquatic life of Daman Ganga River (segment-II). Therefore, Vapi CETP must be scientifically upgraded for colour and recalcitrant pollutants removal including reject management with a final aim of achieving zero liquid effluent discharge as delineated under Section 11.0. This will result in recovery of good quality water, which can be reused as process water by the industries, leading to fresh water conservation.”

3. The Gujarat Pollution Control Board (GPCB) carried out inspection on several dates which confirmed pollution. Notices were issued under Sections 33A and 25 of the Water (Prevention and Control of Pollution) Act, 1974 (Water Act) and under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 (Air Act) to the erring parties but no satisfactory result was received and pollution beyond statutory norms continues.

EARLIER PROCEEDINGS:

4. This Tribunal reviewed the matter at length vide order dated 11.01.2019 for preventive and remedial measures in the matter.

The Tribunal heard the applicant, the CETP Operator, the CPCB, the GPCB and also some of the polluting units who were before the Tribunal. Following questions were framed vide order of this Tribunal dated 11.01.2019:

- “i. Whether the CETP operator and its member units have failed to comply with the conditions of consent and norms of environment and caused pollution? If so, the manner in which they are to be held accountable?**
- ii. Does the functioning of CETP in the present case and of CETPs in general in the country calls for review and modification?**
- iii. Whether the State Pollution Control Board in the present case and regulatory authorities have not performed their duties as per the expectation and if so, what are the steps necessary to achieve the objects for which the Pollution Control Boards/Committees have been constituted under the Water Air and the Air Act?**
- iv. What are the conclusions and what are the directions required to be issued by this Tribunal?”**

5. With reference to question no. 1, it was held that CETP operators and member units had failed to comply with the conditions of consent in view of inspection reports dated 28.09.2018 and 10.01.2019 and in the circumstances ‘Polluter Pays’ principle can be invoked by the statutory regulatory authorities to determine the extent of accountability of the industrial units. The report dated 28.09.2018 showed:-

“It is observed that Inlet quality - COD, NH3-N and TSS are not meeting with inlet norms whereas COD and TSS at outlet of CETP are not meeting with Outlet norms.

CPCB, RD, Vadodara carry out quarterly monitoring of CETP, Vapi. The latest monitoring carried out on 11.08.2018 and results are provided at Annexure-III. It is observed that Inlet quality - TSS, FDS, BOD, COD and NH3-N are not meeting with inlet norms whereas TSS, FD, COD, NH3-N & Phenols at outlet of CETP are not meeting with outlet norms.

M/s VGEL (CETP) reportedly takes internal actions among the defaulting member units as per M/s VGEL monitoring but so far not provided the list of defaulting industries to GPCB though it is expected as per the Hon'ble NGT Order dated 29.08.2018, and also as per notices of direction issued by GPCB.

M/s VGEL (CETP) has not provided any action plan to comply with both inlet as well as outlet norms during the above review.”

6. Report dated 10.01.2019 also confirmed non-compliance at frequencies noted in the report with reference to the relevant parameters. The fact that untreated effluents were being discharged into the water bodies was not only reported by CPCB and GPCB but also accepted by the CETP operator. The stand of GPCB was that Notice has been issued to CETP operator as well as defaulting industrial units for remedial action.

Accordingly, a Committee was constituted to hear the individual polluting units and to quantify the amount of liability.

7. **Under the issue no. 2, after referring to several cases considered by the Tribunal, it was held that there was large scale failure of CETP systems in general in the light of observations of the Tribunal, an Expert Committee was required to review the same.**

8. **Under issue no. 3, the Tribunal found failure of mechanism of Pollution Control Boards in ensuring pollution free environment which is the mandate of the Constitution and the object of Water Act, Air Act, the Environment (Protection) Act, 1986 and other such laws. The fact that 351 river stretches are identified as polluted by the CPCB, 102 cities in terms of air quality are identified as non-attainment cities and 100 industrial clusters have been identified as polluted is clear evidence of failure of compliance of environment norms and ineffectiveness of the present statutory bodies constituted with that mandate. Proceedings in the present case established the failure of Gujarat State Pollution Board in performing its duty of preventing pollution and taking adequate remedial action against polluters. In spite of severe pollution, no conviction was reported. Polluters were not shown to have been prosecuted. It was noted that the Hon'ble Supreme Court in *Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors.*¹ and also the Parliamentary Standing Committee on Science and Technology, Environment and Forest had found the failure of pollution boards. Still, adequate remedial measures were not being taken by the concerned authorities by way of legislative or executive intervention.** Clean Environment being part of Fundamental Right and 'Sustainable Development', 'Precautionary principle' and 'Polluter Pays principle' being statutorily required to be enforced by this Tribunal under Section 20 of the National Green Tribunal Act, 2010 (NGT Act), to prevent and remedy the acknowledged level of high pollution in the country resulting in death and diseases, the Tribunal held that there was need for Performance Audit being conducted in respect of functioning of all the PCCs and PCBs of the Country and in the light of such findings, further action was required. The directions issued vide order dated 11.01.2019 include that constitution of a Committee to review functioning of CETPs comprising

¹ (2018) 11 SCC 734

representatives of MoEF&CC, CPCB and NEERI and Performance Audits by CPCB of all the SPCBs and PCCs, constitution of a three Member Expert Committee by the MoEF&CC to consider compliance of mandate of the law laid down by the Hon'ble Supreme Court in *Techi Tegi Tara (supra)*, to suggest guidelines for effective working of SPCBs to bring air and water quality within norms.

9. Under issue no. 4, it was concluded that the CETP operator and the concerned units had failed to comply with the environmental norms and were required to be made accountable within the framework of the regulatory regime. The Regulatory regime provides for preventive as well as remedial action of prohibiting polluting activities, including closure, prosecution as well as recovery of compensation on 'Polluter Pays' principle. Pending such action, interim amount of damage for the pollution already caused so as to recover cost of restoration based on prima-facie opinion could be recovered. CETP mechanism was required to be reviewed and so was the functioning of the regulatory regime in the form of SPCBs. Accordingly, the Tribunal directed constitution of a Committee to assess the extent of damages, payment of interim compensation by CETP operator as well as erring industries which was to be utilized by the CPCB for restoration. **The Tribunal directed performance audit of all the SPCBs/PCCs and also directed to review of regulatory mechanism in the light of observations of the Hon'ble Supreme Court in *Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors., (2018) 11 SCC 734.***"

3. The above background shows that based on objective data it was clearly established that the CETP in question was operating in environmental norms and the pollution caused was required to be controlled by stopping the polluting activity and making the polluters accountable on the 'Polluter Pays' principle. Conscious of the fact that large number of industries are connected to the CETP which may be required to be made accountable for causing pollution, the Tribunal made it clear that statutory authorities may give hearing to the affected parties and perform their duties consistent with the principles of *natural justice*. For giving a direction to the statutory authorities in the light of clear evidence of pollution, it was not necessary for the Tribunal to hear individual industries in view of the

fact that such hearing is to be given by the regulatory authority. Since the pollution control board had failed to perform its duty, this Tribunal was required to consider the remedial steps necessary including compliance of observations in the judgement of the Hon'ble Supreme Court with regard to the manning of the regulatory bodies.

4. The Tribunal, in its hearing on 13.05.2019, considered the report dated 09.05.2019 submitted by the joint Committee with regard to the status of compliance of environmental norms by the CETPs as well as individual industrial units. It was observed:

“20. The conclusion of the Committee was that there is increase in concentration of pollutants:

***“As observed from results of CPCB, GPCB and NEERI, there is increase in the concentration of pollutants post CETP discharge at Namdha and Jari Causeway along the Damanganga river vis-a-vis river water quality at GIDC weir (which can be considered as river water without effect of pollution). Aesthetically, the impact of pollution in the river Damanganga is observed for about 13 km from Vapi weir. This is supported by the CSIR-NEERI Report (2016-2017). The report also stresses on the toxicity of the CETP wastewater on the to fish. Based on the Interactions with local community and Fisheries Department of UT of Daman & Diu, it was conveyed that fishing is not carried out on the stretch downstream of CETP discharge due to river pollution. However data on marine fish catch in the sea near Daman is available.*”**

Also based on the historical data of CPCB, the quantum of pollution load indicated decreasing trend of major pollutants such as COD and BOD over the years. This is in line with the improvement in the quality of treated effluent of CETP though CETP is not meeting with outlet standards for parameter COD, TDS, and Colour. Hence, upgradation of CETP treatment scheme is paramount to reduce pollution reaching the river Daman Ganga. There is improvement in the river water quality as per priority categorisation from Priority - II (2010) to Priority - IV (2015 & 2018) as inferred from CPCB report for the river stretch: Kachigaon to Vapi (GIDC weir to Jari Causeway (Priority - I being most polluted and Priority -V being best rating). Though, river stretch falls under Priority IV (based

on BOD), presence of other pollutants discharged from the CETP outlet affected the biological and physicochemical environment of the river.

The impact on the coastal marine environment (4 beaches-Tadgam, Jampore, Devka and Tithal) due to industrial discharges through rivers/drains in the area assessed by National Institute of Oceanography (NIO) (2018) and report has stated that there is no evidence of significant deterioration of environmental quality of the beachfront environment. The waters of these 4 beaches contained high load of fecal coliform (FC) in water and sediment suggesting contamination by sewage. The study conducted by CSIR-NEERI also indicated pesticides concentrations at levels below the detectable levels of instrument analysis.

In view of the consideration of the steps for the restoration of the environment of river Damanganga suggested based on treatment of pollutants and discharge as per environmental norms, the cost of restoration comes about Rs. 751 crore for over ground pipeline network from industries to GIDC manhole/sump, quality & quantity monitoring SCADA system, upgradation of CETP, construction of STPs, management of MSW in the area.

As there are many methods for environment damage estimation and all of them use reasonable assumptions, the committee has used two different approaches to calculate the damage. While Approach - I is based on the economic valuation of eco-services rendered by the river considering a representative critical pollutant (COD) for damage estimation. Approach-II is based on the CETP discharge outlet norms for the pollutants: COD, NH₃-N, TSS, and BOD, independent of river water quality. Using two alternative methods the cumulative economic damages are estimated to be in a comparable range (**INR 41.61 Cr for the Approach-I and INR 67.00 Cr for Approach-II during the year 2013 to 2018**).

Using the recent six years (2013-2018) data and employing two alternate methods, the yearly average economic damages are estimated to be in the comparable range of **INR 6.93 Cr/year (Approach-I) and INR 11.17 cr/Year (Approach-II).**"

24. Learned Counsel for the applicant also points out that the Committee has not factored in the level of pollution based on category of industries as red, orange and green which depends on pollution protentional. Even a small industry may be causing more pollution than large industry. Merely categorization large, small and medium without considering the extent of pollution on account of nature of activity of such industry is not correct application of the 'Polluter Pays' principle. The cost of restoration having been found to be more than Rs. 750 Crores which includes multiple of factors. The cost estimate for River

Restoration Programme which includes CETP upgradation, STP and MSW facility. The Committee has undertaken economic valuation and damage assessment by two methods. By following 'shadow cost of pollution load and benefit transfer method' the cumulative damage of Rs. 67.00 Crores has been estimated due to excess discharge of pollutants in river ecosystem in last six years between 2013-18 with average damage of Rs. 11.17 Crores each year to the environment. However, by following 'Direct Benefit Method' which is based on The Economics of Ecosystem and Biodiversity (TEEB) project set up in 2007 and led by United Nations Environment Programme (UNEP) the damage that can be attributed to pollution from CETP in excess of stipulated standard of COD comes to Rs. 41.61 Crores for six years. Right application of the 'Polluter Pays' principle requires that the polluter should be required to pay the cost of restoration. The compensation to be recovered should be deterrent. In the present case, compensation has been based on a formula worked out by the CPCB which cannot be universally applied without reference to cost of restoration and may be deficient in the present case having regard to the high cost of restoration. The amount of compensation should on account of wide spread pollution broadly also correspond to the cost of restoration which has not been done.

25. The Committee has assessed compensation only for 44 units while the number of polluting units is more than 500. GPCB failed to give list of all the polluting units. GPCB has not acted on 'Precautionary' principles by closing the polluting units. Reliance has been placed on the order of this Tribunal dated 09.04.2019 in O.A. No. 125/2018, Arvind Pundalik Mhatre Vs. Ministry of Environment and Forest & Climate Change & Ors., wherein this Tribunal in similar circumstances directed closure of polluting units to uphold the mandate of the Water (Prevention and Control of Pollution) Act, 1974. It was observed as follows:

"14. Accordingly, we direct the MPCB to forthwith suspend the Consent to Operate to the industries in the area not meeting the norms and permit them to operate only after remedial steps are taken. Steps in this direction be taken within two weeks from today. Whether a particular industry is complying or not complying with the norms is the matter to be decided by the MPCB in accordance with law. Action taken report be furnished to the Committee and the Committee may take a final call in the matter, in case of any surviving issue."

26. In the present case in spite of acknowledged pollution, the polluting units are continuing. There is no material to show launching of prosecution. The approach of the GPCB is, thus, patently soft towards the violators of law which itself shows failure of the regulator to protect and restore the environment.

31. **Accordingly, we direct the Committee to make fresh calculation based on actual period of pollution during five years preceding 26.02.2018, the date on which this application was filed i.e. from 26.02.2013 till the date of calculation.** The Committee has only gone by the category of large, small and medium industry and not by the extent of pollution by the category of the industry concerned as red, orange and green. The Committee may also keep in mind the need to correlate the compensation to be recovered to the cost of restoration in the facts of the present case. The GPCB should furnish list of all the polluting units. We find that the approach of the GPCB has been too soft and adequate action has not been taken against the law violators by way of prosecution and closure of polluting activities which is a failure of the regulator. If cost of restoration is not recovered from polluters, the regulator and not the victim should be responsible for the loss.

32. **In view of the material on record appearing from the report extracted above, prima facie, direction to deposit interim compensation in terms of order dated 11.01.2019 is fully justified and needs no change.** It is patent that the interim amount fixed by this Tribunal may not only be inadequate to meet the loss caused by pollution and the cost of restoration. The prayer for waiving the requirement of interim deposits has no merit and is dismissed. I.A. Nos.176/2019 to 187/2019, I.A. Nos. 190/2019 to 207/2019, I.A. Nos. 227/2019 to 238/2019, I.A. No. 263/2019 said to be for variation of order dated 11.01.2019 will stand dismissed.

33. Fresh report of the Committee may be furnished within two months by e-mail at ngt.filing@gmail.com. Any further submissions of the parties may be given to the Committee through CPCB. We also add a representative of MoEF&CC to the Committee for making the assessment.

34. GPCB may furnish list of all the polluting units in addition to list of 44 units earlier given and online data as may be necessary to determine damages for period from 13.02.2013 till date to the Committee and perform its duties as regulator in respect of CETP as well as all defaulting units by way of closure to stop polluting activities and prosecution for the violation of law which had already done.

35. **In terms of order dated 11.01.2019 and the above order, following steps may be completed:**

- i. **Report be submitted for review of functioning of CETPs in the country as per direction in Para 55 (v) in order dated 11.01.2019. CPCB may coordinate.**
- ii. **Performance audit of SPCBs/PCCs may be completed as per para 55 (vi) in order dated 11.01.2019.**

- iii. MoEF&CC may give status of report of steps to revamp the regulatory bodies as directed in para 55 (vii) and (vii.a) in order dated 11.01.2019.*
- iv. Compliance of requirement of deposits be made in terms of para 55 (ii) of order dated 11.01.2019 forthwith to the extent not made.*
- v. The Committee to assess the compensation and give its revised report within two months. MoEF&CC may nominate its representative as part of Committee constituted in terms of para 55 (i) vide order dated 11.01.2019.”*

Proceedings before the Tribunal on 19.08.2019

5. In the light of the above background we took up the matter on 19.08.2019. After considering the above report dated 14.08.2019 received from the Committee on the subject of performance of CETP, the Tribunal sought information about the units responsible for discharging effluents beyond norms in CETP inlet resulting in CETP outlet not being as per standards. The Tribunal completed the hearing on all other aspects.

Today's Proceedings before the Tribunal

6. Written submissions have been filed in the course of hearing today on behalf of Respondent No.1 with regard to identification of individual contributors to pollution of inlets in the CETP. It is stated that the effluents of the individual are collected in a common drain. CETP has no opportunity to assess the inlet norms of the individual industries. At the same time, list of defaulting industries furnished by the CETP to the GPCB on 01.02.2019 has been filed as an annexure to the written submissions containing names of the following industries:

1. Chemodist Industries
2. Dalmia Poly Pro Industries Pvt. Ltd.
3. Haatkesh Chem & Engind
4. Jayshiv Chemicals Pvt. Ltd.
5. Nylo Speciality Colours
6. Pearl Colour Industries

7. Praveen Industries
8. Rainbow Chemicals
9. Ratna Products
10. Skyline Polycats Pvt. Ltd.

7. No other submissions have been advanced even though the written submissions purport to raise certain objections. We may need to mention that as is clear from the background referred to earlier the grievance being considered by this Tribunal is violation of environmental norms resulting in damage *inter alia* to river and drain and the public health. We have already noted earlier that this Tribunal has to enforce the ‘Sustainable Development’, “Precautionary” and “Polluter Pays” principles under Section 20 of the NGT Act. In the course of such enforcement, the Tribunal can require the statutory bodies to perform their duties after verifying the data and complying with the natural justice. An aggrieved party has statutory remedies against orders of the statutory regulatory bodies. The reports which have been furnished to the Tribunal can certainly be taken into account in absence of meaningful objection thereto.

8. We now proceed to deal with following reports which have been filed in pursuance of earlier consideration and directions by the Tribunal, as noted above:

- I. Report dated 14.08.2019 from CPCB in respect of performance of CETP;
- II. Report dated 05.08.2019 furnished by the CPCB on behalf of the joint Committee with regard to payment of compensation by the polluting industries;
- III. Report dated 10.07.2019 from the CPCB on the subject of performance audit of the State PCBs/PCCs; and

IV. Report dated 17.08.2019 from the MoEF&CC on the subject of compliance of judgment of the Hon'ble Supreme Court *Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors.*²

I. Report dated 14.08.2019

9. The report dated 14.08.2019 shows that on analyzing the samples the influent to CETP is not meeting parameters. Final outlet is not meeting the standards for TSS, FDS, COD and BOD parameters. Accordingly, remedial action has been recommended as follows:

“3. RECOMMENDATIONS:

- *CETP should up-grade treatment system/put more efforts in operation for meeting with outlet norms.*
 - *The CETP needs to regulate the discharge of member units to meet the inlet standard, especially concentration of FDS parameters is more than 3.5 times than the prescribed standard.*
 - *Proper calibration and continual maintenance of OCEMS needs to be done to ensure reliable results of monitored parameters.*
 - *List of defaulting industries should be regularly (monthly) share with GPCB for taking suitable action against these industries.*
 - *CETP should regularly send the sludge and salt (generated from Common Spray Dryer) to CHWTSDf for proper disposal.”*
10. Thus, there is need to reduce the load of inlet so as to ensure that inlet parameters are complied with by contributing industries. This may require closing identified source of such inlets or reducing the corresponding pollution load of the identified member units. It is not difficult to identify polluting units because there exists monitoring mechanism of outlets of individual units. Moreover, CETP itself claims to have given a list in this regard to the GPCB as already noted. The joint Committee of CPCB and GPCB can determine the

² (2018) 11 SCC 734

source of polluting inlets and take further action to correspondingly reduce the pollution load by issuing appropriate directions. Further, the CETP needs to be upgraded and till such upgradation is done, the inlet quantity and load needs to be reduced as to match the current capacity of the CETP. The same Committee can also determine the manner in which the CETP may reduce its intake so that its outlet complies with the parameters pending steps for further upgradation. The joint Committee may accordingly take appropriate further action in the matter and file a compliance report before this Tribunal before the next date.

II. Report dated 05.08.2019

11. Report dated 05.08.2019 furnished by the CPCB on behalf of the joint Committee refers to visit to CETP and river Damanganga, sampling of CETP Vapi and different locations of river Damanganga, Information/Data collection from CETP operators, GPCB, CPCB, other departments, reports of NEERI, NIO, hearing to defaulting industrial units and CETP operators. It is found that CETP was not able to meet the outlet norms as some of the member units are discharging effluents without proper treatment. CETP is unable to treat refractory COD & colour on account of high salt concentration. Impact of pollution is observed for about 13 km from Vapi weir. There is toxicity of CETP waste water affecting the fish. The water from the river is not consumed downstream of GIDC weir either for drinking or irrigation. The pollution load. Upgradation of CETP is necessary. Compensation to be recovered from individual industry members has been assessed to be Rs. 25.36 crore and from CETP Rs. 92.36 crore as against the cost of restoration being assessed at Rs. 728.72 crore

which includes laying of pipelines, MSW management, sewage collection system. The relevant part of the report is reproduced below:

“The CETP was commissioned in the year 1997 and has made several upgradations in unit treatment and process operations over the years. Recently, the CETP augmented with Common Multiple Effect Evaporator & Common Spray Dryer for High COD & High TDS wastewater. It was observed from the results of analysis of the inlet and outlet wastewaters from multiple data sets of CPCB, GPCB & VGEL that there was an improvement over the years in treated wastewater quality which is significant in 2016. However, the CETP was not able to meet outlet norms broadly for COD, FDS, Chlorides, Sulphates and Color. Major reasons for the non-compliance of GPCB norms are briefly presented hereunder:

- 1. Some of the member units are discharging without proper treatment to their process wastewaters prior to discharge into the CETP. Failure to adhere to the CETP Inlet quality norms is one of the reasons for the CETP not meeting the final treated effluent quality.*
- 2. The presence of refractory COD & Colour in the presence of high salt concentration becomes difficult to treat and meet statutory norms under the existing treatment scheme.*

Restoration of the environment of river Damanganga requires following broad steps which are suggested based on treatment of pollutants and discharge into river Damanganga as per environmental norms:

- Improvement/up-gradation in the wastewater collection through surface/over ground pipeline from industries to manhole/sump of GIDC drainage network and to remove all underground discharge line of industrial unit to manhole of underground GIDC drainage. Further, it is recommended to lay surface pipeline conveyance system up to CETP, wherever technically feasible by removing underground existing pipeline.*
- Restoration of existing & construction of new storm water drain to prevent entry of wastewater into the natural drains in the industrial estate.*
- Monitoring and analysis of all industries including all streams of wastewater, product wise and shall identify High COD/High TDS (refractory COD) Stream for identification of any discrepancies which will be helpful in taking actions.*
- Quality & Quantity Monitoring with SCADA-PLC system for controlling quantity & quality of the effluent discharged by each of the member units.*
- Proper operation, maintenance and up-gradation of CETP to meet the norms prescribed by GPCB*
- Strict vigilance, identification and action against defaulting industries.*

- Proper design and construction of stormwater drains and sewerage network, STP within the local bodies
- STPs shall be designed to reuse of treated sewage for industrial reuse/ landscaping / firefighting and agriculture purpose.
- Prevent dumping of solid waste from towns and villages on the banks of river.
- Minimum environmental flow of Damanganga river for release of water from the Madhuban Dam.
- Afforestation
- River front development
- Agricultural and farm yard management surrounding the river path.

In view of the consideration of the steps for the restoration of the environment of river Damanganga suggested based on treatment of pollutants and discharge as per environmental norms, the cost of restoration including the projects from concerned departments comes about Rs. 731 - 751 crore for over ground pipeline network from industries to GIDC manhole/sump, quality & quantity monitoring SCADA system, upgradation of CETP, construction of STPs, management of MSW in the area by concerned agencies.

Table 8.1: Compensation and estimated cost of projects from concerns agencies for restoration of Damanganga:

No.	Agency	Amount (in crore)
	Compensation amount from industries and CETP	
1	Compensation from individual industry members (As per Table 7.4, 161 industries)	25.36
2	Compensation from Vapi CETP	92.36
	Cost of the other projects of concern Agencies/Departments	
3	Overground pipe line by GIDC (GIDC Vapi)	95.00
4	MSW Management (Vapi Municipal Council for Vapi Town)	11.00
5	STP Plant & Sewage Collection system in Vapi Area - 60 MLD (Vapi Municipal Council)	233.00
6	STP Plant & Sewage Collection system in Daman area - 70 MLD (Daman Municipal Council)	272.00
	Total	728.72

The above table shows correlation with cost of restoration in consideration of the nature of work and the source of the fund for restoration of river Damanganga is Rs. 728.72 Crore against the total cost of restoration estimated Rs. 731 - 751 Crore (mentioned in Chapter 6, Table 6.1). The total Environmental Compensation from individual industries and CETP (Vapi) is calculated to be Rs. 117.72 Cr (25.36 Cr + 92.36 Cr).

As per the interim order dated 11.01.2019 & 13.05.2019, 41 defaulting industries as per earlier list and CETP has already

paid the interim environment compensation, whereas 3 industries have not submitted the interim environment compensation for whom GPCB have already issued the closure directions.

Based on the Hon'ble NGT directives, various actions have been identified to restore the river Damanganga and reduce environmental damage in the future. Few agencies such as GIDC, VGEL CETP, GPCB, CPCB, Municipality/local bodies are identified which are in concern for restoration. **The committee's major recommendations are summarized below (as detailed given in section 5.1.1 to 5.1.4 Chapter - 5).**

ACTIONS TO BE UNDERTAKEN BY GIDC/NOTIFIED AREA AUTHORITY

- It is recommended to provide the surface/over ground pipeline from industries to CETP for proper conveyance of effluent wherever technically feasible by removing existing underground pipeline.
- Restoration of any damaged stormwater drains to prevent entry of wastewater into the natural drains in the industrial estate and prevention of entry of industrial wastewater in Bill khadi and its flow downstream to GIDC estate.
- Proper design and construction of stormwater drains within the industrial estate where it is not provided particularly in low lying areas to (i) prevent stagnation of storm water contaminated with industrial wastes (ii) to prevent indiscriminate entry of contaminated storm water into natural drains.

ACTIONS TO BE UNDERTAKEN AT CETP LEVEL

- CETP shall carry out monitoring and analysis of all industries including all streams of wastewater, product wise and shall identify High COD/High TDS (refractory COD Stream). Based on that, CETP shall monitor the inlet quantity to CMEE/Spray dryer industry wise and shall submit data to GPCB monthly for identification of any discrepancies which will be helpful in taking actions.
- All the member units have to provide a system for the quantity and quality of the effluent discharge through SCADA-PLC system and shall observe discharge schedule and permitted volume.
- All the sump rooms shall be equipped with auto samplers for controlling the quality of effluent discharged by members, which can be accessible by VGEL. If require, it should also be accessible for GPCB.
- Proper operation, maintenance and up-gradation of CETP to meet the norms as prescribed in **Chapter 6 (Table 6.1)** or equivalent advanced technology related to effluent profile.

ACTIONS TO BE TAKEN AT REGULATORY LEVEL

- Continuous strict vigilance, identification and action against defaulting industries.
- Vapi GIDC to ensure that the process wastewaters from industries do not enter the storm water drains. It may be

achieved through the construction of dykes or tanks by Industry to collect and introduce into the wastewater treatment scheme.

ACTIONS TO BE TAKEN BY LOCAL BODIES (MUNICIPAL COUNCIL)

- *Proper design and construction of stormwater drains and sewerage network within the local bodies where it is not provided particularly (i) in low lying areas to prevent stagnation of storm water contaminated with wastes (ii) to prevent indiscriminate entry of contaminated storm water into natural drains and finally river Damanganga.*
- *Control domestic/commercial wastewater (sewage) discharges into the River through proper collection and treatment from residential and commercial areas and treatment through STPs. The STPs shall be designed to reuse of treated sewage for industrial reuse/ landscaping / firefighting and agriculture purpose.*
- *Prevent dumping of solid waste from towns and villages on the banks of river.*
- *Identification of plots for solid waste landfill development.*
- *The appropriate authority should take care of their concern projects for restoring the environment.”*

12. Learned Counsel or the applicant has referred to the report of the Committee to point out that the Committee has given hearing to the CETP and all individual units and discussed the individual cases for determining the amount of compensation. However, the period for which the compensation has been assessed is not the entire period for which the pollution continued but reckoned only with respect to the date of inspection. It cannot be presumed that there was no pollution earlier. The polluter is to prove the period during which no pollution was being caused. Whatever be the “best judgement assessment” for the past, presumption of no pollution is not justified. The compensation assessed may thus need to be enhanced. We are of the view that this aspect can be revisited by the joint Committee in light of the submission made by the Learned Counsel for the applicant. Till such consideration, the amount assessed can be collected as an interim compensation. Further action may accordingly

be taken jointly by GPCB and CPCB. . Compliance report in this regard may be filed before the next date.

III. Report dated 10.07.2019

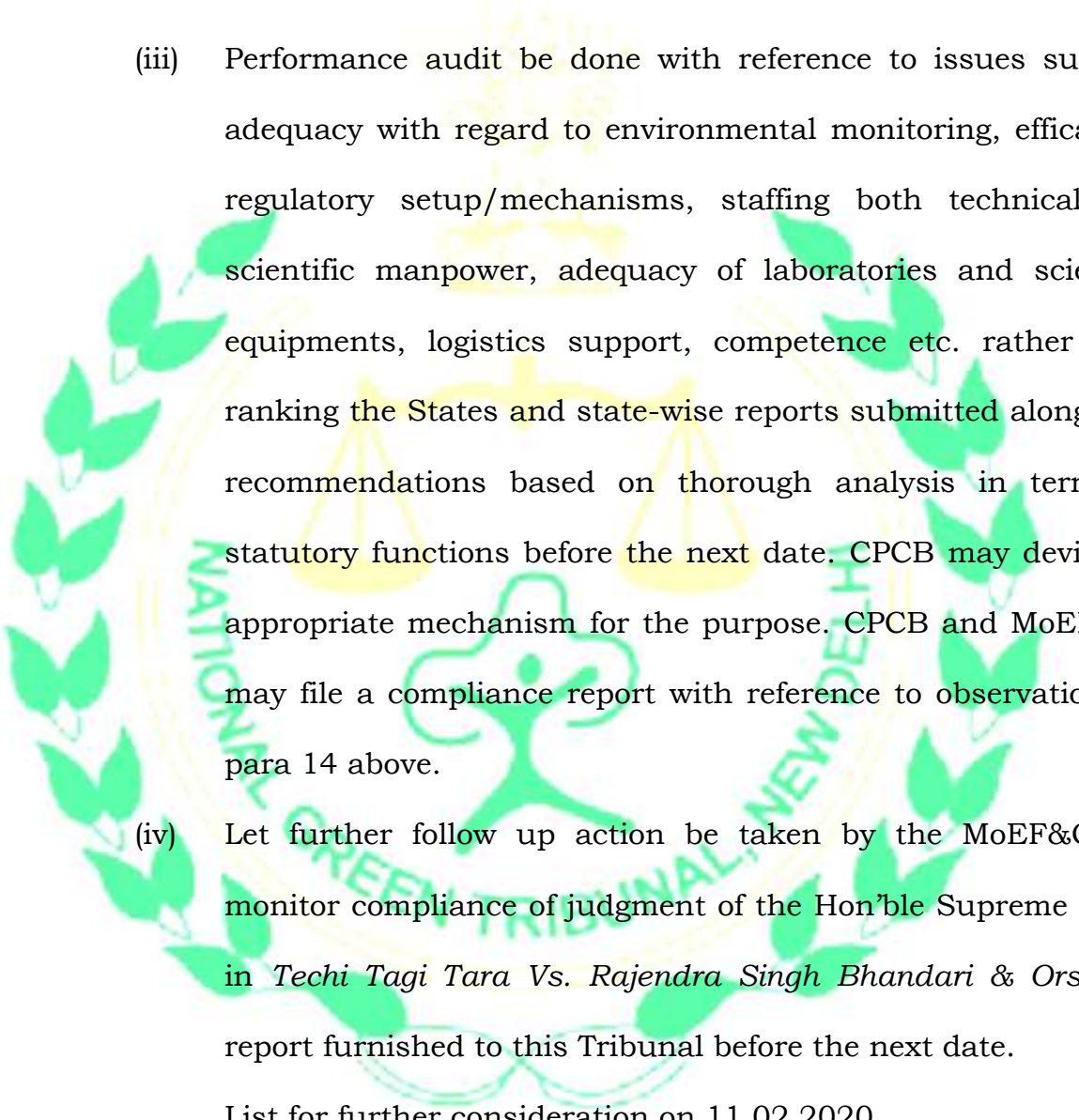
13. Report dated 10.07.2019 filed by the CPCB is on the subject of performance audit of the State PCBs/PCCs. The report merely ranks the PCBs/PCCs, without proper assessment of the functioning.
14. What is expected is performance audit on issues such as adequacy with regard to environmental monitoring, efficacy of regulatory setup/mechanisms, staffing both technical and scientific manpower, scientific equipments, logistics support, competence etc. rather than ranking the States. Let the same be done and state-wise reports submitted based on thorough analysis in terms of statutory functions. CPCB may devise an appropriate mechanism for the purpose. We also direct that all vacant positions in the SPCBs/PCCs may be filled up at the within four months and the Chief Secretaries of the States/UTs may ensure that there is no embargo in doing so, so that effective steps for protection of environment can be taken. It is also necessary to direct that the laboratories established by the SPCBs/PCCs, at headquarters as well as regional centers, are duly recognized for purposed of enforcement of environmental laws. The concerned authorities may take further steps accordingly. The CPCB may compile a report and file before the next date. SPCBs/PCCs may utilize the funds available with them, under EC/Consents or other heads instead of approaching other authorities and on that pretext not performing their essential function. The MoEF&CC may consider constituting an appropriate authority for the purpose with

representatives from Central and State authorities on the pattern of Compensatory Afforestation Fund Management and Planning Authority (CAMPA) or otherwise. A compliance report be filed by the MoEF&CC before the next date.

IV. Report dated 17.08.2019

15. Report furnished on 17.08.2019 by the MoEF&CC is on the subject of compliance of judgment of the Hon'ble Supreme Court in *Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors.*³. The report shows that further action is required for compliance of judgement of Hon'ble Supreme Court.
16. Let further follow up action be taken by the MoEF&CC to monitor compliance of judgment of the Hon'ble Supreme Court in *Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors.* and report furnished to this Tribunal before the next date after ascertaining that uniformity in terms of qualifications, experience and special skill sets is adhered to especially with regard to key position of Chairman and Member Secretary of SPCBs/PCCs.
17. In view of the above discussion our directions are summed up as follows:
 - (i) Let the joint Committee take action in terms of para 10 above on the subject of corresponding reduction in load to ensure compliance of norms of inlet in CETP so as to ensure that inlet and outlet of CETP are as per norms and file compliance report before the next date.

³ (2018) 11 SCC 734

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- (ii) With regard to the past violations, compensation as assessed by the Committee in respect of individual units as well as CETP is liable to be recovered as interim compensation on 'Polluter Pays' principle. Further action may be taken jointly by GPCB and CPCB. Compliance report in this regard may be filed before the next date.
- (iii) Performance audit be done with reference to issues such as adequacy with regard to environmental monitoring, efficacy of regulatory setup/mechanisms, staffing both technical and scientific manpower, adequacy of laboratories and scientific equipments, logistics support, competence etc. rather than ranking the States and state-wise reports submitted along with recommendations based on thorough analysis in terms of statutory functions before the next date. CPCB may devise an appropriate mechanism for the purpose. CPCB and MoEF&CC may file a compliance report with reference to observations in para 14 above.
- (iv) Let further follow up action be taken by the MoEF&CC to monitor compliance of judgment of the Hon'ble Supreme Court in *Techi Tagi Tara Vs. Rajendra Singh Bhandari & Ors.* and report furnished to this Tribunal before the next date.

List for further consideration on 11.02.2020.

Adarsh Kumar Goel, CP

S.P. Wangdi, JM

K. Ramakrishnan, JM

Dr. Nagin Nanda, EM

August 28, 2019
Original Application No. 95/2018
DV

