

Action Plan
for
Abatement of Pollution in the
Severely Polluted Area of Batala City



JULY 2020

PUNJAB POLLUTION CONTROL BOARD,
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Table Contents

Chapter 1 - Introduction	4
1.0 Introduction	4
1.1 About CEPI	5
1.2 About Batala	5
1.2.1 History.....	5
1.2.2 Area and Population	5
1.2.3 Topography	6
1.2.4 Climate	6
1.2.6 Rainfall	6
1.2.7 Industry and Trade.....	7
1.3 Government's Past efforts to reduce CEPI score.....	7
1.3.1 Directions issued by Central Pollution Control Board and Compliance Status along with Remedial Measures Required to be taken by Stakeholder Departments.	7
1.4 About National Green Tribunal Directions:	12
Chapter 2 - Vision, Mission and Strategy.....	13
2.1 Vision for Abatement of Pollution, Batala	13
2.2 Mission Abatement of Pollution, Batala	13
2.3 Strategy for bringing down CEPI Scores.....	13
2.4 Identification of Government Stakeholders	13
2.4.1 Identification of Government Stakeholders- for implementation of Water Action Plan	13
2.4.2 Identification of Government Stakeholders-for implementation of Air Action Plan	16
2.4.3 Identification of Government Stakeholders- for implementation of Action Plan for Solid Waste Management Rules 2016.....	18
2.4.4 Identification of Government Stakeholders- for implementation of Action Plan for Bio-Medical Waste Management Rules 2016.....	19
2.4.5 Identification of Government Stakeholders- for implementation of Action Plan for Plastic Waste Management Rules 2016.....	22
2.4.6 Identification of Government Stakeholders- for implementation of Action Plan for Hazardous Waste Management Rules 2016.....	23
2.4.7 Identification of Government Stakeholders- for implementation of Action Plan for Construction & Demolition Rules 2016	23
2.4.8 Identification of Government Stakeholders- for implementation of Action Plan for E-Waste Rules 2016 under CEPI	24
2.5 Nodal Agency	26
2.6 Integration of Departmental plans	26
2.7 Monitoring the mechanism for effective compliance through self-regulatory mechanism ...	26
2.7.1 Design of Monitoring System.....	26
2.7.2 Monitoring system for various activities	27
2.8 Mechanism.....	27

2.9	Governance.....	31
Chapter 3 : Sources of Pollution, Current Status and Trends of pollution level in Batala		32
3.1	Water Pollution.....	32
3.1.1	Industrial Water pollution.....	32
3.1.2	Domestic Water pollution.....	32
3.1.3	Other major sources of water pollution	32
3.1.4	Ground Water Pollution.....	32
3.1.5	Discharge and Water Quality of Hansali Drain	33
3.2	Air Pollution	33
3.2.1	Industrial Air Pollution	33
3.2.2.	Other Sources of Air Pollution	34
3.2.3	Air Quality of Batala City.....	35
3.3.	Sources of Land Pollution	35
Chapter 4 : Pollution Control Action Plan for SPA- Batala City.....		40
4.1	Water Pollution Control Action Plan for SPA- Batala City.....	40
4.2	Action Plan for Clean Air for SPA- Batala City	40
4.3	Solid Waste Management Action Plan for SPA- Batala City	41
4.3.1	Action Plan for regular monitoring of the progress of solid waste management:-.....	41
4.4	Plastic Waste Management Action Plan for SPA- Batala City.....	43
4.5	Bio-Medical Waste Management Action Plan for SPA- Batala City.....	44
4.5.1	Following measures will be undertaken to meet the challenges of pollution due to bio-medical waste:	44
4.5.2	Setting up of effluent treatment plants by all the HCFs	44
4.5.3	Monitoring of the installation of the ETPs by Govt. HCFs	44
4.5.4	Monitoring of HCFs and CBWTF.....	44
4.6	Construction& Demolition Waste Management Action Plan for SPA- Batala City.....	45
4.7	Hazardous Waste Management Action Plan for SPA- Batala City	46
4.8	E- Waste Management Action Plan for SPA- Batala City	46
4.9	Surveillance monitoring of Polluting Units in Polluted Industrial Area(PIA), Batala.	47
Chapter 5: Expected impact on the Comprehensive Environment Pollution Index		48
Map showing Core Area and Impact Area i.e 5 km boundary form Core Area- Batala City.....		70

Chapter 1 - Introduction

1.0 Introduction

After analyzing the Environmental Status of Industrial Cluster of the country, Central Pollution Control Board in consultation with the Ministry of Environment & Forests has identified 88 Polluted Industrial Areas / clusters (PIAs). These Polluted Industrial clusters have been further categorized as 'Critically Polluted Area' (CPA), 'Severely Polluted Area' (SPA) and 'Other Polluted Areas' (OPAs) based on Environmental Pollution Index score. Batala is one of such Severely polluted cluster in the State of Punjab. In 2009, CPCB evaluated CEPI score reflecting the Environmental Quality of Batala town and categorized Batala as severally polluted area having CEPI score 68.59.

The Ministry of Environment & Forests vide office memorandum J-11013/5/2010-IA.II(I) dated 13.01.2010 had imposed a temporary restriction on consideration of developmental projects in critically and severally polluted area. Accordingly the developmental projects from Industrial clusters with CEPI Score between 60 -70 which were in the pipeline at that time or had granted of environmental clearance in terms of the provisions of EIA Notification, 2006 (Including projects for stage-I clearance i.e. scoping (TORS)), were directed to be considered following the procedure outlined in the Ministry's earlier circular no. J. 11013/18/2009-IA.II(I) dated 25th August, 2009 relating to 'proposals for environment clearance for the projects located In the critically polluted areas as identified by the Central Pollution Control Board wherein it was decided that the concerned SPCB should either send its representative at the time of consideration of proposal by the sector specific Expert Appraisal Committee (EAC) constituted by the Ministry, at the stage of appraisal of the project for prescribing Terms of Reference (TOR) or consideration of EC or provide their written comments with respect to pollution load in terms of ambient air quality, water quality or solid/hazardous waste management. No moratorium was ever imposed by MoEF. It was felt to assess the environmental degradation of the identified industrial clusters and to formulate a remedial action plan for abatement of pollution and restoration of the environmental quality of these clusters. Thereafter, CPCB again carried out monitoring in the year 2017-2018 and the CEPI Score for Industrial Areas/Clusters in Batala was calculated as 68.92.

Vide order dated 13.12.2018 in O.A. No. 1038/2018, the Hon'ble NGT directed all the State Pollution Control Boards/Committees to finalize time bound Action Plan within 03 months so as to bring all polluted industrial clusters within the safe parameters under the

provisions of Air (Prevention & Control of Pollution) Act, 1981 and Water (Prevention & Control of Pollution) Act, 1974. Accordingly, CPCB vide its letter dated 30.12.2019 requested Punjab Pollution Control Board to expedite preparation of Action Plan of CPAs/SPAs. So, Action Plan of Severely Polluted Area of Batala City is hereby prepared.

1.1 About CEPI

The Comprehensive Environmental Pollution Index (CEPI) includes weightage on nature of pollutants, ambient pollutant concentrations, receptors (number of people affected) and additional high risk element.

CEPI Comprising of following components: -

Component A	Scale of Industrial Activity	20 marks
Component B	Status of Ambient Env. Quality (Air/SW/GW)	50 marks
Component C	Health related statistics	10 marks
Component D	Compliance status of industries	20 marks

On the basis of the study jointly carried out by the CPCB and State PCBS in 2009-10, 88 industrial clusters were notified as Polluted Industrial Areas (PIAS). These PIAS were ranked as 'critically polluted area' (CPA), 'severely polluted area' (SPA) and 'other polluted areas' (OPAs), depending upon the CEPI scores of each of these industrial areas. Where the CEPI score crossed 70, the areas are designated as CPAs, where the index was between 60-70, they are designated as SPAs and those below 60 as OPAs.

1.2 About Batala

1.2.1 History

Batala is an important place for Sikh devotees. Shri Guru Nanak Dev Ji, the founder of the Sikhism was married here to Sulakhni, the daughter of Mul Chand Chauna in 1485. Many Temple and Gurudwara related to the Guru's marriage attract devotees from near and far. Every year celebrations are conducted on the anniversary of Guru Nanak's marriage. Also, it is an important place for Hindus as the most powerful god of Hindu culture, Lord Shiva came here at Mandir Achleshwer Dham with 33 crore devi-devtas to make happy his son Kartikeya who was sad due to his loss of race from his brother and Lord Shiva's son Ganesha.

Batala was once called as "Iron bird of Asia" as it produced the highest amount of C.I. Casting, Agricultural and mechanical machinery.

1.2.2 Area and Population

Batala is Municipal Corporation in Gurdaspur District in the State of Punjab, India. It is located about 32 km from Gurdaspur, the headquarters of the Gurdaspur District. It is also a

Police District. Batala ranks the most populated town of the District with 31% of the total population of the District. It is the biggest industrial town in the District. It is the centre of Majha Region of Punjab, India. The total area of Batala LPA is placed at 16, 588 hectares out of which 3273 hectare falls within the Municipal Corporation limits.

As of 2011 India census, Batala had a population of 1,56,619. Males constitute 52.7% of the population and females 47.3%. Batala has an average literacy rate of 84.91%, higher than the national average of 59.5%: male literacy is 87.99%, and female literacy is 81.52%. In Batala, 9.9% of the population is under 6 years of age.

1.2.3 Topography

All the Tehsils of the district namely Gurdaspur, Batala and Dera Baba Nanak are plain and similar to the rest of the plains in structure. The land scape of the district has varied topography comprising undulating plan, the flood plains of the Ravi and the Beas and the upland plain.

To its south lies an area of about 128 km² which is highly dissected and is an undulating plain. Its elevation ranges from about 305 to 381 meters above sea level. It is traversed by a number of choas and has an undulating topography.

The flood plains of the Ravi and the Beas are separated from the upland plain by sharp river cut bluffs. They are low lying, with slightly uneven topography. Sand dominates in the soil structure of the flood plains, but it diminishes in both quantity and coarseness in the upland plain. The upland plain covers a large part of the district particularly. Its elevation ranges from about 305 metres above sea level in the north-east to about 213 metres above sea level in the south west, with a gentle gradient of about 1 metre in 1.6 km. This is the most important physiographic unit in the district.

1.2.4 Climate

The summer season falls between the months of April to July and the winter November to March. In summer season the temperature touches 44^oC or even sometimes crosses it. June is the hottest month and January is the coldest one. Mostly the rain falls in the month of July. The winter rains are experienced during January and February. The dust storm occurs in the month of May and June.

1.2.6 Rainfall

The rainfall in the district increases from south west towards the north east. About 70% of the rainfall is received during the period July to September. The rainfall during the December

to March accounts for 16% of the rainfall. The remaining 14% rainfall is received in the other months of the year.

1.2.7 Industry and Trade

City of Batala is famous for Casting industry. As such, Cupola Furnaces are established in Batala. Also, there are Rice Mills, Milk Plant, Pyrolysis unit etc. established in and around the City. Industrial Area of Batala City has been Identified as Polluted Industrial Area of Batala City.

1.3 Government's Past efforts to reduce CEPI score.

The environment of Batala has degraded a lot during the last few years due to rapid urbanization, industrialization increase in population, vehicles and commercialization of land available within the city. The Punjab Pollution Control Board prepared an Action Plan with regard to Abatement of Pollution in severally polluted town of Batala involving various District level stake holders departments wherein the activities of these departments were clearly mentioned. First meeting to review the activities and setting the target line were held on 11.02.2015 under the chairmanship of the Principal Secretary Govt of Punjab Department of Science & Technology Environment Chandigarh. 2nd meeting was taken by Chief Environment Engineer on 10.08.2017 and again on 03.01.2020 to review the implementation of effective measure which include Water and Air pollution. No moratorium was ever imposed by MoEF. Punjab Pollution Control Board has been regularly keeping check on water, air and other polluting activities in Batala town and regularly monitoring to bring down the level of pollution in the city.

1.3.1 Directions issued by Central Pollution Control Board and Compliance Status along with Remedial Measures Required to be taken by Stakeholder Departments.

Part A: Environmental quality monitoring in all CPAs.

CPCB Directions	Present Compliance Status alongwith Remedial Measures Required To Be Taken By Stakeholders
SPCB/PCC shall undertake environmental quality monitoring in the critically polluted area falling under their jurisdiction through an outside third party agency (laboratory) recognized under Environment (Protection) Act, 1986 and accredited under NABL. The frequency of the monitoring shall be twice in a year i.e. Post-monsoon season and Pre-monsoon season	As a part of Action Plan, PPCB will engage services of third-party agency (laboratory) recognized under Environment (Protection) Act, 1986 and accredited under NABL, to carry out monitoring

SPCB/PCC shall ensure that the existing sampling locations where monitoring was undertaken in 2013 are retained and additional monitoring locations, if any required, can be included in the monitoring programme in consultation with concerned Zonal Offices of CPCB and (or) Head Office, CPCB	PPCB has retained existing sampling locations where monitoring was undertaken in 2013. Additional monitoring locations, if any required, will be included in the monitoring programme in consultation with CPCB.
SPCB/PCC shall ensure that the sampling stations are provided at strategic locations across the industrial clusters so as to obtain a truly representative environmental quality of the critically polluted area. Moreover, the concerned SPCBs /PCC shall ensure that there is at least one Ambient Air Quality monitoring station each in the predominant upwind and downwind directions at each of the CPA.	In Batala City, PPCB will ensure installation and operation of 1 No. ambient air monitoring stations in industrial cluster(Industrial Focal Point).
SPCBs/PCC shall collect 3 samples with a gap of one or two days at each location during each round of monitoring in all the CPAs.	Noted and shall be complied by PPCB.
At each of the CPA, 24 hourly ambient air quality monitoring shall be carried out for parameters as prescribed by CPCB. Also, representative samples for surface water quality and ground water quality shall be collected from prominent surface and ground water bodies located in and around the CPAs.	PPCB will ensure installation and operation of 1 No. ambient air monitoring stations in industrial cluster(Industrial Focal Point).

Part B: Installation of Continuous Ambient Air Quality Monitoring stations:-

CPCB Directions	Present Compliance Status along with Remedial Measures Required To Be Taken By Stakeholders
SPCB/PCC shall coordinate with the 'Association(s) or any appropriate agency of the Industries of the concerned CPAs and direct them for installation of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) at strategic locations of identified Critically Polluted Areas. For this purpose, 'Polluter Pays Principle' shall be applied and the data so acquired be displayed on the website of State Board for transparency in law-enforcement.	As Batala is covered in SPA, there is no requirement of CAAQMS.

In those Critically Polluted Areas, where no CAAQMS is so far installed, at-least 2 CAAQMS be installed to start with, one each in the windward and leeward direction within a year.	As Batala is covered in SPA, there is no requirement of the same.
Existing network of continuous ambient air quality monitoring stations (CAAQMS) in CPAs established by 17 Category of highly polluting industries shall be redesigned if necessary, by shifting/ relocating some stations to cover the entire city/area. This will reduce duplicity in monitoring and ensure optimum utilization of the available monitoring facilities and resources.	None of the 17 category of highly polluting industry exists in Batala city which is required to install CAAQMS.
Existing manual monitoring under NAMP, will be continued. In case, there is no NAMP station in the area, then manual monitoring will also be conducted atleast once in a month on 24 hourly basis	PPCB will ensure installation and operation of 1 No. ambient air monitoring stations in industrial cluster(Industrial Focal Point) and the monitoring shall be done 4 times a month.

Part C: Installation of Continuous Water Quality Monitoring Stations:-

CPCB Directions	Present Compliance Status alongwith Remedial Measures Required To Be Taken By Stakeholders
SPCBs/PCC shall ensure installation of Real Time Water Quality Monitoring Stations at various locations of identified Critically Polluted Areas in conformity with the CPCB guidelines for water quality monitoring (MINARS/27/2007-08). The SPCBs / PCC shall adopt Polluter Pays Principle' for achieving these objects.	Real Time Water Quality Monitoring Station has not been installed and the same is not required as there in no major water body where the discharge of Batala town is done.
In those Critically Polluted Areas, where no CWQMS are yet installed, at- least 2 CWQMS be installed to start with, one each in the upstream and downstream locations of the major receiving water body of the area within a year	As Batala is covered in SPA, there is no requirement of CWQMS. Further, there is no major water body having its confluence with the major rivers of Punjab.
The existing manual monitoring under MINAR (Monitoring of Indian National Aquatic Resources) programme will also be continued. In case, there is no MINAR station in the area, then manual monitoring will also be conducted at least once in a month. Ground Water Quality Monitoring should be carried out	For this SPA area, no such MINAR programme is applicable as there is no river. PPCB shall start monitoring of Ground Water for VOCs in addition to regular parameters. PPCB shall carry out the monitoring of the Hansali Drain twice a year.

at existing locations (i. e. bore-wells, tube wells, deep hand pumps etc.) and as per national monitoring protocol. Monitoring of heavy metals, VOCs and Pesticides should also be undertaken in addition to regular parameters of MINAR programme	
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Part D: Application of revised CEPI version 2016.

CPCB Directions	Present Compliance Status alongwith Remedial Measures Required To Be Taken By Stakeholders
Since 'Revised CEPI 2016' has been evolved, henceforth, all future CEPI score evaluations shall be made on the basis of revised formula.	CEPI score calculated by CPCB in the year 2018 and forecasted CEPI score after implementation of Action Plan is on the basis of revised CEPI formula.
All the polluting sources identified in the area shall be notified and brought in the public domain through respective websites alongwith the details of their pollution control compliance status	PPCB will notify and make public all the polluting sources identified in Batala city, which have already been incorporated in Action Plan.
The environmental quality data including CEPI score of the industrial area as per revised concept shall also be placed in public domain through website and also to be published by the State Government periodically.	PPCB will display CEPI score alongwith all other environment quality data related with air, water and land, through website and also get the same published from State Government periodically
The concerned State Government shall notify the area on a properly scaled map and also issue public advisories that such an area will be exclusively meant for industrialization as per the State land.	Master Plan of Batala City has already been notified (2009-2031) by the State Government, in which the area meant for industrialization has been demarcated
The revised CEPI shall be used by the State Governments, SPCBs and others concerned to understand the severity of pollution existing in the area and formulate appropriate action plan. Further, sufficient time shall be given for effective implementation of the action plan before imposition of moratorium. Thus, the revised concept shall be an early warning tool to ensure the successful implementation of Action Plan.	Action Plan for abatement of pollution in Batala city has been framed to reduce pollution and bring down CEPI score below 50 by 31.12.2021.
CEPI shall not be used by the Bankers / Money Lending Institutions for financial decisions	Necessary directions will be given by State Government in this regard.

Any moratorium on expansion on setting up of new industries shall be imposed on a particular CPA only after a notice period of one year from the initial announcement of CEPI assessment, However decision on any directions already in force in a CPA shall be taken as per correct practice in vogue. High CEPI score shall also be used as early warning tool to require preparation of pollution management plans to reduce pollution levels before it reaches critical levels.	No moratorium on expansion of industries has been imposed so far. Action Plan for abatement of pollution incorporates pollution management plans to reduce pollution levels before it reaches critical levels.
For any industry in a critically polluted area, the changes which make it less polluting shall be permitted. These changes may include expansion of production capacity / change of product / change of raw materials / change of manufacturing process or a combination of these changes and shall be examined and assed by respective SPCBs/PCC	PPCB is promoting the change to be incorporated by industry which makes it less polluting which includes up-gradation of pollution control systems, use of cleaner fuel etc.

Part E: Action Plan and Monitoring

CPCB Directions	Present Compliance Status alongwith Remedial Measures Required To Be Taken By Stakeholders
SPCBs/PCC shall also continue the regular exercise of water and air quality monitoring work at different locations including those stations currently in operation under NAMP and MINAR.	PPCB is carrying out monitoring of surface water locations on monthly basis under NAMP and on daily basis for ambient air quality monitoring stations.
SPCB/ PCC shall take necessary measures to ensure regular maintenance and operation of the online systems with tamper proof mechanism including having facilities for online calibration;	PPCB is regularly keeping a check through CPCB portal on Online monitoring systems installed by various industries, common treatment facilities etc.
SPCBs / PCC shall install the necessary software and hardware in their headquarter for centralized data collection, analysis and corrective action	Adequate arrangements have been made at Head office, PPCB to collect, analyze data received through online monitoring systems installed in various industries/CETP through CPCB server.
SPCBs/PCC shall take necessary measures to connect and upload the online air quality and water quality monitoring data on the Servers of respective SPCB/PCC and CPCB in a time bound manner but not later by June 30, 2016;	As Batala is covered in SPA, there is no requirement of CAAQMS.

<p>SPCBs/PCC shall upload on its websites the consent conditions of all industrial units alongwith their compliance status (updated half-yearly) with respect to prescribed norms.</p>	<p>PPCB has already established Online Consent Management Portal to process applications of the industries. However, PPCB uploads the consent conditions of all industrial units on its websites alongwith their compliance status (updated half-yearly) with respect to prescribed norms</p>
<p>Action plan categorized into short, medium and long term basis shall be brought into public domain and the progress of implementation shall be reviewed by District and State level through Monitoring Committees</p>	<p>PPCB shall make Action Plan public and progress of which to be reviewed in District level Environment Committee meetings.</p>

1.4 About National Green Tribunal Directions:

The National Green Tribunal in its order dated 14.11.2019 has ordered State Pollution Control Board to furnish action taken report showing the number of identified polluters in polluted industrial areas, the extent of closure of polluting activities, the extent of environmental compensation recovered, the cost of restoration of the damage to the environment of the areas. The National Green Tribunal also ordered on 14.11.2019 that the CPCB may prepare a tabulated analysis of the same and file a consolidated report before this Tribunal before February 15, 2020.

Chapter 2 - Vision, Mission and Strategy

2.1 Vision for Abatement of Pollution, Batala

To restore the quality of water and air in Batala to the prescribed standards to ensure health of the people, ecological balance and socio economic well-being of the people and bring down CEPI scores.

2.2 Mission Abatement of Pollution, Batala

To prepare and implement a comprehensive action plan for clean Batala:

- i) Creating awareness about the adverse impact of pollution
- ii) Identifying the sources of pollution, their apportionment
- iii) Identifying action steps related to Awareness, Enforcement, Infrastructure or Policy for control of various sources of Pollution
- iv) Designing effective systems for monitoring the progress of the implementation of action steps.
- v) Ensuring effective monitoring of the quality of water, air and land.
- vi) Mitigating adverse impact on health of the people due to pollution

2.3 Strategy for bringing down CEPI Scores.

The key elements of strategy to bring down CEPI scores campaign for Batala will include:

- i) Identification of Government Stakeholders
- ii) Nodal Department
- iii) Integration of Departmental plans – Creating synergies
- iv) Monitoring the mechanism for effective compliance through self-regulatory mechanism.
- v) Governance

2.4 Identification of Government Stakeholders

2.4.1 Identification of Government Stakeholders- for implementation of Water Action Plan

The State of Punjab envisages a comprehensive plan for clean water by involving all the Stakeholders namely:

i) Department of Science, Technology and Environment

The Directorate of Environment and Climate Change and Punjab Pollution Control Board will be responsible for the following:

- a) Overall coordination of the Action Plan and ensuring its successful implementation.

- b) Setting up comprehensive online monitoring portal connecting all the executing and monitoring agencies.
- c) Setting up of Infrastructure to monitor the quality of water.
- d) Monitoring of quality of water of Surface Water & ground water.
- e) Monitoring of discharge from Industries including ETPs.
- f) Monitoring of discharge from STPs and other disposal facilities.
- g) Monitoring of management of solid waste and other waste.

ii) Department of Local Government

As per the policy decision of the Department of Local Government, all Municipal Corporations are responsible for execution of their water supply and sewerage works including setting up of STPs while all Municipal Council will get the works executed through Punjab Water Supply and Sewerage Board. The policy is yet to be fully implemented as some Corporations are still relying on PWSSB for execution of works, on the other hand, some Municipal Councils are executing works on their own instead of PWSSB.

Design

- a) Design projects to cover entire population with sewerage network system and its connection with STP.
- b) Design Sewage Treatment Plants of adequate capacity
- c) Design as per the prescribed standards

Construction

- a) Monitor land acquisition closely as it is pre-requisite for setting up of STPs.
- b) Ensure reputed professional contractors
- c) Construction of STPs as per timelines mentioned in the action plan
- d) Ensuring regular flow of funds during construction

Operation and Maintenance

- a) Arranging funds for operation and maintenance of STPs to ensuring regular operation and maintenance of STPs in a professional manner.
- b) Providing proper in-house laboratory facilities at each STP for maintaining record of characteristics of analysis of untreated as well as treated wastewater.
- c) Installation, operation & maintenance of online continuous effluent monitoring system as well as CCTV cameras for the existing STPs as well as new STPs to be installed.

Solid Waste

Proper management & handling of municipal solid waste so as not to be thrown in river.

iii) Department of Housing and Urban Development

The Department and all the Development authorities under its control will be responsible for various Urban Estates developed by them. In addition, the Government has entrusted construction and subsequent operation and maintenance of Sewerage network and Sewage Treatment Plants in some of the cities to various Urban Development Authorities.

iv) Department of Industries and Commerce

Department of Industries and Commerce through Punjab Small Industries & Export Corporation is responsible for management of Industrial Focal Points set up by it or transferred to it.

v) Department of Rural Development and Panchayat

The Department of Rural Development has to provide for necessary treatment facilities in village ponds so that no untreated or polluted water enters river directly or indirectly through various drains or creeks. The Department has the following responsibilities:

- a) Finalization of appropriate technology.
- b) Arrangement of Funds for treatment technology in various villages identified in the Action Plan.
- c) Reuse of water for agriculture purpose.
- d) Proper operation and maintenance of treatment facilities installed in village ponds.

vi) Department of Water Supply and Sanitation

The Department of Water Supply and Sanitation along with Department of Rural Development and Panchayat will be responsible for treatment and sanitation facilities in rural areas. It has also been given some of the works in urban areas. It will accordingly discharge relevant responsibilities for rural and urban areas in respects of projects, which may be assigned to the Department.

vii) Department of Agriculture

The Department of Agriculture through the Directorate of Soil and Water conservation is responsible for implementation of various schemes for utilizing the treated wastewater from urban and rural treatment facilities for irrigation by the farmers. It has the following responsibilities:

- a) Design the project as per the standards.
- b) Follow up with various funding agencies to arrange funds.
- c) Executing the schemes as per the timelines provided in the plan.

viii) Department of Health and Family Welfare

The Department of Health and Family Welfare has the following responsibilities:

- a) Checking of health indices of the in-habitants & maintaining database.
- b) Holding awareness camps.

ix) Department of Water Resources

The Department of Water Resources through the Chief Engineer, Drainage has the following responsibilities:

- a) Measurement of flow at different locations.
- b) To stop unauthorised discharge in the drains

x) District Administration

District Administration will be responsible for monitoring of activities of the action plan at district level.

xi) Department of Soil conservation

The Department of Soil Conservation will be responsible for laying of pipeline for disposal of treated industrial/domestic effluent.

2.4.2 Identification of Government Stakeholders-for implementation of Air Action Plan

In order to combat the challenges of pollution, all the Stakeholders will have to make concerted efforts. Following Departments and agencies have been identified along with their responsibilities:

i. Department of Science, Technology & Environment

- a) Monitoring of air pollution control devices installed by industries
- b) Up-gradation of existing air pollution control devices
- c) Monitoring of ambient air quality and stack emissions
- d) Provision of canopies on the existing D.G sets

ii. Department of Local Government

- a) Development of engineered municipal solid waste dumpsite
- b) Improvement of road infrastructure for smooth traffic movement
- c) Regular and mechanical cleaning of roads
- d) Sprinkling of in the parks and maintenance of fountains
- e) Increasing green cover in city
- f) Upgrading traffic lights for smooth traffic movement
- g) Provide canopies on the existing D.G sets

- iii. Department of Transport**
 - a) Plan for effective traffic management
 - b) Plan for phasing out old polluting vehicles
 - c) Shift to cleaner fuels viz. CNG etc.
 - d) Monitoring of vehicles without PUC certificate
 - e) Banning of pressure horns
- iv. Department of Police**
 - a) Planning and enforcement of traffic management plan
 - b) Checking of vehicles running without PUC certificate
 - c) Impounding and challan of vehicles running without permission/ registration.
 - d) Noise Pollution.
- v. Department of Forests**
 - a) Preparation of forestation plan
 - b) Organizing awareness camps for Greener City
 - c) Providing green belt around the industrial areas
- vi. Deptt. of Industries and Commerce / Punjab Small Industries & Export Corporation**
 - a) Shifting of industries from non-designated areas
 - b) Provision of environment infrastructure in Industrial Areas
- vii. PWD (B&R)**
 - a) Improving road conditions for smooth movement of traffic
 - b) Increasing green cover on roadside under their jurisdiction
- viii. Punjab State Council for Science and Technology**
 - a) Evolving cost-effective cleaner technologies
- ix. Department of Agriculture**
 - a) Promotion of bio-methanization and compost facilities for agri waste
 - b) To provide Machinery for in-situ management
 - c) To create awareness about ill-effects of stubble burning
 - d) To create awareness regarding alternative crops to break wheat-Rice-cycle.
- x. District Administration**
 - a) Coordination with all the Stakeholders promoting collaboration and resolving local issues Public Awareness Campaign.

2.4.3 Identification of Government Stakeholders- for implementation of Action Plan for Solid Waste Management Rules 2016

Following Stakeholders have been identified and their roles as per Solid Waste Management Rules 2016, the State Policy, NGT's directions and overall requirement for effective monitoring are as under:

i) Department of Environment

The Department of Environment through Punjab Pollution Control Board shall mainly be responsible for:

- (a) Enforcement of SWM Rules 2016 through ULBs and review of implementation of Rules.
- (b) Monitor environmental standards and conditions for waste processing and disposal sites.
- (c) Authorization for Waste processing and disposal sites and Monitoring thereof.
- (d) Standards for new technologies through CPCB.
- (e) Directions to ULBs for safe handling and disposal of domestic hazardous waste.

ii) Department of Local Government

The Department of Local Government shall be responsible for the following activities:

- (a) Preparation of a state policy and solid waste management strategy.
- (b) Inclusion of informal sector of waste pickers, waste collectors and recycling industry.
- (c) Ensure implementation of SWM Rules 2016 by all ULBs.
- (d) Ensure suitable land to the local bodies for setting up of processing and disposal facilities.
- (e) Ensure separate space for segregation, storage, decentralized processing of solid waste in the development plan for group housing or commercial, institutional or any other non-residential complex exceeding 200 dwelling or having a plot area exceeding 5,000 square meters.
- (f) Direct the developers of Special Economic Zone, Industrial Estate, Industrial Park to earmark at least five percent of the total area of the plot or minimum five plots or sheds for recovery and recycling facility.
- (g) Facilitate establishment of common regional sanitary land fill for a group of cities and towns falling within a distance of 50 km (or more) from regional facility.

- (h) Notification of cities/towns as model cities/towns, which are fully compliant to prevailing Waste Management Rules.
- (i) Develop system for ranking of cities, towns & villages in the State based on compliance of Rules.
- (j) Arrange for capacity building of local bodies.
- (k) Notify buffer zone for the solid waste processing and disposal facilities.

iii) Deputy Commissioner

The Deputy Commissioner shall be responsible for the following activities:

- a) Facilitate allocation of suitable land for solid waste processing and disposal facilities
- b) Review the performance ULBs on waste segregation, processing, treatment and disposal.

iv) Department of Rural Development and Panchayat

Department of Rural Development shall have the same duties as Department of Local Government for the areas which are covered under SWM Rules, 2016 and are under their jurisdictions.

2.4.4 Identification of Government Stakeholders- for implementation of Action Plan for Bio-Medical Waste Management Rules 2016

The State of Punjab envisages a comprehensive plan for management of bio-medical waste by involving all the Stakeholders namely:

i) Department of Environment and Punjab Pollution Control Board

- a) Making Policies concerning Bio-medical Waste Management in the State.
- b) Inventorization of Health-Care Facilities.
- a) Compilation of data and submission of the same in annual report to Central Pollution Control Board within the stipulated time period.
- b) Grant and renewal, suspension or refusal of authorization.
- c) Monitoring of compliance of Rules.
- d) Action against health care facilities or common biomedical waste treatment facilities for violation of these rules.
- e) Organizing training programmes to staff of health-care facilities and common bio- medical waste treatment facilities on management of bio-medical waste
- f) Hearing Appeals and give decision against order passed by the prescribed authority.
- g) Providing necessary technical and financial support in order to implement the action plan

- ii) Department of Health and Family Welfare and Punjab Health System Corporation**
- a) To ensure implementation of Rules in all Health Care Facilities or occupier.
 - b) Grant of license to health care facilities with a condition to obtain authorization from PPCB for bio-medical waste management.
 - c) Monitoring, Refusal or Cancellation of license for health care facilities for violations of conditions of authorization or provisions under these Rules.
 - d) Publication of list of registered health care facilities with regard to bio-medical waste generation, treatment and disposal.
 - e) Undertake or support operational research and assessment with reference to risks to environment and health due to bio-medical waste and previously unknown disposables and wastes from new types of equipment.
 - f) Coordinate with State Pollution Control Board for organizing training programmes to staff of health care facilities on bio-medical waste.
 - g) Organizing or Sponsoring of trainings for the health care facilities on bio-medical waste management related activities.
 - h) Sponsoring of mass awareness campaigns in electronic media and print media.
 - i) Allocation of adequate funds to Government health care facilities for bio-medical waste management
 - j) Procurement and allocation of treatment equipments and make provision for consumables for bio-medical waste management in Government health care facilities.
 - k) Constitute State or District Level Advisory Committees under the District Magistrate or Additional District Magistrate to oversee the biomedical waste management in the Districts
 - l) Implementation of recommendations of the Advisory Committee in all the health care facilities
 - m) Installation of Effluent Treatment Plants in all the Government bedded Health Care Facilities in concurrence with the timeline given in the action plan.
- iii) Department of Animal Husbandry**
- a) Ensuring that all the Govt. Veterinary Institutions make agreement with the CBWTF operators for scientific disposal of bio-medical waste and obtain authorization from PPCB in concurrence with the timeline given in the action plan.
 - b) Grant of license to veterinary establishments with a condition to obtain authorization from PPCB for bio-medical waste management.
 - c) Monitoring, Refusal or Cancellation of license for veterinary establishments for

violations of conditions of authorization or provisions under these Rules.

- d) Publication of list of registered veterinary health care facilities with regard to bio-medical waste generation, treatment and disposal.
- e) Coordinate with State Pollution Control Board for organizing training programmes to staff of veterinary health care facilities on bio-medical waste.
- f) Allocation of adequate funds to Government veterinary health care facilities for bio- medical waste management
- g) Procurement and allocation of treatment equipments and make provision for consumables for bio-medical waste management.
- h) Implementation of recommendations of the Advisory Committee.

iv) Department of Medical Education & Research

- a) Installation of Effluent Treatment Plants in all the Government Medical Colleges & Hospitals.
- b) Organizing or Sponsoring of trainings for the Medical Colleges & Hospitals on bio-medical waste management in coordination with PPCB.
- c) Allocation of adequate funds to Government health care facilities for bio-medical waste management
- d) Procurement and allocation of treatment equipments and make provision for consumables for bio-medical waste management in Government health care facilities.
- e) Implementation of recommendations of the Advisory Committee.

v) Department of Rural Development and Panchayat

- a) Ensuring that all the Govt. Rural Dispensaries make agreement with the CBWTF operators for scientific disposal of bio-medical waste and obtain authorization from PPCB in concurrence with the timeline given in the action plan.
- b) Allocation of adequate funds to Government Rural Dispensaries for bio-medical waste management
- c) Procurement and allocation of treatment equipments and make provision for consumables for bio-medical waste management in Government Rural Dispensaries.
- d) Organizing or Sponsoring of trainings for the Govt. Rural Dispensaries on bio-medical waste management in coordination with PPCB.

vi) Department of Local Government

- a) Ensuring collection of bio-medical waste generated in house-holds and disposing it to nearest common bio-medical waste treatment facility.

- b) Collection of solid waste (other than the biomedical waste) from the health care facilities as per the Solid Waste (Management) Rules, 2016.
- c) Coordinate with NGOs for organizing/imparting training programmes to households for segregation of bio-medical waste.
- d) Implementation of recommendations of the Advisory Committee.

vii) District Administration

- a) Ensuring Regular meetings of the District Level Monitoring Committee (DLMC) to monitor and review the implementation of the Rules in the District.
- b) Submit report of the DLMC once in six months to the State Advisory Committee with a copy to State Pollution Control Board for taking further necessary action.
- c) Coordinate with State Pollution Control Board for organizing training programmes for house-holds on segregation of bio-medical waste.
- d) Organizing mass awareness campaigns in electronic media and print media.
- e) Implementation of recommendations of the Advisory Committee.

2.4.5 Identification of Government Stakeholders- for implementation of Action Plan for Plastic Waste Management Rules 2016

Role/responsibilities of various stakeholder departments in light of the Rules is given below:

i) Department of Environment through Punjab Pollution Control Board

Enforcement of the provisions of PWM Rules, 2016, relating to registration, manufacture of plastic products and multi-layered packaging, processing and disposal of plastic wastes.

ii) Department of Local Government and ULBs

- a) Ensure segregation, collection, storage, transportation, processing and disposal of plastic waste.
- b) Ensuring channelization of recyclable plastic waste fraction to registered recyclers.
- c) Ensuring processing and disposal of non-recyclable fraction of plastic waste.
- d) Creating awareness among all stake holders about their responsibilities.
- e) Ensuring no open burning of plastic waste.
- f) Framing of bye-laws incorporating the provisions of Rules.
- g) Setting up system for plastic waste management within one year.

2.4.6 Identification of Government Stakeholders- for implementation of Action Plan for Hazardous Waste Management Rules 2016

i) Department of Environment through Punjab Pollution Control Board

- a) Preparation of integrated plan for effective implementation of provisions of these rules.
- b) Inventorisation of Hazardous Wastes generating industrial units.
- c) Grant and Renewal of authorization to Hazardous waste generating industrial units.
- d) Monitoring of compliance of Rules.
- e) Implementation of programs to prevent or reduce or minimize the generation of hazardous and other wastes.

ii) Department of Industries

Allocation of industrial space or shed for recycling, pre-processing and other modes of utilization of wastes in the existing and up-coming industrial parks, estates and industrial clusters.

iii) Department of Labour

- a) Ensure recognition and registration of workers involved in recycling, pre-processing and other utilization activities.
- b) Assist in formation of groups of such workers to facilitate setting up of such facility.
- c) Undertake industrial skill development activities for the workers.
- d) Undertake annual monitoring and to ensure safety and health of workers.

2.4.7 Identification of Government Stakeholders- for implementation of Action Plan for Construction & Demolition Rules 2016

Various stakeholders and their role as per the C&D Waste Management Rules 2016 are as under:

i) Department of Environment

The Department of Environment through Punjab Pollution Control Board shall mainly be responsible for:

- a) Enforcement and review of Implementation of C&D Waste Management Rules, 2016.
- b) Monitoring of environmental standards and waste processing and disposal sites.
- c) Grant of authorization to construction and demolition waste processing facilities.
- d) Monitoring of the work zone air quality at processing or recycling site.
- e) Compilation of the annual report sent by Local Bodies.

ii) Department of Local Government

- b) Preparation of C&D Waste Management Policy and Plans.
- c) Seek detailed plans from generator of C&D waste.
- d) Chalk out stages, methodology, equipment, material involved for management of C&D waste.
- e) Place containers for C&D waste at appropriate places and remove at regular intervals.
- f) Transportation of collected waste to appropriate sites for processing and disposal.
- g) Appropriate incentives to generator for salvaging, processing and or recycling.
- h) Sanction of C&D waste management plan of the generators after approval of building plans.
- i) Tracking generation of C&D waste and establish a data base and update once in a year.
- j) Management of C&D waste including processing facility and promote recycled products.
- k) Undertake IEC activities.
- l) Appropriate incentives for use of material made out of construction and demolition waste in the construction activity including in non-structural concrete, paving blocks, lower layers of road pavements, colony and rural roads.
- m) Submission of Annual report in Form-2 to the Punjab Pollution Control Board.

2.4.8 Identification of Government Stakeholders- for implementation of Action Plan for E-Waste Rules 2016 under CEPI

Various stakeholders and their role as per the E-Waste Management Rules 2016 are as under:

i) Department of Environment through Punjab Pollution Control Board

- a) Identification of bulk consumers, manufacturer, producer, refurbisher, recycler, dismantler
- b) Inventorisation / quantification of E-Waste
 - Outsourcing/ involving students of reputed institutes for the Inventorisation of bulk consumers.
 - CPCB website for producers / manufacturer / refurbishers
- c) Monitoring and compliance of Extended Producer Responsibility
PPCB shall ensure the monitoring & compliance of EPR – Authorisation as per the provisions laid down under the E-Waste (Management) Rules, 2016 amended from time to time

- d) Grant of Authorization to manufacturers, dismantlers, recyclers and refurbishers
As per the time lines prescribed under E-Waste (Management) Rules, 2016 or as prescribed under the Punjab Transparency and Accountability in Delivery of Public Service Act, 2018, whichever is earlier.
- e) Conduct random inspection of dismantler or recycler or refurbishers
At least two visits in a year to the dismantling / recycler facilities / refurbishers by the concerned Regional Office of the Board and special surprise checks by the teams constituted by the Head Office.
- f) Maintaining online information regarding authorization granted
PPCB shall upload the information regarding authorization granted to manufacturers, dismantlers, recyclers and refurbishers for placing the same in the public domain.
- g) Submission of Annual Report to the CPCB
The annual return submitted by the manufacturer, dismantler, recycler and refurbisher in Form-3 before 30th June of every year, shall be complied by the PPCB for further sending to CPCB by 30th September of every year in Form-5.
- h) Organizing awareness camps for the bulk consumers
Regional Office of PPCB shall organize at least two awareness camps for Educational Institutions, Major Hospitals, Govt. Organizations, Large Scale Industrial Units etc. to make them aware about their responsibilities under the E-Waste Management Rules, 2016 for channelization of the such type of waste in an environmentally sound manner.

ii) Department of Local Government (ULBs)

- a) To ensure proper segregation/collection of e-waste mixed in MSW and its channelization to authorised dismantler or recyclers.
- b) To ensure that e-waste pertaining to orphan products is collected and channelized to authorised dismantler or recycler.
- c) Department of Local Bodies to issue instructions to all the municipal Corporations/ municipal councils regarding sound management of E-waste.
- d) Department of Local Bodies to make agreement/ sign MoU with the authorized dismantler/ recycler for channelizing the E-waste segregated from MSW.
- e) Concerned municipalities to maintain such records of the E- waste, transferred to the recycler/ dismantler.

iii) Department of Industries & Commerce / Housing & Urban Development / any other Development Authority

To ensure earmarking or allocation of industrial space or shed for E-waste dismantling and recycling in the existing and upcoming industrial park, estate and industrial cluster. For compliance of above, the concerned authority / department shall identify at least 10 cities where space or shed for e-waste dismantling and recycling shall have to be reserved. Preferably, the towns shall be selected on the basis of potential bulk consumers, like

- a) Industrial predominance (e.g Ludhiana & Jalandhar)
- b) Educational predominance (Patiala, Ludhiana, Jalandhar, Amritsar)
- c) Commercial/ Govt Office dominance (Ludhiana, Jalandhar, Patiala, Mohali)
- d) Geographical Connectivity (Amritsar, Faridkot, Bathinda, Ludhiana, Mohali)
- e) IT Hub (Mohali)

2.5 Nodal Agency

The Directorate of Environment and Climate Change will be the nodal department for coordinating and monitoring of all the activities of above said Action Plan.

2.6 Integration of Departmental plans

The Nodal Department will integrate plans of individual departments for control of pollution from various sources and prepare a comprehensive plan.

2.7 Monitoring the mechanism for effective compliance through self-regulatory mechanism

2.7.1 Design of Monitoring System

Various measures envisaged under the action plan for control of pollution can be classified in the following categories:

- i. Public Awareness
- ii. Effective Enforcement
- iii. Creation of new Infrastructure
- iv. Maintenance related activities
- v. Policy Advocacy
- vi. Technology Support

2.7.2 Monitoring system for various activities

Monitoring of various activities of the Action Plan will be a key to achieve the outcome envisaged under the Action Plan. Different kind of monitoring systems will be required for different categories of activities:

- i) Design of effective online platform including social media to disseminate air pollution related information and seek citizen feedback and participation in the campaign. It will have a monitoring mechanism to see the level of participation and measures to increase the same.
- ii) Design of effective online system to capture various enforcement activities by various agencies to monitor them, evaluate them and provide feedback and enforce accountability.
- iii) Design of an effective monitoring system to monitor the progress of various infrastructure related activities as envisaged under the plan.
- iv) Design of an effective monitoring system for policy advocacy within the Government for expediting formulation of various policies.
- v) Design of an effective monitoring system for various technological interventions to reduce the air pollution.

2.8 Mechanism

Mechanism evolved after consultation with stakeholders for new activities expansion by Red & Orange Category of industries in Critically/Severely Polluted areas

i) Environmental Management of CPAs and SPAs

Protocol to be followed by the State Pollution Control Boards (SPCBS)/ Pollution Control Committees (PCCs) For improvement of environmental quality in the Critically Polluted Areas (CPAS) and Severely Polluted areas(SPAs)

- a) The CEPI score assessment done by CPCB will be used as warning tool State Governments, SPCBS and other concerned to understand the severity of pollution existing in the area and to formulate appropriate action plan.
- b) The State Govt./ SPCBs will finalize the time bound action plans within three months for the identified CPAS and SPAS to restore environment quality within norms. Short term and long term action points have to be formulated with time frames of up to one year and more than one year, as may be required, respectively.

- c) The action plan will be prepared by a committee constituted by Chief Secretary. Representative of industries association may be included in the committee constituted. The final preparation of action plan including its execution shall be overseen by the Chief Secretary of the concerned state. The same shall be submitted to CPCB for consideration & approval.
- d) While preparing action plans, the committee constituted by the Chief Secretary shall follow the directions, issued by CPCB under section 18(1) (b) of the Water (Prevention & Control of pollution) Act, 1974 and the Air (Prevention & Control of pollution) Act, 1981 on 26.04.2016, which include (1) environmental quality monitoring in all CPAS, (ii) installation of continuous ambient air quality monitoring stations/ Strengthening of manual monitoring stations (iii) installation of continuous water quality monitoring stations, (iv) application of revised CEPI version and (v) action plan & monitoring. Long term and short term action plans, along with sector and region wise action points, should be defined clearly with time lines and responsible implementing agencies. Additionally, Source apportionment Studies shall be conducted to ascertain contribution from sources including industries for planning actions.
- e) The progress of implementation of action points will be reviewed by district and State Level Monitoring Committees, quarterly. It would be ensured that there is no slippage either in terms of time frame or the activities to be completed relating to the action plan. In case of delay/inefficiency in implementation of action plan, the concerned State Government will take appropriate action against the responsible authorities, implementing agencies, industries, etc. under the provisions of relevant acts/laws.
- f) The SPCB will undertake environmental quality monitoring for evaluating CEPI in the critically and severely polluted areas falling under their jurisdiction through an outside third party recognized agency (laboratory) under Environment (Protection) Act 1986 and accredited under NABL. The frequency of monitoring shall be twice in a year i.e pre-monsoon season and post-monsoon season.
- g) The action plans prepared for the CPAS/SPAS, environmental quality monitoring data, evaluated CEPI scores (as per revised CEPI-2016 concept) and progress reports of committee meetings to be placed in public domain through their respective State Govts. / UTs / SPCBS / PCC websites. CPCB will also review the progress of implementation of action plans of CPAS/ SPAS on a quarterly basis.

- h) In case CEPI scores of a particular CPA continue to be in critical category for a year, MoEF& CC will review the action plans with the concerned State Govt. / Union territory and impose additional safeguards such as revising the time limits for implementation of action points, supplementary action points and will recommend penal action against the authorities responsible for implementation of action plan for environmental management of CPAS/SPAS.
 - i) CPCB will also carry out re-assessment of CEPI scores in CPAS, with concurrence of MOEF&CC and report outcome for further consideration and decision by MoEF& CC.
 - j) Carrying capacity study of the each of the area will be carried out by State Govts./Union Territories /SPCBS/PCCS based on the protocols prepared by CPCB.
- ii) Consideration of proposals for grant of Environmental clearance for new and expansion activities listed in Red' and 'Orange' Categories located in Critically Polluted Areas and Severely Polluted areas:**
- a) Any project or activity specified in Category B1 will be appraised at the Central Level, if located in whole or in part within 5 km from the boundary of Critically Polluted Areas or Severely Polluted Areas. However, Category B2 projects shall be considered at state level stipulating Environmental Clearance conditions as applicable for the Category 'B1' project/activities.
 - b) Proposals located in CPAs and SPAS will be examined by the sectoral Expert Appraisal Committee (EAC) during scoping/appraisal based on the CEPI scores of Air/Water/Land Environment as published by CPCB from time to time. In such proposals, appropriate mitigation measures for the environment possessing higher CEPI score may be made by EAC in the form of recommendations/decision. These recommendations will be explicitly mentioned in the Terms of Reference/Environmental Clearance letter and to be ensured by the member secretary concerned.
 - c) SPCBs/PCCS will prescribe following additional conditions, deemed fit for grant Consent to establish (CTE)/Consent to Operate (CTO) to those projects/activities of Red/Orange Categories located in CPAs/SPAs which are not covered under the provisions of the ELA Notification, 2006.

Environment	Mitigation Measures
Air	<p>Stipulation of conditions such as:</p> <ul style="list-style-type: none"> i. Stack emission levels should be stringent than the existing standards in terms of the identified critical pollutants. ii. CEMS should be installed in all large/medium red category industries (air polluting) and connected to SPCB and CPCB server. iii. Effective fugitive emission control measures should be imposed in the process, transportation, packing etc. iv. Transportation of materials by rail/conveyor belt, wherever feasible. v. Encourage use of cleaner fuels (pet coke/ furnace oil/LSHS may be avoided). vi. Best Available Technology be used. For example, usage of EAF/SAF/IF in place of Cupola furnace. Usage of Supercritical technology in place of sub-critical technology. vii. Increase of green belt cover by 40% of the total land area beyond the permissible requirement of 33%, wherever feasible. viii. Stipulation of greenbelt outside the project premises such as avenue plantation, plantation in vacant areas, social forestry, etc. ix. Assessment of carrying capacity of transportation load on roads inside the industrial premises. If the roads required to be widened, shall be prescribed as a condition.
Water	<p>Stipulation of conditions such as:</p> <ul style="list-style-type: none"> i. Reuse/recycle of treated wastewater, wherever feasible. ii. Continuous monitoring of effluent quality/quantity in large and medium Red Category Industry (Water Polluting). iii. A detailed water harvesting plan be submitted by the project proponent. iv. Zero liquid discharge wherever techno-economically feasible.
Land	<p>Stipulation of conditions such as:</p> <ul style="list-style-type: none"> i. Increase of green belt cover by 40% of the total land area beyond the permissible requirement of 33%, wherever, feasible for new projects. ii. Stipulation of greenbelt outside the project premises such as avenue plantation, plantation in vacant areas, social forestry, etc. iii. Dumping of waste (fly ash, slag, red mud, etc.) may be permitted only at designated locations approved by SPCBs/ PCCs. iv. More stringent norms for management of hazardous waste. The waste generated should be preferably utilized in co-

	processing.
Other Conditions (Additional)	<ul style="list-style-type: none"> i. Monitoring of compliance of EC conditions be submitted with third party audit every year. ii. The % of the CER should be at least 1.5 times the slabs given for CPA in case of Environmental Clearance, the dated 01.05.2018 for SPA and 2 times for CPA in case of Environmental Clearance.

2.9 Governance

The monitoring of progress, coordination of various activities, corrective measures required and fixing of accountability will be done by District Environment Committee at the District level under Deputy Commissioner, State Level under Principal Secretary, Environment and Apex Committee under Chief Secretary.

Chapter 3 : Sources of Pollution, Current Status and Trends of pollution level in Batala

3.1 Water Pollution

The Batala City is an industrial town, however, it has mainly. domestic effluent.

3.1.1 Industrial Water pollution

There is no major industrial effluent being discharged inside the Batala Town. There is only one major Water Polluting Industry i.e Sekhri Milk Plant, Focal Point which has installed ETP for treatment of its trade effluent.

No industrial effluent is allowed by the Board for disposal directly into any Drain.

3.1.2 Domestic Water pollution

The future demand and requirements have been calculated and according to the standard 135 lpcd the requirement comes out to 30 MLD in year 2015. There is no Water Treatment plant existing in the city. Considering 80% of water supply as waste water flow by 2015, 24 MLD waste water is calculated. Since there is no Sewage Treatment Plant (STP) in the city, any STP to be installed has to be of capacity higher than 25 MLD. It has been estimated that about 22 MLD of sewage/ sullage is being generated within the limits of Municipal Corporation, Batala, majority of which is being discharged into Hansali Drain.

3.1.3 Other major sources of water pollution

Besides above, there is no major source of Water Pollution located in Polluted Industrial Area of Batala City.

3.1.4 Ground Water Pollution

The Punjab Pollution Control Board has started monitoring the quality of ground water in the pre-monsoon & Post monsoon seasons of the years. During the year 2020, the effluent sample was collected and the analysis reports are annexed as **Annexure-3**.

A perusal of ground water analysis report reveals that the concentration of various parameters is within the permissible limits except Total Hardness, Calcium & Total Alkalinity. The ground water/drinking water standards are prescribed by the Bureau of Indian Standards (BIS), for the entire country. These standards/ limits do not take into account the geographical/ geological conditions of the different areas of the country which could contribute to the levels being more or less than the prescribed limits. It may be pertinent to

mention that the cause for these higher levels may be due to natural geographical/geological conditions or due to untreated Domestic Effluent of Batala City. However, the project of installation of STP for Batala City is under progress and is expected to be completed by 31.03.2021.

3.1.5 Discharge and Water Quality of Hansali Drain

Since, there is no major water body which falls under the Polluted Industrial Area of Batala City, Discharge and Water Quality of Hansali Drain will be monitored regularly jointly by a team of officers from Municipal Corporation Batala, Punjab Pollution Control Board and Department of Water Resources from the following locations: -

S. No.	Name of Location
1	U/s At Batala-Jalandhar Road Near SBI, Shastri Nagar, Batala
2	New Abadi Pulley, Near State Bank Colony, Batala.
3	D/s Amritsar-Jalandhar Bypass Road, Batala.

3.2 Air Pollution

3.2.1 Industrial Air Pollution

The main stationary sources of air pollution are the industrial units, which are emitting particulate matter, sulphur dioxide and oxides of nitrogen. As per inventory of the Punjab Pollution Control Board, there are 129 air polluting industries in Polluted Industrial Area of Batala city, which are emitting the aforesaid pollutants, besides, emitting process/ fugitive emissions. Besides above, non-agricultural activities are going on within the MC limits of Batala city but the city is surrounded by agricultural fields, as such, the burning of rice and wheat straw by the farmers is affecting the ambient air quality of the town. Furthermore, due to erratic supply of power, most of the establishment, residential houses and industries have installed D.G set of various capacities to cater to their power needs, which are emitting uncontrolled emissions into the Atmosphere within the city limits. Due to all these sources, the quality of ambient air of the city is being effected. The air polluting industries located in the Polluted Industrial Area of Batala city are as under:

Sr. No.	Category	Number of air polluting units
1.	Cupola/ Foundry Units	107
2.	Rice Mills	20
3.	Pyrolysis/Milk Plant	2
Total		129

All the air polluting industries of the city have installed Air Pollution Control Devices, which are being monitored by the Board regularly.

3.2.2. Other Sources of Air Pollution

3.2.2.1 Mobile sources (Major)

With the development of industries, growth of population and rise in living standards, the demand of two wheelers and four wheelers has increased manifolds. There are six major roads entering from different directions into Batala city: Amritsar- Batala, Gurdaspur-Batala, Kahnuwan-Batala Road, Jalandhar-Batala Road, Qadian-Batala etc. Although, a bye pass road has been constructed from VMS Institute to Usmanpur City to ease out the traffic congestion in the city. However, with the rapid growth of industries and urban areas around Batala, the Amritsar Bye-Pass Road has become life line of the Batala city with number of traffic bottlenecks. The floating population of the vehicles entering Batala city from other towns is thus impacting the environment to a great extent as the vehicles coming from Amritsar, Jammu, Pathankot, Hoshiarpur, Gurdaspur areas and destined to other towns, have to pass through the whole of the town.

3.2.2.2 Stationary Point Sources

Due to erratic supply of power, most of the establishment, residential houses and industries have installed D.G set of various capacities to cater to their power needs, which are emitting uncontrolled emissions into the atmosphere within the city limits.

3.2.2.3 Non Point Sources

Batala city is surrounded by agricultural fields. As such, the burning of rice and wheat straw by the farmers during the harvesting season, is also affecting the ambient air quality of the town. Also, anaerobic digestion of biomass and garbage stored and frequent fires at the Municipal Solid Waste Dump site is effecting the quality of ambient air quality of the city to a great extent & addition to above the climate conditions of the area also increase the levels of the particulate matter especially during day weather.

3.2.2.4 Noise Pollution

Various sources of noise pollution are as under

1. Road Traffic Noise:

In the city, the main sources of traffic noise are the motors and exhaust system of autos , smaller trucks, buses, and motorcycles. This type of noise can be augmented by narrow streets and tall buildings, which produce a canyon in which traffic noise reverberates.

2. Noise from railroads:

The noise from locomotive engines, horns and whistles, and switching and shunting operation in rail yards can impact neighboring communities and railroad workers. For example, rail car retarders can produce a high frequency, high level screech that can reach peak levels of 120 dB at a distance of 100 feet, which translates to levels as high as 138, or 140 dB at the railroad worker's ear.

3. Construction Noise:

The noise from the construction of highways , city streets , and buildings is a major contributor to the urban scene . Construction noise sources include pneumatic hammers, air compressors, bulldozers, loaders, dump trucks (and their back-up signals), and pavement breakers.

4. Noise in Industry:

Although industrial noise is one of the less prevalent community noise problems, neighbors of noisy manufacturing plants can be disturbed by sources such as fans, motors, and compressors mounted on the outside of buildings Interior noise can also be transmitted to the community through open windows and doors, and even through building walls. These interior noise sources have significant impacts on industrial workers, among whom noise-induced hearing loss is unfortunately.

5. Noise from Consumer products:

Certain household equipment, such as vacuum cleaners and some kitchen appliances have been and continue to be noisemakers, although their contribution to the daily noise dose is usually not very large.

3.2.3 Air Quality of Batala City

The Board has started monitoring Ambient Air Quality of Batala city and have installed 1 Monitoring Stations at the Center of Polluted Industrial Area of Batala City in Regional Office, Punjab Pollution Control Board.

3.3. Sources of Land Pollution

3.3.1 Municipal Solid Waste

About 46MTD of Municipal Solid Waste is generated in the jurisdiction of Municipal Corporation, Batala. Presently, no segregation of this waste is being carried out. As such, this waste is dumped in an unscientific manner for landfill only. Therefore, the unscientific disposal of municipal solid waste is causing soil and underground water contamination besides causing air pollution in the area due to flying of the same into the atmosphere and discharge of gases due to anaerobic digestion at dump site. The Municipal Corporation

Batala has proposed to treat its Municipal Solid Waste with bio remediation technique, which is yet to be started at site.

The present status w.r.t compliance of Solid Waste Management Rules, 2016 for Batala city w.e.f 01.04.2019 to 31.12.2019 is as under:

3.3.1.1 Door to Door Collection and segregation of Solid Waste

Total wards	Wards with d2d collection	Total households	Hh with d2d collection	Hh percent covered
35	27	30596	25104	82

3.3.1.2 Source Segregation

Wet waste collected	Dry waste collected	Total waste collected	Total wards	Wards with ss	Total households	Hh with source segregation	Hh percent covered ss
27.9	18.32	46.2	35	12	30596	9653	31

3.3.1.3 Collection and Transportation Vehicles

Tricycle compartmentized	Tricycle owned by pvt	e-riksha total	e-riksha with GPS	Tata ACE total	Tata ACE with GPS	Tipper total	Tipper GPS	Tractor trolley total
60	-	0	0	-	-	2	-	-

3.3.1.4 Waste Processing Facility

total pits constructed	pits with shed	pits without shed	total wet waste feeded in pits	total compost generated	hh with home composting
25	-	-	-	-	-

3.3.1.5 Horticulture waste Management

Parks with horticulture waste	Parks with onsite composting	Parks total pits constructed
5	2	2

3.3.1.6 MRF and Bulk waste generators

MRF sites constructed	BWG above100 kg identified	BWG above100 composting	BWG 50 to 100 kg identified	BWG 50 100 composting
0	0	0	35	0

3.3.1.7 MRF and Bulk waste generators

Total wards	Residential wards	Residential wards with sweeping	Commercial wards	Commercial wards with sweeping	Commercial wards with night sweeping	Public places	Public places with sweeping
35	23	23	7	7	0	5	5

3.3.1.8 MRF and Bulk waste generators

Rag pickers identified	Rag pickers integrated swm	Waste pickers identified	Waste pickers integrated	Kabadis identified	Safai sewaks regular	Safai sewaks contract outsourced	Ngo identified
14	14	41	41	21	307	-	-

3.3.1.9 Legacy waste, Garbage Vulnerable Points

Legacy waste sites identified	Legacy waste sites cleared	Gvp (garbage vulnerable points) identified	Gvp cleared	No. Of points waste entering in water body	No of water body sites with arrangement
1	0	22	18	4	-

3.3.1.10 Awareness Programs

No of complaints received	No of complaints resolved	Awareness activities	Workshops training programs conducted	Workshop participants	No of advertisements news
-	-	-	-	-	-

3.3.1.11 Violations observed

No of violation littering / burning plastic	No of challans issued	Amount collected
146	146	15600

3.3.2. Bio-Medical Waste

The Board has identified 104 health care establishments with 72 bedded health care establishments and 32 non-bedded health care establishments in Batala city, which are generating about 0.2 TPD of bio-medical waste of different categories as specified in Schedule-1 appended to the Biomedical Waste (Management & Handling) Rules 2016. The segregation of the bio-medical waste is being done by all these health care establishments at source. Furthermore, the liquid waste being generated by all these health care

establishments is being disinfected as per the procedure prescribed in the said rules. Moreover, 2 nos. of health care establishments have additionally installed ETP for treatment of effluent generated from their premises. The bio-medical waste generated is not allowed to mix with the municipal solid waste and it is handled by a common Bio-medical Waste Treatment Facility of bio-medical waste of different categories. The Punjab Pollution Control Board vide its letter no. 4813 dated 11.10.2019 has decided that, as an interim measure, all the Health Care Facilities (Govt. as well as Pvt.) has been given time to install ETP by 30.06.2020.

3.3.3 Hazardous Waste

There is no hazardous waste generating industries in Polluted Industrial Area of Batala City.

3.3.4 Plastic Waste Management.

The current compliance status of Plastic Waste Management Rules, 2016 w.e.f 01.04.2019 to 31.12.2019 is as under:

Setting up of Material Recovery Facilities

Name of ULB	No. of MRFs required	No. of MRF constructed	No. of MRF operational	No. of MRF under construction
Batala	7	0	0	-

Monitoring of MRFs for segregation and channelization of plastic waste

Name of ULB	Segregation of Plastic Waste into Recyclable & Non-Recyclable Plastic Waste started(Yes/No)	Whether segregated non-recyclable plastic waste disposed to authorized recycler (Yes/No)	Whether non-recyclable plastic waste used in road construction / cement kiln / RDF (Yes/No)
Batala	No	No	No

Monitoring of littering/open burning of plastic waste:

Name of ULB	No. of violations regarding littering/open burning of plastic waste observed	Action taken against violators	
		No. of challans issued	Amount of fine collected in Rs
Batala	-	-	-

Monitoring of the ban on plastic carry bags in the State:

Plastic bag violations observed	Qty of plastic bags confiscated	No of plastic carry bag challans issued	Plastic fine amount (Rs.)
45	1 Ton	45	36500

Monitoring of Registration under Plastic Waste Management Rules,2016:

Category	No. of units identified	No. of units obtained registration	Remaining no. of units yet to obtain registration	Action taken against the violator
Producer	5	5	0	
Brand Owner	1	0	1	
Recycler	0	0	0	
Manufacturer	0	0	0	

3.3.5 E-Waste

The e-waste is generally generated from dismantling activities of various electrical / electronic appliances / gadgets such as audiovisual components, televisions, VCRs, stereo equipment, mobile phones and computer components. For proper disposal of E-waste, the Ministry of Environment & Forest has separately notified E-Waste (Management) Rules, 2016.

3.3.6 Construction & Demolition Waste.

The status of current compliance Construction & Demolition Waste Rules, 2016 w.e.f 01.04.2019 to 31.12.2019 is as under:

Construction and Demolition Waste Facility

CnD waste sites identified	CnD waste sites notified	Qty of cnd waste collected	No of cnd recycling units	Total cnd waste processed
2	2	-	-	-

Chapter 4 : Pollution Control Action Plan for SPA- Batala City

4.1 Water Pollution Control Action Plan for SPA- Batala City

4.1.1 Restoration of Polluted Water Bodies/Contaminated Sites

In Polluted Industrial Area i.e Severely Polluted Area of Batala City, Hansali Drain is identified as Polluted Water body. The sewage of Batala City falls into this Seasonal Drain. The restoration of Polluted Water Body is divided into steps as mentioned below:-

1. Identification of Domestic/other Outlets falling into drains.
2. Closure of all the Outlets falling into Hansali Drain.
3. Desilting of Hansali Drain.

4.1.2 Installation of STP

Municipal Corporation, Batala to ensure setting up of new STP as per timelines mentioned below:-

Name of STP/ETP	Cap. (MLD)	Tech	Status of Funds	Current Status i.e Date of completion or likely date of completion			
				Preparation of DPR	Tendering	Commencement of work	Completion & Commissioning
Batala	30 MLD	SBR	46 Crore Required, No Funds Allocated	Yes, Approved	Done	Not Started yet.	31.03.2021 (Expected)

4.2 Action Plan for Clean Air for SPA- Batala City

A source apportionment study of Air Pollution for the Severely Polluted Area of Batala City has to be carried out. The broad interventions which can be identified for PM pollution control should be focused on industries, transport, road dust and biomass burning sectors. These recommendations are classified into short term, medium, and long term as follows:

Short term measures

- Vacuum cleaning of roads for control of road dust.
- Enforcement of full ban on refuse burning.
- Introduction of congestion pricing scheme in specific congested zones in Batala city and use its revenues for enforcement of public transport system.
- Pollution tax on pre BS IV commercial vehicles for entering the city of Batala.
- Introduction of odd-even schemes for 1 to 2 weeks during high air pollution episodes for both cars and two-wheelers.
- Ensuring 24 × 7 power supply to completely arrest the use of DG Sets.
- (The study has estimated that these short term measures can reduce the PM2.5 and PM10 concentrations by 15% and 23% respectively)

Medium and Long term measures

- Introduction of gaseous fuels and enforcement of new and stringent SO₂/NO_x/PM_{2.5} standards for industries using solid fuels
- Complete phase out of biomass use by enhanced LPG penetration in rural households
- Complete ban on agricultural residues burning and accelerating their use in power plants and other industries to replace high ash coal.
- Strict implementation of BS-VI norms and introduction of gaseous fuels in the transport sector.
- Improvement and strengthening of inspection and maintenance (PUC) systems of vehicles.
- Designing and introduction of fleet modernization and retro-fitment programs.
- Introducing policies for higher penetration of electric and hybrid vehicles and creation of infrastructure for charging. To start with, new public vehicles may be bought on electric modes.
- Congestion taxation and management at specific congested locations.
- Monitoring of road dust and its control using wall to wall paving and vacuum cleaning.
The various activities to be under taken with time lines have been tabulated in Annexure-4A to 4G.

4.3 Solid Waste Management Action Plan for SPA- Batala City

4.3.1 Action Plan for regular monitoring of the progress of solid waste management:-

i) Source Segregation of Waste

Municipal Corporation, Batala to ensure source segregation of waste into biodegradable, non-biodegradable, domestic hazardous. This is the most essential part of the action plan and needs behavioural changes and provision of necessary infrastructure.

ii) Door to Door Collection

Municipal Corporation, Batala to ensure 100% Door to Door Collection of Segregated Solid Waste.

iii) Tracking of Collection and Transportation Vehicles

Municipal Corporation, Batala to ensure GPS Monitoring in case of mechanized collection and transportation vehicles.

iv) Sweeping of Public Areas

Municipal Corporation, Batala to ensure sweeping of public areas such as Residential, Public and Commercial areas.

v) Demarcation of Space for Waste Processing

Municipal Corporation, Batala to ensure Demarcation of separate space for segregation, storage, decentralized waste processing for establishment of systems for home/ decentralized and centralized composting of Wet Waste and setting up of MRF Facility for Dry Waste.

vi) Compliance by Bulk Waste Generators

Identification and compliance by Bulk Waste Generators through decentralized waste processing.

vii) Green/Horticulture Waste Management

Municipal Corporation, Batala will ensure onsite green waste management for parks, gardens, green belts, institutions, organizations

viii) Inclusion of Rag Pickers/ Waste Collectors & Kabadis/ Safai Sewaks

Municipal Corporation, Batala will ensure inclusion of rag pickers, waste collectors & Kabadis and Safai Sewaks into solid waste management system. Efforts to be made to make their SHG and provide them other benefits such as health checkup, etc

ix) Treatment of Legacy Waste

Municipal Corporation, Batala to ensure Setting up of systems for treatment of legacy waste and clean drives to remove waste from the roadsides, vacant plots, parks and public places, water bodies etc.

x) Citizen Grievance Redressal through Swachh App

Setting up of Citizen Grievance Redressal system set up along with the Name, mobile No. Email Id of Nodal Officer.

xi) Mechanism for stopping entry of solid waste int water bodies/ drains/ rivers etc.

xii) Awareness mechanism for behaviour change.

xiii) Monitoring of the processing sites of solid waste.

4.4 Plastic Waste Management Action Plan for SPA- Batala City

(i) Setting up of Material Recovery Facilities

Adequate number of Material Recovery Facilities (MRFs) shall be established by Municipal Corporation, Batala for sorting of the waste.

(ii) Monitoring of MRFs for segregation and channelization of plastic waste

Collection and utilization of the segregated fraction of the recyclable as well as non-recyclable component shall be reported by Municipal Corporation, Batala on monthly basis.

(iii) Monitoring of the awareness programmes to discourage use of single use plastic etc.

The awareness programs which shall be conducted by Municipal Corporation, Batala through interpersonal communication and print media on monthly basis.

(iv) Monitoring of littering/open burning of plastic waste

The violators carrying out the open burning and littering of the plastic waste shall be challaned by Municipal Corporation, Batala and the same will be reported by Department of Local Govt. on monthly basis.

(v) Monitoring of Registration under Plastic Waste Management Rules,2016

Progress regarding the registration granted under the PWM rules to the producer's/brand owners/recycler/manufacturer shall be reported by PPCB on quarterly basis.

(vi) Monitoring of random inspection of Recyclers, Producers, Importers, Manufacturers and Brand-Owners

Progress regarding inspections conducted and action taken report will be taken by PPCB on six monthly basis.

(vii) Monitoring of Annual Return to be filed by ULBs.

Annual reports are required to be submitted before 30th June of every year by each ULB. The progress regarding the submission of the same shall be reported by Department of Local Govt. on yearly basis.

(viii) Monitoring of Extended Producer Responsibility

Progress regarding the obtaining of registration and submission of action plan by Brand- Owner/Producer/ Importer shall be reported by PPCB on every six monthly basis.

(ix) Monitoring of the ban on plastic carry bags in the State

Progress regarding the no of violators engaged in manufacturing and usage of plastic carry bags in each ULB & district and no of challans issued shall be reported by Department of Local Govt. and PPCB on quarterly basis.

4.5 Bio-Medical Waste Management Action Plan for SPA- Batala City

Punjab Pollution Control Board (PPCB) has devised a detailed plan for managing bio-medical waste. Bio-medical waste generated in Batala city is collected, transported, treated and disposed through Common Bio-Medical Waste Treatment Facilities (CBWTF) located at Pathankot.

4.5.1 Following measures will be undertaken to meet the challenges of pollution due to bio-medical waste:

- (i) Creating awareness about the adverse impacts of bio-medical waste
- (ii) Identifying and covering the unidentified HCFs under the Rules
- (iii) Setting up additional CBWTFs for treating the bio-medical waste as per requirement
- (iv) Ensuring effective operations of the CBWTFs
- (v) Installation of effluent treatment plants by all the HCFs

4.5.2 Setting up of effluent treatment plants by all the HCFs

The liquid waste being generated by all the health care establishments is being disinfected as per the procedure prescribed in the said rules. Moreover, 02 nos. of health care establishments have additionally installed ETP for treatment of effluent generated from their premises. The bio-medical waste generated is not allowed to mix with the municipal solid waste and it is handled by a common Bio-medical Waste Treatment Facility of bio-medical waste of different categories. The Punjab Pollution Control Board vide its letter no. 4813 dated 11.10.2019 has decided that, as an interim measure, all the Health Care Facilities (Govt. as well as Pvt.) has been given time to install ETP by 30.06.2020.

4.5.3 Monitoring of the installation of the ETPs by Govt. HCFs

On the basis of timeline given by Department of Health regarding installation of ETP/STP in Govt. HCFs, progress will be reported by Department of Health on quarterly basis for monitoring.

4.5.4 Monitoring of HCFs and CBWTF

The monitoring of the HCFs will be carried out by the Punjab Pollution Control Board on regular basis so as to ensure the compliance of the Biomedical Rules, 2016.

4.6 Construction & Demolition Waste Management Action Plan for SPA- Batala City

i) Identification & Notification of Sites for Construction and Demolition Waste

The Municipal Corporation, Batala shall identify the suitable sites for setting up of storage, processing and recycling sites for C & D waste and shall notify the same.

ii) Monitoring of awareness

The Municipal Corporation, Batala shall create public awareness through information, education and communication campaign and educate the waste generators for management of C&D waste.

iii) Monitoring of Collection, Segregation and channelization of C&D Waste on monthly basis

The Municipal Corporation, Batala shall make arrangements for collection, segregation and channelization of C&D Waste either through their own resources or by appointing private operators.

iv) Monitoring of processing/ recycling of C&D waste

The Municipal Corporation, Batala shall set up processing/recycling facilities for proper management of C&D waste within its jurisdiction.

v) Monitoring of Penalties by Municipal Corporation, Batala

The Municipal Corporation, Batala shall impose penalties on the violators of the C&D waste Rules and shall submit the details of levying of penalties along with amount of fine recovered.

vi) Issuance of directions for proper management of C&D waste

The Municipal Corporation, Batala shall issue detailed directions with regard to proper management of C&D waste within its jurisdiction in accordance with the provisions of the Rules.

vii) Sanctioning of waste management plans of generators.

The Municipal Corporation, Batala shall examine and sanction the waste management plan of the generators within a period of one month or from the date of approval of the building plan whichever is earlier from the date of its submission.

viii) Monitoring of the Processing Sites by PPCB

Monitoring of the Storage/Processing sites set up by the Municipal Corporation, Batala shall be done by PPCB through its Regional Offices on quarterly basis.

4.7 Hazardous Waste Management Action Plan for SPA- Batala City

The Compliance of the HWM Rules, will be Checked by the PPCB by monitoring the following quarters:

- i. Monitoring of Identification of hazardous waste generating units (monthly basis)
- ii. Monitoring of Hazardous Waste generating units (monthly basis)
- iii. Monitoring of Common Hazardous Waste Treatment, Storage & Disposal Facility (quarterly basis).
- iv. Monitoring of Installation of Incinerator at Common TSDF (quarterly basis).
- v. Monitoring of quantum of hazardous waste generated by occupier (quarterly basis).
- vi. Monitoring of interstate movement of hazardous waste for recycling/ reutilization / disposal (quarterly basis).
- vii. Monitoring of quantum of hazardous wastes recycled and utilized (quarterly basis).
- viii. Monitoring of quantum of hazardous waste disposed of (quarterly basis).
- ix. Monitoring of submission of annual return.

4.8 E- Waste Management Action Plan for SPA- Batala City

E-waste is generally generated from dismantling activities of various electrical / electronics appliances / gadgets such as audiovisual components, televisions, VCRs, stereo equipment, mobile phones and computer components. For proper disposal of E-waste, the Ministry of Environment & Forest has separately notified E-Waste (Management) Rules, 2016. There is no E-waste recycling unit in Batala.

The Compliance of the E-Waste Rules, will be Checked by the PPCB by monitoring the following quarters:

- i) Monitoring of Identification / inventorisation of bulk consumers and quantification of Ewaste (monthly basis)
- ii) Monitoring of compliance of Extended Producer Responsibility (quarterly basis)
- iii) Monitoring of Grant of Authorization to Manufacturers, Dismantlers, Recyclers and Refurbishers and its online updation (monthly basis)
- iv) Monitoring of random inspection of Dismantler, Recycler, Refurbisher (half yearly basis)
- v) Monitoring of Annual Return to be filed by Bulk Consumers, Manufacturer, Refurbisher, Recycler, Dismantler (yearly basis)
- vi) Monitoring of Segregation and channelization of E-waste from the MSW by the Deptt. of Local Bodies (quarterly basis)
- vii) Monitoring of allocation of industrial space for industrial sheds / plots by the Deptt. of Industries/ other development agencies (quarterly basis).

4.9 Surveillance monitoring of Polluting Units in Polluted Industrial Area(PIA), Batala.

Punjab Pollution Control Board will visit the industries located in the Polluted Industrial Area of Batala & its impact Area (within radius of 5 km) as per protocol regarding frequency of visit to the industries to carry out inspection & monitoring of APCD/Effluent Treatment Plants and maintain proper record of all these visits. PPCB will submit report as per the proforma attached in **Annexure-4-H**

Chapter 5: Expected impact on the Comprehensive Environment Pollution Index

The present action plan for abatement of pollution in the severely polluted area of Batala City has been prepared keeping in view the present environmental quality based on the Comprehensive Environment Pollution Index (CEPI). The CEPI score for Batala City during monitoring in 2018 has been observed to be 68.92, which is cumulative score of the environment pollution index calculated for the Air (63.0), Water (62.75) and Land (25.50), separately. The detailed calculation of which is attached as per **Annexure-5**. While calculating the score for Comprehensive Environment Pollution Index for Air Environment Quality for Batala, pollutants like PM10, PM2.5 and CO have been taken as the critical pollutants. These critical pollutants belong to Group-B of pollutants. The Comprehensive Environment Pollution Index calculation for Water Environment Quality has considered BOD, Total Nitrogen and TP as the critical pollutants. These critical pollutants belong to Group-A and Group-B of pollutants. The Comprehensive Environment Pollution Index calculation for Land Environment Quality has considered Mn, Fe and As as the critical pollutants. These critical pollutants belong to Group-A & C of pollutants. The Ambient Air, Ground and Surface water samples were collected in the core industrial areas and impact areas. Symptoms of exposure and adverse impact on ecological features, has also been reported. On perusal of the above discussion, it has been observed that the Air and water environment of the Batala City has been impacted mainly due to the pollution caused by vehicular movement, industrial combustion and lack of Sewage treatment plant. The Action Plan has been prepared keeping in view all the above factors impacting the environment. Action Plan includes installation of the Sewage treatment facility for Town as well as evolving cleaner technologies for abatement of pollution at the source by installing pilot plants so as to encourage entrepreneurs and management of the vehicular traffic. With the implementation of the Action Plan, majority of the pollutants reported to be critical will reduce significantly resulting in the overall improvement of the environment in the area.

ACKNOWLEDGEMENT

The draft action plan for the Severely polluted Area of Batala has been prepared by obtaining requisite data/information from the various departments as listed below. However, comments and feedback from all the departments may also be taken before approval;

- (a). Zonal Office and Regional Office of PPCB.
- (b). Municipal Corporation, Batala
- (c). Irrigation Deptt. (Drainage Division).
- (d). Punjab State Council for Science and Technology(PSCST)
- (e). Punjab Energy Development Agency (PEDA)
- (f). Punjab Water Supply and Sewerage Board (PWSSB)

Annexure-3 – Analysis results of ground water sample – February, 2020

Sr. no.	Point of Collection	pH	Cond (µs/cm)	TDS (mg/l)	TFS (mg/l)	T.H (mg/l)	Ca (mg/l)	Mg (mg/l)	F (mg/l)	NO3 as N (mg/l)	Cl (mg/l)	SO4 (mg/l)	T.Alk (mg/l)	Na (mg/l)	K (mg/l)	SAR	%N A	B (mg/l)	Fe (mg/l)	Zn (mg/l)
1	Tubewell installed Near Rajindra Foundary, Focal Point, Batala	7.8	631	460	-	264 200	79 75	16	.14	-	24	-	328 200	-	-	-	-	-	-	-

Note: BOD, TSS, COD, Phosphate, Colour were BDL in the sample.

Annexure 4A – Action Plan for Control on Vehicular Emissions

Sr. No.	Activity	Implementation period (Short/ Medium / Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CVE 1 - Public awareness campaign for control of vehicular emissions	Short Term	Department of Transport	Presently, awareness is being done in the Educational Institutes under Sadak/Surakhya Abhiyan	The public to be sensitized about the impact of vehicular emissions on human health and environment.	Regular Activity	<ol style="list-style-type: none"> 1. Public awareness campaign in print and electronic media-Twice a month. 2. Use of Social Media Facebook, twitter, Instagram-Regular 3. Jingles on air pollution on local radio and TV-Local FM Radio 4. Awareness drives in 5 no. educational institutions-Monthly Public meetings-Monthly 	

2	CVE 2 - Construction of expressways/ bypasses to avoid congestion	Short Term	NHAI	To be planned		30.09.2020	1. Estimation 2. Tendering including Work allotment 3. Completion	Nil
3	CVE 3 - Extensive drive against polluting vehicles	Short Term	Traffic Police	2000 no. of vehicles inspected & 416 no. of challans issued during year 2018.	Regular inspection to be continued and violators to be challaned.	Regular Activity	--	Nil
4	CVE 4 – Enforcement	Short Term	Traffic Police.	-	Regular inspection to be continued and violators to be challaned.	Regular Activity	-	Nil
5	CVE 5 - Check fuel adulteration	Short Term	Department of Food and Civil Supplies/Oil Industry	As informed by Deptt. of Food & Civil Supplies, the Oil Companies have adopted Online Automated System for transportation & checking the density of Petrol/Diesel.	State Level Coordinator, Oil Companies will conduct inspections on annual, quarterly & random basis.	Regular activity	-	Nil

6	CVE 6– Prevent parking of vehicles in non- designated areas by creating parking infrastructure	Medium Term	Municipal Corporation	Roadside parking earmarked by yellow line : Nil "No Parking" sign Boards installed -Nil	10 no. Additional Roadside parking to be earmarked. 150 No. Additional "No Parking" sign boards to be installed .	31.12.2019	-	-
7	CVE 7 - Widening of roads and improvement of infrastructure for decongestion of roads	Medium Term	Municipal Corporation	To be planned	Identified roads to be widened	31.03.2021	1. Estimation 2. Tendering including Work allotment. 3. Completion	-
		Medium Term	PUDA	To be planned	Identified roads to be widened	30.06.2021	1. Estimation 2. Tendering including Work allotment. 3. Completion	-
		Medium Term	PWD	To be planned	Identified roads to be widened	31.03.2021	1. Estimation 2. Tendering including Work allotment. 3. Completion	-

8	CVE 8 - Introduce intelligent traffic systems	Medium Term	Traffic Police & Municipal Corporation	To be planned	-	31.03.2021	1. Estimation 2. Tendering including Work allotment. 3. Completion	-
9	CVE 9 - Remote sensor based PUC system	Medium Term	Department of Transport	Manual checking at Pollution Check Centre (PCC) exists	All PCC centers will be linked with VAHAN 4.0 software of the Transport deptt.	31.01.2020	Preparation of RFP for selection of vendors Allotment of work after selection of vendors Development of software solution to link all PUC centers. Linking of software to VAHAN 4.0 software of the transport Deptt.	-
10	CVE 10 – Promotion of E- vehicles	Medium Term	Deptt. of Transport	Presently, most of the vehicles are running on diesel and petrol. -Framing of the E-vehicle policy is in the final stages.	After approval from Competent Authority E-Vehicle policy will be notified.	30.12.2021	Framing & Notification of E-vehicle policy Providing public charging points for battery operated vehicles as per Govt. policy.	NIL

11	CVE 11 – Prevent parking of vehicles in non-designated areas by creating parking infrastructure	Long Term	Municipal Corporation	No proposal of Parking Area as on date. There is no proposal for installation of Multilevel Parking Commercial Parking : No proposal as on date..	Additional Designated Parking lots to be indetified. Identified multilevel parking sites to be developed No new parking for trucks / Commercial vehicles proposed.	- 31.03.2022	- 1. DPR for development of parking sites. 2. Tendering 3. Work allotment 4. Completion of work.	-
12	CVE 12 – Phasing out Of commercial Diesel vehicles more than 15 years old	Long Term	Department of Transpo rt.	New commercial diesel vehicles are registered for 2 years and thereafter, fitness certificate is being issued every year.	Matter of fixing the age of commercial diesel vehicle is being examined legally.	-		Nil
13	CVE 13 – Introduction of CNG based public transport (Infrastructure development)	Long Term	Deptt. of food & civil supplies	-	-	31.03.2021	Facilitating laying of pipeline and commissioning of CNG filling stations	Nil

	CVE 14 – Introduction of CNG based city bus service	LongTerm	Municipal Corporation	At present no CNG based city bus service exists.	To take measures to introduce CNG based city bus service.	-	-	Nil
	CVE 15 – Introduction of CNG based autos / taxis	LongTerm	Deptt. of Transport	At present, no CNG based auto/ taxis exists.	To take measures to introduce CNG based auto/ taxis.	-	Implementation of PPCB orders	Nil
14	CVE 16 – Retrofitting of particulate filters in diesel vehicles, when for BS- V fuels are available	Long Term	Department of Transport	Presently, India is implementing BS-IV standards for diesel vehicles	India has adopted BS-6 norms.	-	-	NIL

Note : The target date for the compliance of various activities mentioned in the action plan has been elapsed due to prevailing circumstances under COVID-19 lockdown, the target date for compliance of these activities is required to be revised

Annexure 4B – Action Plan for Control on Road Dust

Sr. No.	Activity	Implementation period (Short/Medium/Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly/Quarterly)	Financial Implications, if any (Estimated Cost)
1	CRD 1 – Procurement of Water sprinkler	Short Term	Municipal Corporation	To be Planned	-	-	-	NA
2	CRD 2 – Water sprinkling	Short Term	Municipal Corporation	To be planned	Regular Water sprinkling on identified road	Regular Activity	-	Nil
3	CRD 3 - Creation of green buffers along the roadsides	Short Term	Municipal Corporation	To be planned	4000 plants to be planted along the identified roadsides.	Regular activity	Identification of roads. Plantation.	-
4	CRD 4 - Water fountains at major traffic intersections	Short Term	Municipal Corporation	To be planned	To be planned	NA	-	NIL
5	CRD 5 – Maintain potholes free roads for free-flow of traffic	Medium Term	Municipal Corporation	To be planned	To be planned	31.03.2021	-	-

6	CRD 6- Mechanical sweeping	Medium Term	Municipal Corporation	No mechanical sweeping machine exists.	To be planned	31.03.2021	1. Identification. 2. Tendering, purchase order, procurement.	-
7	CRD 7- Greening of parks, open areas community places, schools and housing societies	Medium Term	Municipal Corporation	To be planned.	To be planned	Regular activity	1. Identification of area. 2. Plantation.	-
8	CRD 8 Existing roads requiring recarpeting	Medium Term	MC	To be planned	To be planned	31.03.2021	1. Estimation 2. Tendering. 3. Allotment.	-
9	CRD 9 Pavement of road side using interlocking tiles to prevent road Dust emissions.	Medium Term	PWD	To be planned	To be planned.	31.03.2021	Estimation. Tendering, allotment.	-

Note : The target date for the compliance of various activities mentioned in the action plan has been elapsed due to prevailing circumstances under COVID-19 lockdown, the target date for compliance of these activities is required to be revised

Annexure 4C – Action Plan for Control on Burning of Garbage and Biomass

Sr. No.	Activity	Implementation period (Short /Medium/Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CBGB 1 – Control on open burning of bio-mass in City	Short Term	Municipal Corporation	Presently 21 compost pits exists	- 100 no. compost pits to be constructed.	30.09.2021	1. Identification. 2. Construction of compost pits.	-
2	CBGB 2 – Control on burning of municipal solid wastes	Short Term	Municipal Corporation	Burning of municipal solid wastes stands prohibited.	Regular inspections to be continued for Control on burning of municipal solid wastes and challans to be issued to the violators.	Regular activity	-.	Nil
3	CBGB 3 – Control on burning of agriculture crop residue	Short Term	District Administration Department of Agriculture, Police, Revenue department ,PPCB&PSPCL	- Identification of sites by PRSC (PAU) -Regular monitoring under supervision of DC. -92 challan issued - 60 Red Entries Made	Enforcement by Team	During wheat/rice harvesting season.	To create awareness amongfarmers regarding health effects of residue burning Deptt. of Agriculture to provide subsidy for equipment/ machinery as per Govt. policy Teams will be constituted one month prior to start of each	Nil

							harvesting season. Identification of no. of fire incidents by PRSC. Visit to identified sites Imposing Environmental compensation on defaulters PSPCL shall ensure electricity for in-situ management Progress review in District Level Air Quality Monitoring Committee meeting Recovery of Environmental compensation	
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Note : The target date for the compliance of various activities mentioned in the action plan has been elapsed due to prevailing circumstances under COVID-19 lockdown, the target date for compliance of these activities is required to be revised

Annexure 4D – Action Plan for Control on Industrial pollution

Sr.No.	Activity	Implementation period (Short/Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CIE 1- Conversion to side hood suction in furnace	Short Term	Punjab Pollution Control Board	02 no. induction furnaces are of capacity 1 ton/heat or more.	Adequacy of furnaces be checked and 2no. Induction furnaces are required to be upgraded to side hood suction system.	30.09.2020	-	NIL
2	CIE 2 – Conversion to CNG from pet coke / coal	Short Term	Punjab Pollution Control Board /M/s Madhok Energy Pvt. Ltd.	Nil	To be planned	Regular activity	Monthly review meetings.	NIL
3	CIE3 Conversion of Natural draft brick kilns to induced draft.	Short Term	Punjab Pollution Control Board	Nil	Nil	30.09.2019	-	NIL

4	CIE 4 – Action against non-complying industrial units.	Short Term	Punjab Pollution Control Board	Regular inspection as per policy of the Board	Action against defaulting industries. Checking the adequacy of APCD installed by the industries.	Regular activity	-	NIL
5	CIE 5 – Shifting of industries from non-designated areas to industrial areas.	Long Term	Deptt. of Industries, Department of Town & Country Planning and Deptt. of Local Government	Industries located in non-designation areas need to be identified for shifting.	Identified industries are required to be shifted to designated industrial area.	Upto 2025	As per the provisions of notified Master Plan.	NIL

Note : The target date for the compliance of various activities mentioned in the action plan has been elapsed due to prevailing circumstances under COVID-19 lockdown, the target date for compliance of these activities is required to be revised

Annexure 4E – Action Plan for Control on Construction and Demolition Activities

Sr. No	Activity	Implementation period (short/Medium/long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CCDA 1 – Enforcement of Construction & Demolition Rules.	Short Term	Municipal Corporation	Inspection of bigger/commercial & road projects is being carried out as per needs.	-Regular inspection will be made for Control of Construction & Demolition waste. -Counter verification to be done by ATP/EO.	Regular Activity	--	Nil
2	CCDA 2 – Ensure carriage of construction material in closed/covered vessels.	Short Term	Municipal Corporation	MC has already directed all contractors to carry building materials and malba in enclosed/covered vessels.	Regular inspection will be made to ensure implementation of directions given to contractors to carry the building materials and malba in enclosed/covered vessels.	Regular Activity	-	Nil
3	CCDA 3 – Control measures for fugitive emissions	Short Term	Municipal Corporation	At present, minimal measures being taken by the building contractors.	Proper curtains/ sheets on the construction sites to be provided & the construction material be kept in covered	Regular activity	Regular inspections	Nil

				conditions Regular inspections to be made and challan will be issued to violators.			
4	CCDA 4 – Infrastructure of Construction & Demolition waste	Long Term	Municipal Corporation 2 no. sites notified by M.C. Batala for disposal of construction debris at Near Water Tank, Bhandari Gate. Near Pond of Bohrawal Near Police Line.	Setting up of processing/recycling plant as per C&D Rules,2016.	Three years	1. Identification 2. Land acquisition 3. DPR 4. Tendering Development & Commissioning.	-

Note : The target date for the compliance of various activities mentioned in the action plan has been elapsed due to prevailing circumstances under COVID-19 lockdown, the target date for compliance of these activities is required to be revised

Annexure 4F – Action Plan for Control through Other steps

Sr. No.	Activity	Implementation period Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications , if any (Estimated Cost)
1.	COS 1 - Monitoring of DG sets and action against violations	Short Term	PPCB	Regular monitoring exists	Non-complying DG set should not be allowed	Regular Activity		NIL
2	COS 2 – Source Apportionment Study	Short Term	PPCB	Source Apportionment Study not carried out	Source Apportionment Study to be carried out Through selected Agency.	31.03.2021	Selection of Agency Develop scope of work Allotment of work	Rs.5.00 lacs
3	COS 3 – Setup helpline in each city / town as well as SPCB HQ Policy	Medium Term	PPCB	No such helpline exists	One required	30.09.2020	1. Development Methodology 2. Providing Infrastructure 3. Implementation	Rs. 0.50 lacs
4	COS 4 – Establish an Air Quality Management Division at SPCB HQ	Medium Term	PPCB	No such division exists	One required	30.09.2020	1. Development Methodology 2. Providing Infrastructure 3. Implementation	Rs. 2 lacs
5	COS 5 – Dissemination of Air Quality Index	Long Term	PPCB	Nil	Monitoring Of Ambient Air Quality.	36.06.2021	-	-

Note : The target date for the compliance of various activities mentioned in the action plan has been elapsed due to prevailing circumstances under COVID-19 lockdown, the target date for compliance of these activities is required to be revised

Annexure 4G– Action Plan for Training & Capacity Building Programmes

Sr. No.	Activity	Implementation period (Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	TCB1 – Training & Capacity Building Programmes	Short Term	PPCB	Officers get trainings under various programmes organized by the concerned departments	<ul style="list-style-type: none"> • District/City level training programme – 1 Nos. • State level training programme – 1 Nos. 	31.03.2021	Selecting agencies/ experts for organizing theme specific trainings. Organization of programmes at City/District and level.	Rs.2.00 lacs

Note 1: 'Short Term' refers to activities to be carried out during next 6 months, 'Medium Term' refers to activities to be carried out during next 2 years and 'Long Term' refers to activities to be carried out in more than 2 years times period.

Note 2: The target date for the compliance of various activities mentioned in the action plan has been elapsed due to prevailing circumstances under COVID-19 lockdown, the target date for compliance of these activities is required to be revised

Annexure 4H– Surveillance monitoring of Polluting Units in Polluted Industrial Area(PIA), Batala.

Sr. No.	Activity	Implementati on period (Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications , if any (Estimated Cost)
1.	Surveillance of Cupola Furnaces/Rice Mills/ Milk Plant.	Medium term	PPCB	Total 129 Cupola Furnaces/Rice Mills/Milk Plant units are located in the polluted Industrial area of Batala.	Mandatory half yearly inspection of these units and verification of the working of APCD and records for effluent generation.	Regular activity	Half yearly meetings. Steps:- 1. Adopting technologies for reducing Air Pollution. 2. Compliance towards Punjab Pollution Control Board norms	Nil
2.	Action against non-complying industrial units	Medium term	PPCB	Regular inspection as per policy of the Board	Action against defaulting industries. Checking the adequacy of ETP/APCD installed by the industries	Regular activity	<ul style="list-style-type: none"> • Identification of industries in which ETP/APCD is not installed. • Checking the adequacy of ETP/APCD already installed. • Issuing show cause notice to the industries violating norms. • Facilitating industry to get set right the inadequate ETP/APCD. 	Nil

Annexure-5-Calculation of CEPI score for 2018 of Batala City by CPCB

As per calculations by Central Pollution Control Board for the year 2018							
Water Quality Analysis Report							
Pollutants	Group	A1	A2		A (A1 X A2)		
BOD	B	2	Limited				
TP	B	0.5					
Total Nitrogen	A	.25					
		2.75	1		2.75		
Pollutants	Avg (1)	Std (2)	EF [(3)= 1/2]	No. of Samples Exceeding (4)	Total No. of Samples	SNLF Value [(6) = 4/5 x3]	SNLF Score
BOD	53.83	8	6.73	12	12	6.73	10
TP	5.49	0.3	18.31	12	12	18.31	30
Total Nitrogen	26.51	1.5	17.67	12	12	17.67	10
B Value = (B1 + B2 + B3)						B	50
C		0			< 5%		
D		10			A-A-IA		
WATER EPI		(A+B+C+D)			62.75		
Air Quality Analysis Report							
Pollutants	Group	A1	A2		A (A1 X A2)		
PM10	B	2	Limited				
PM2.5	B	0.5					
CO	B	0.5					
		3	1		3		
Pollutants	Avg (1)	Std (2)	EF [(3)= 1/2]	No. of Samples Exceeding (4)	Total No. of Samples	SNLF Value [(6) = 4/5 x3]	SNLF Score
PM10	169	100	1.69	24	24	1.69	30
PM2.5	71.16	60	1.19	23	24	1.14	10

CO	1.08	2	0.54	0	24	0	0
B Value = (B1 + B2 + B3)							40
C		10			>10%		
D		10			A-A-IA		
AIR EPI		(A+B+C+D)			63		
GROUND WATER Quality Analysis Report							
Pollutants	Group	A1	A2				
As	C	3	Limited	A (A1 X A2)			
Mn	A	0.25					
Fe	A	0.25					
		3.5	1	3.5			
Pollutant s	Avg (1)	Std (2)	EF [(3)= 1/2]	No. of Samples Exceeding (4)	Total No. of Samples	SNLF Value [(6) = 4/5 x3]	SNLF Score
As	0	0.01	0.38	3	24	0.05	3
Mn	0.2	0.3	0.68	0	24	0	0
Fe	0.17	0.3	0.57	3	24	0.07	9
B Value = (B1 + B2 + B3)							12
C		0			< 5%		
D		10			A-A-IA		
Land EPI		(A+B+C+D)			25.50		

CEPI Air= 63

CEPI Water= 62.75

CEPI Ground Water= 25.50

Hence overall CEPI score calculated by CPCB for the year 2018 = 68.92

Map showing Core Area and Impact Area i.e 5 km boundary form Core Area- Batala City

