**Action Plan** 

For

Abatement of Pollution in the

**Critically Polluted Area of Jalandhar City** 



July 2020

PUNJAB POLLUTION CONTROL BOARD VATAVARAN BHAWAN, NABHA ROAD, PATIALA - 147001

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#### **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. Jalandhar is one of such Severely polluted cluster in the State of Punjab. In 2009, CPCB evaluated CEPI score reflecting the Environmental Quality of Jalandhar town and categorized Jalandhar as severally polluted area having CEPI score 64.98.

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 25<sup>th</sup> 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. As such, the Action Plan for Abatement of Pollution in severally Polluted Area of Jalandhar City was prepared in 2010. Thereafter, CPCB again carried out monitoring in the year 2017-2018 and the CEPI Score for Industrial Areas/Clusters in Jalandhar was calculated as 74.76.

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

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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 Critically Polluted Area of Jalandhar City is hereby prepared.

#### 1.1 About CEPI

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

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

#### **CEPI Comprising of following components: -**

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 Jalandhar

#### 1.2.1 History

Jalandhar is famous for sports industry and items/goods manufactured in Jalandhar one used in many international sporting games including Olympics, Commonwealth Games, Asian Games. It is a hub for manufacturing of hand tools, leather items, pipe fitting, valves & cocks and print media (specially in Hindi and Punjabi language). Doordarshan, Jalandhar is also an important feature of the City.

#### 1.2.2 Area and Population

Jalandhar is the most centrally located district which falls in the Doaba region of the State of Punjab. The city is located in a stretch of about 20 Km. on National Highway-I, spread over an area of about 148 sq. km and currently accommodates a population of about 8.62 lacs.

#### 1.2.3 Topography

The topography of the Jalandhar is typical representative of an Alluvial plain, it owes its origin to the aggravation work of the Sutlej River. The alluvium deposited by the river has been worked over by the wind which gave rise to a number of small dunes and sand mounds. Most of these dunes have been leveled by the brave hard-working agriculturists of the district.

#### 1.2.4 Climate

The climate of the Jalandhar is characterized by dryness except a brief spell of monsoon season in a very hot summer and a bracing winter. The winter season is from middle of November to the early part of March. The succeeding period up-to the end of June is the hot season. July, August and half of September constitute the south west of monsoon, the period of mid-September to about the middle of November may be termed as post monsoon or transitional period. June is generally the hottest month. Hot and scorching dust laden winds blow during summer season. December & January are the coldest months. The mean daily temperature varies in the range of 5°C to 41°C.

#### 1.2.5 Rainfall

About 70% of the rainfall is received during the period July to September. The rainfall during December to March accounts for 16% of the rainfall and the remaining 14% rainfall is received in other months of the year. The average annual rainfall is 769 mm.

#### 1.2.6 Industry and Trade

City of Jalandhar is famous for sports & leather industry. Over the time hand tool, pipe fitting, valves & cocks industry has developed in the city. For industrial clustered/Core Areas have been identified within Jalandhar City by CPCB namely:

- a) Focal Point
- b) Industrial Area
- c) Industrial Estate
- d) Leather Complex

#### 1.3 Government's Past efforts to reduce CEPI score.

The environment of Jalandhar 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. As already mentioned in 1.0, the Punjab Pollution Control Board had prepared an Action Plan with regard to Abatement of Pollution in severally Polluted Area of Jalandhar involving various District level stake holder departments wherein the activities of these departments were clearly mentioned. A meeting was held under the chairmanship of the Principal Secretary Govt. of Punjab Department of Science & Technology Environment, Chandigarh in 2015. Following major activities purposed to be undertaken in the Action plan:

- 1. Installation/Augmentation of Sewage Treatment Plants (STPs).
- 2. Installation of Common Effluent Treatment Plants (CETP) for electroplating industries.
- 3. Development of Engineered Municipal Solid Waste Facility.
- 4. Shifting of industries from non-designated areas to designated areas.
- 5. Upgradation of Jalandhar-Amritsar by-pass
- 6. Control of water pollution from dairy complex located at Jamsher Dairy Complex
- 7. Provision of Green cover within industrial areas along with development of buffer zone separating the residential areas from industrial areas.

Installation of new STPs and up-gradation of existing STPs is still under progress. Ugradation of Jalandhar-Amritsar Bye-pass has been completed. All other activities Development of Engineered Municipal Solid Waste Facility, Green buffer zone, water pollution from dairy complex and shifting of industries from non-designated areas are yet to be completed. Hence, the need for updation of Action Plan on merits

**1.3.1** Directions issued by Central Pollution Control Board and Compliance Status alongwith 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-	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

monsoon season	
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. 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	In Jalandhar City, ambient air monitoring stations have been placed strategically at 4 different locations within the city covering industrial, residential and commercial area. Out of these, 1 no. ambient monitoring station has been placed in one of the industrial cluster i.e Focal Point. PPCB will ensure new ambient monitoring stations will be installed in remaining industrial clusters Noted and shall be complied by PPCB.
CPAs.	
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.	A Continuous air quality monitoring station has been installed at Circuit House, Jalandhar which is operational for 24 Hourly. Apart from this 4 no. manual stations have been installed within the city to procure ambient air quality data of those locations. PPCB is already engaged in practice of collecting surface water samples from Kala Sanghian Drain which carry sewage and storm water of part of the Jalandhar City. PPCB will include two additional sites for collection of ground water samples in

CPCB Directions	Present Compliance Status alongwith 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.	PPCB has already installed Continuous Ambient Air Quality Monitoring Stations (CAAQMS) at Circuit House in Jalandhar city. PPCB will 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)
In those Critically Polluted Areas, where no CAAQMS is so far installed, at-least 2 CAAQAMS be installed to start with, one each in the windward and leeward direction within a year.	Apart from one CAAQMS station which has been already installed in Jalandhar City, PPCB will install Four more CAAQMS station at representative and strategic location as per CPCB criteria of population based.
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 Jalandhar 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	Manual ambient air monitoring stations under NAMP have been placed strategically at 01 location at Focal Point. For rest of the three clusters namely Industrial Area, Industrial Estate and Leather Complex, monitoring shall be carried out once in a month on 24 hourly basis.

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

CPCB Directions	Present Compliance Status alongwith
	Remedial Measures Required To Be Taken By
	Stakeholders
SPCBs/PCC shall ensure installation of Real	Real Time Water Quality Monitoring Station
Time Water Quality Monitoring Stations at	has not been installed. PPCB will ensure
various locations of identified Critically	installation of the same in conformity with the
Polluted Areas in conformity with the CPCB	CPCB guidelines
guidelines for water quality monitoring	
(MINARS/27/2007-08). The SPCBs / PCC shall	
adopt Polluter Pays Principle' for achieving	
these objects.	
In those Critically Polluted Areas, where no	PPCB will ensure installation of at- least 2
CWQMS are yet installed, at- least 2 CWQMS	CWQMS one each in the upstream and
be installed to start with, one each in the	downstream locations of the major receiving
upstream and downstream locations of the	water body of the area within a year
major receiving water body of the area	
within a year	
The existing manual monitoring under MINAR	For this CPA area, no such MINAR programme
(Monitoring of Indian National Aquatic	is applicable as there is no river.
Resources) programme will also be	Ground water sampling is being carried out
continued. In case, there is no MINAR station	under NWMP from tube well installed in
in the area, then manual monitoring will	Leather Complex Jalandhar. Pesticides and
also be conducted at least once in a month.	heavy metal are being analyzed on half yearly
Ground Water Quality Monitoring should be	basis. PPCB shall start monitoring of VOCs in
carried out at existing locations (i. e. bore-	addition to regular parameters.
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	

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

# 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,	CEPI score calculated by CPCB in the year
henceforth, all future CEPI score evaluations	2018 and forecasted CEPI score after
shall be made on the basis of revised	implementation of Action Plan is on the basis
formula	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 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 notify and make public all the polluting sources identified in Jalandhar city, which have already been incorporated in Action Plan. Environment quality data for air pollution is being displayed at Circuit House, Jalandhar. 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
periodically.	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 Jalandhar 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 s hall be an early warning tool to ensure the successful implementation of Action Plan.	Action Plan for abatement of pollution in Jalandhar 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	PPCB is promoting any change to be incorporated by industry which makes it less polluting which includes up-gradation of pollution control systems, use of cleaner fuel

product / change of raw materials / change	etc.
of manufacturing process or a combination	
of these changes and shall be examined and	
assed by respective SPCBs/PCC	

# 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	PPCB is regularly carrying out monitoring on
exercise of water and air quality monitoring	monthly basis for stations in operation under
work at different locations including those	NAMP.
stations currently in operation under NAMP	
and MINAR.	
SPCB/ PCC shall take necessary measures to	PPCB is regularly keeping a check through
ensure regular maintenance and operation of	CPCB portal on Online monitoring systems
the online systems with tamper proof	installed by various industries, common
mechanism including having facilities for	treatment facilities etc.
online calibration;	
SPCBs / PCC shall install the necessary	Adequate arrangements have been made at
software and hardware in their headquarter	Head office, PPCB to collect, analyse data
for centralized data collection, analysis and	received through online monitoring systems
corrective action	installed in various industries etc.
SPCBs/PCC shall take necessary measures to	Air quality monitoring data of CAAQMS is
connect and upload the online air quality and	already connected with CPCB portal. PPCB
water quality monitoring data on the Servers	will connect data with respect to water
of respective SPCB/PCC and CPCB in a time	quality monitoring with CPCB portal once the
bound manner but not later by June 30,	same have been installed.
2016;	
SPCBs/PCC shall upload on its websites the	PPCB has already established Online Consent
consent conditions of all industrial units	Management Portal to process applications
alongwith their compliance status (updated	of the industries. However, PPCB upload on
half-yearly) with respect to prescribed	its websites the consent conditions of all
norms.	industrial units alongwith their compliance
	status (updated half-yearly) with respect to
	prescribed norms
Action plan categorized into short, medium	PPCB shall make Action Plan public and
and long term basis shall be brought into	progress of which to be reviewed in District
public domain and the progress of	level Environment Committee meetings.
implementation shall be reviewed by District	
and State level through Monitoring	
Committees	

#### **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, Jalandhar

To restore the quality of water and air in Jalandhar 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, Jalandhar

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

- 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 Jalandhar 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 cleaning of River Sutlej 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 River Sutlej & groundwater
- e) Monitoring of discharge from Industries including ETPs and CETPs
- 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

a) 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 Agriculture

The Department of Agriculture through the Directorate of Soil and Water conservation will be 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

#### vi) 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 in the catchment area of River Sutlej to make the public aware regarding water borne diseases

#### vii) Punjab Energy Development Authority

Punjab Energy Development Authority will be responsible for the installation of treatment plants for dairy waste as well as bio gas plant for dairy clusters.

#### viii) 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

#### ix) 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.

#### x) 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

#### xi) District Administration

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

#### xii) 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) Punjab Pollution Control Board

- 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) Department 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
- b) 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) 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.

#### iv) 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.

# 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.
- c) Compilation of data and submission of the same in annual report to Central Pollution Control Board within the stipulated time period.
- d) Grant and renewal, suspension or refusal of authorization.

- e) Monitoring of compliance of Rules.
- f) Action against health care facilities or common biomedical waste treatment facilities for violation of these rules.
- g) Organizing training programmes to staff of health-care facilities and common biomedical waste treatment facilities on management of bio-medical waste
- h) Hearing Appeals and give decision against order passed by the prescribed authority.
- i) 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
- 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 biomedical 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.
- Allocation of adequate funds to Government veterinary health care facilities for biomedical waste management
- g) Procurement and allocation of treatment equipment's 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 biomedical 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 equipment's 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 equipment's 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 house-holds 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

- a) Preparation of C&D Waste Management Policy and Plans.
- b) Seek detailed plans from generator of C&D waste.
- c) Chalk out stages, methodology, equipment, material involved for management of C&D waste.
- d) Place containers for C&D waste at appropriate places and remove at regular intervals.
- e) Transportation of collected waste to appropriate sites for processing and disposal.
- f) Appropriate incentives to generator for salvaging, processing and or recycling.
- g) Sanction of C&D waste management plan of the generators after approval of building plans.
- h) Tracking generation of C&D waste and establish a data base and update once in a year.
- i) Management of C&D waste including processing facility and promote recycled products.
- j) Undertake IEC activities.
- 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.
- I) 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

- d) 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
- e) Grant of Authorization to manufacturers, dismantlers, recyclers and refurbishers
- f) 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.
- g) Conduct random inspection of dismantler or recycler or refurbishers
- h) 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.
- i) Maintaining online information regarding authorization granted
- j) PPCB shall upload the information regarding authorization granted to manufacturers, dismantlers, recyclers and refurbishers for placing the same in the public domain.
- k) Submission of Annual Report to the CPCB
- I) 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.
- m) Organizing awareness camps for the bulk consumers
- n) 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 Department of Science, Technology and Environment is the nodal department for coordinating and monitoring activities of all the 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:

- a) Public Awareness
- b) Effective Enforcement
- c) Creation of new Infrastructure
- d) Maintenance related activities
- e) Policy Advocacy
- f) Technology Support

- 2.7.2 Monitoring of various activities of the Action Plan will be key to achieve the outcomes envisaged under the Action Plan. Different kind of monitoring systems will be required for different categories of activities:
  - a) 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.
  - b) Design of effective online system to capture various enforcement activities by various agencies to monitor them, evaluate them and provide feedback and enforce accountability.
  - c) Design of an effective monitoring system to monitor the progress of various infrastructure related activities as envisaged under the plan.
  - d) Design of an effective monitoring system for policy advocacy within the Government for expediting formulation of various policies.
  - e) 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 may 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 Govts./ Union Territories/ SPCBS/PCCS may 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 may 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 may be overseen by the Chief Secretary of the concerned state. The same may 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, 4974 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 awbient 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 may be conducted to ascertain contribution from sources including industries for planning actions.
- e) The progress of implementation of action points may 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 SPCBS/PC may 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 may 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 may 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 may 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 may recommend penal action against the authorities responsible for implementation of action plan for environmental management of CPAS/SPAS.
- CPCB may 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 may 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 may 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 may be explicitly mentioned in the Terms of Reference/Environmental Clearance letter and to be ensured by the member secretary concerned.
  - c) SPCBs/PCCS may 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	Stipulation of conditions such as:	
	<ul> <li>i. Stack emission levels should be stringent than the existing standards in terms of the identified critical pollutants.</li> <li>ii. CEMS may be installed in all large/medium red category industries (air polluting) and connected to SPCB and CPCB server.</li> </ul>	
	<ul> <li>iii. Effective fugitive emission control measures should be imposed in the process, transportation, packing etc.</li> <li>iv. Transportation of materials by rail/conveyor belt, wherever feasible</li> </ul>	
	<ul> <li>v. Encourage use of cleaner fuels (pet coke/ furnace oil/LSHS may be avoided).</li> </ul>	
	<ul> <li>vi. Best Available Technology may be used. For example, usage of EAF/SAF/IF in place of Cupola furnace. Usage of Supercritical technology in place of sub-critical technology.</li> <li>vii lacrosco of groop bolt cover by 40% of the total land area</li> </ul>	
	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.	
	<ul> <li>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.</li> </ul>	
Water	Stipulation of conditions such as:	
	<ul> <li>i. Reuse/recycle of treated wastewater, wherever feasible.</li> <li>ii. Continuous monitoring of effluent quality/quantity in large and medium Red Category Industry (Water Polluting).</li> </ul>	
	iii. A detailed water harvesting plan may be submitted by the project proponent.	
	iv. Zero liquid discharge wherever techno-economically feasible.	
	v. In case, domestic waste water generation is more than 10 KLD, the industry may install STP.	
Land	Stipulation of conditions such as:	
	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 was				
		The waste generated should be preferably utilized in co-			
		processing.			
Other Conditions	i.	Monitoring of compliance of EC conditions may be			
(Additional)		submitted with third party audit every year.			
	ii.	The % of the CER may 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 Jalandhar

#### 3.1 Sources of Water Pollution

Jalandhar City is an industrial town and has mainly two types of effluent i.e. domestic effluent and industrial effluent. Domestic and industrial effluents of the city are discharged into sewerage system laid by Municipal Corporation, Jalandhar. In addition, there are three dairy complexes located at Village Jamsher, Village Nahal and Village Bulandpur. Effluent generated from dairy complex at Village Jamsher is discharged into Garha Drain directly. Effluent generated from dairy Complexes at Village Nahal and Village Bulandpur is discharged into Kala Sanghian Drain. Effluent generated from Jalandhar City is majorly discharged into Kala Sanghian Drain and Garha Drain. Kala Sanghian Drain and Garha Drain meets East Bein at Village Dhadha Lehna & Village Kangniwal respectively, which further meets River Sutlej at Village Gidder Pindi.

#### **KALA SANGHIAN DRAIN**

Kala Sanghian Drain, a natural drain, originates from Village Raowali traverses across Jalandhar city (45.58 km) from North to South finally meets East Bein at Village Dhadha Lehna.

Kala Sanghian drain carries effluent of about 75-80 MLD when flows through Jalandhar City. Effluent of habitation, few villages, Focal Point, Dry Leather Complex, Leather Complex, STP and some dairies contributes to this discharge. Details of untreated and treated sources of disposal of effluent in Kala Singhian drain, is as under:

#### A. Source of untreated discharge of effluent in Kala Sanghian Drain

- I. Domestic effluent of Village Raowali
- II. Domestic effluent of village Bulandpur
- III. Dairy waste of dairies located at village Bulandpur
- IV. Domestic effluent of Focal Point
- V. Domestic effluent of residential houses constructed on the embankment of Kala Sanghian Drain
- VI. Domestic effluent of dry leather complex
- VII. Dairy waste of dairies located at village Nahal
- VIII. Domestic effluent of Village Athola
- IX. Domestic effluent of Village Chamiara

#### B. Source of treated discharge of effluent in Kala Sanghian Drain

- I. Outlet of STP Peer Dad (50 MLD), Jalandhar
- II. Outlet of CETP Leather Complex

#### GARHA DRAIN

Garha Drain, a natural drain, originating near Urban Estate, Jalandhar traverses across Jalandhar city (6-7 km) from North to South finally meeting the East Bein at Village Kangniwal.

Garha Drain carries effluent of about 225-230 MLD when flows through Jalandhar City. Effluent of habitation, STPs and dairy complex Jamsher contribute to this discharge. Details of individual point whose disposal is in Garha Drain, is as under:

#### A. Source of untreated discharge of effluent in Garha Drain

- I. Domestic effluent of Village Subhana
- II. Domestic effluent of village Pholriwal
- III. Dairy waste of dairies located at village Jamsher Khas
- IV. Domestic effluent of village Jamsher Khas

#### B. Source of treated discharge of effluent in Garha Drain

- I. Outlet of STP Pholriwal (100 MLD, 25 MLD (2 no.)), Jalandhar
- II. Outlet of STPs installed in Jalandhar Cantt by MES Authorities of capacity 3 MLD (2 no.), 0.4 MLD and 1.5 MLD (2 no.)
- III. Outlet of STP Bambiawal (10 MLD) Jalandhar

#### 3.1.1 Industrial Water pollution

Presently, about 6.5 MLD of wastewater from the industries is being discharged within Jalandhar city into sewer/drain, out of which about 5 MLD effluent is generated by Leather Tanneries and same is being treated by Common Effluent Treatment Plant at Leather Complex and balance 1.5 MLD is being discharged from some other industries. The category wise detail of the industries established in Jalandhar City is as under:-

S.No.	Category	No. of Industries*
1	Leather Tanneries	61
2	Electroplating	254
3	Dyeing and Printing	5
4	Milk Plant	2
5	Used Oil refining unit	3

\* The nos. of units within MC limits and in its immediate vicinity connected to an industrial cluster

#### a) Leather Tanneries:-

There are 61 wet process units in leather complex for which there are 2 CETPs installed, one of capacity 1.5 MLD (Module-I) & 2<sup>nd</sup> of capacity 5 MLD (Module-II). Only CETP of capacity 5 MLD (Module-II) is operated by Punjab Effluent Treatment Society. The CETP of capacity 1.5 MLD (Module-I) is not in operation. Now, the PETS has proposed to upgrade its existing CETP of capacity 05 MLD.

#### b) Electroplating Industries

There are 254 electroplating industries at Jalandhar City. All these electroplating units are getting its trade effluent lifted to CETP operator at Ludhiana i.e M/s JBR Technologies Pvt Ltd. CETP operator collect, transport and treat trade effluent of electroplating industries in the Common Effluent Treatment Plant installed at Focal Point, Phase-8, Ludhiana. However, there is a proposal to setup a Common Effluent Treatment Plant of capacity 150 KLD at plot no. E-41 to E-46, Focal Point Extension Jalandhar for handling the waste water of these units. A Special Purpose Vehicle (SPV) under the name of Jalandhar Effluent Treatment Society (JETS) has been constituted, who has obtained Environmental Clearance on 24.04.2017 under EIA notification. The timelines for the same are yet to be provided by SPV, JETS.

#### c) Dyeing and Printing

There are five dyeing and printing units in Jalandhar City. All of them are located adjoining to each other and are sister concerns. These units have installed a Common Effluent Treatment Plant for treating their trade effluent. Treated trade effluent is discharged into sewer of the Focal Point.

#### d) Milk Plant

There are two Milk Plant units in Jalandhar City. These units have individually installed captive Effluent Treatment Plant for treat its trade effluent. Treated trade effluent from these milk plants is discharged into sewer.

#### e) Used Oil Refining Units

There are three waste oil refining units in Jalandhar City. These units do not generate trade effluent and domestic effluent generated from their premises is discharged into sewer.

#### 3.1.2 Domestic Water pollution

It is estimated that about 330 MLD of sewage/ sullage is being generated within the limits of Municipal Corporation, Jalandhar. For treatment of domestic effluent, 6 nos. STPs are installed by Local Bodies Department and 05 nos. STPs are installed by MES Authorities. The details of STPs installed in Jalandhar City incorporating location, capacity, technology and disposal is as under: -

Sr.	STP Location	STP	Technology	Disposal (land, river sea or
NO		installed capacity	(UASB/ASP/OP/SB R/MBR/FAB Etc.)	any other)
1.	Pholriwal	100 MLD	UASB	Into Garha Drain, Leading to East bein, ultimately into river Satluj
2.	Pholriwal	25 MLD	SBR	Into Garha Drain, Leading to East bein, ultimately into river Satluj
3.	Pholriwal	25 MLD	SBR	Into Garha Drain, Leading to East bein, ultimately into river Satluj
4.	BastiPir Dad, Jalandhar	50 MLD	SBR	Into Kala Sanghia Drain, Leading to East bein, ultimately into river Satluj
5.	Bambiawali Jalandhar	10 MLD	SBR	Into East bein, ultimately into river Satluj
6.	Jaitewali, Hoshiarpur Road, Jalandhar	25 MLD	SBR	Into Jandu Singha Drain, Leading to East bein, ultimately into river Satluj
7.	M/s Garrison Engineer (East), Jalndhar Cantt-1	3 MLD	MBBR	Into Garha Drain, Leading to East bein, ultimately into river Satluj
8.	M/s Garrison Engineer (East) Jalndhar Cantt-II	3 MLD	MBBR	Into Garha Drain, Leading to East bein, ultimately into river Satluj
9.	M/s Garrison Engineer (East) Jalndhar Cantt	0.4 MLD	MBBR	Into Garha Drain, Leading to East bein, ultimately into river Satluj
10.	M/s Garrison Engineer (West) Jalandhar Cantt-I	1.5 MLD	MBBR	Into Garha Drain, Leading to East bein, ultimately into river Satluj
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11.	M/s Garrison Engineer (West) Jalandhar Cantt-II	1.5 MLD	MBBR	Into Garha Drain, Leading to East bein, ultimately into river Satluj

Total capacity of all the STPs installed in Jalandhar City accounts to 244.4 MLD. Therefore, remaining about 80-85 MLD of domestic effluent is being discharged into Kala Sanghian and Garha Drain without any treatment.

In order to treat untreated effluent, Municipal Corporation Authorities, Jalandhar has the following proposal:

- a. Rehabilitation of existing STP of capacity 100 MLD installed at Pholriwal
- b. Installation of a new STP of capacity 50 MLD at Pholriwal
- c. Installation of a new STP of capacity 15 MLD at Peer Daad
- d. Installation of ETP of capacity 05 MLD at Dairy Complex Jamsher

Moreover, PSIEC has proposed to install a STP of capacity 05 MLD at Focal Point, Jalandhar.

The performance of all these STPs are being monitored by the Punjab Pollution Control Board on monthly basis. Latest results for the month of May 2020 are tabulated as under:-

Sr. Date of Point of sampling Values of the parameter					rameters	ers in mg/l except pH		
No	Sampling		рΗ	COD	BOD	TSS	F.Coli	
				(mg/l)	(mg/l)	(mg/l)	(MPN/100 ml)	
Prescribed standards		6.5-9.0	-	30	<100	<1000		
1	18.05.2020	Final outlet of STP, Pholriwal (100 MLD), Jalandhar	7.1	110	26	24	3800	
2	18.05.2020	Final outlet of STP,Pholriwal (25 MLD) Jalandhar operated by M/s ECO Chem	7.8	34	8	BDL	840	

3	18.05.2020	Final outlet of STP, Pholriwal (25 MLD) Jalandhar Operated by M/s Girdhari Lal Aggarwal	7.6	38	10	BDL	700
4	14.05.2020	Final outlet of STP, Basti Pir Dad, (50 MLD) Jalandhar	7.8	212	74	65	4100
5	18.05.2020	Final outlet of STP, Bambiawali (10 MLD) Jalandhar	7.8	60	12	20	1000
6	14.05.2020	Final outlet of STP, Jaitewali, Hoshiarpur Road, (25 MLD) Jalandhar	7.8	38	8	BDL	840
7	18.05.2020	M/s Garrison Engineer East Jalndhar Cantt-I 3 MLD	7.2	184	45	24	2500
8	18.05.2020	M/s Garrison Engineer East Jalndhar Cantt-II 3 MLD	7.2	156	36	34	940
9	18.05.2020	M/s Garrison Engineer East Jalndhar Cantt 0.4 MLD	7.1	168	40	18	3300
10	18.05.2020	M/s Garrison Engineer West Jalandhar Cantt-I 1.5 MLD	7.0	64	18	26	2000
11	18.05.2020	M/s Garrison Engineer West Jalandhar Cantt-II 1.5 MLD	7.1	98	22	28	2200

## Key takeaways

- A. The following STPs generally achieve prescribed limits of the Board for discharge of effluent:
  - I. STP Pholriwal (25 MLD) Jalandhar Operated by M/s Girdhari Lal Aggarwal
  - II. STP, Bambiawali (10 MLD) Jalandhar
  - III. STP, Jaitewali, Hoshiarpur Road, (25 MLD) Jalandhar
  - IV. STP, Pholriwal (25 MLD) Jalandhar operated by M/s ECO Chem

- B. The following STPs generally don't achieve prescribed limits of the Board for discharge of effluent:
  - I. STP Pholriwal (100 MLD), Jalandhar
  - II. STP Basti Peer Daad (50 MLD)
  - III. STP Garrison Engineer East Jalndhar Cantt-I (3 MLD)
  - IV. STP Garrison Engineer East Jalndhar Cantt-II (3 MLD)
  - V. STP Garrison Engineer East Jalndhar Cantt (0.4 MLD)
  - VI. STP Garrison Engineer West Jalndhar Cantt-I (1.5 MLD)
  - VII. STP Garrison Engineer West Jalndhar Cantt-II (3 MLD)

## 3.1.3 Other major sources of water pollution

Besides above, there are three dairy complexes located at Village Bulandpur, Village Nahal and Village Jamsher Dairy Complex in city. Presently untreated effluent from these dairy complexes is discharged into Kala Sanghian Drain and Garha Drain.

## 3.1.3.1 Scattered dairies at Village Bulandpur, Jalandhar

Approx. 10 no. scattered dairies exists at Village Bulandpur. Untreated effluent and solid waste generated from group of dairies located at Village Bulandpur is discharged into Kala Sanghian Drain without any treatment. These dairy will be shifted to Jamsher Dairy Complex, Jalandhar from existing location.

## 3.1.3.2 Nahal Dairy Complex, Jalandhar

Approx. 30 no. dairies exist at Village Nahal Dairy Complex. Untreated trade effluent and solid waste from this dairy complex is discharged into Kala Sanghian Drain without any treatment. Hon'ble NGT Monitoring Committee under the Chairmanship of Justice Jasbir Singh, former Judge Punjab & Haryana High Court during meeting dated 29.05.2020 has directed to shift all dairy units from present location to Jamsher Dairy Complex.

## 3.1.3.3 Jamsher Dairy Complex, Jalandhar

Approx. 362 no. dairies exist at Village Jamsher Dairy Complex. Untreated trade effluent and solid waste generated from this dairy complex is discharged into Garha Drain without any treatment. Municipal Corporation Jalandhar has a proposal to install one CETP of 5 MLD capacity, to treat effluents from diary complex located at Village Jamsher, Jalandhar. As per clean river Sutlej Action Plan, the target date for commissioning of the project is 30.08.2022.

#### 3.1.4 Ground Water Pollution

Under the National Water Quality Monitoring Programme (NWMP), the Punjab Pollution Control Board is monitoring the quality of ground water in the pre-monsoon & Post monsoon seasons of the years. During the year 2017, 2018 & 2019 the ground water samples were collected and the analysis reports are annexed as **Annexure-3-A**, **3-B**, **3-C**, **3-D**, **3-E & 3-F**.

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. A perusal of ground water analysis report reveals that the concentration of various parameters is within the permissible limits except for concentration of Total Hardness, Iron and Nitrate in the months of April, 2017, October, 2018, levels have been found beyond the permissible limits especially in ground water samples collected from M/s Kalsi International, Plot No. 144, Leather Complex, (Opp. CETP), Jalandhar. It may be pertinent to mention that the cause for these higher levels may due to natural geographical/geological or due to untreated domestic effluent of Jalandhar City. However, in the Action Plan, there is proposal to install new STPs and rehabilitation of existing one of the STP in Jalandhar City which will adhere to issue of higher concentration of aforesaid parameters.

#### 3.1.5 Water Quality of Kala Sanghian Drain

Monitoring of the water quality of Kala Sanghian Drain for various pollutants is being carried by the Punjab Pollution Control Board from the followings six locations.

S. No.	Name of the location
1.	Puli adjoining M/s H.B Industry Unit-II, Raowali, Pathankot Jalandhar Road.
2.	Puli at Jalandhar-Maqsudan Road, adjoining DAV Play Ground.
3.	Puli at Basti Peer Dad- Leather Complex Road, adjoining Julka Rubber Industry.
4.	Puli at Athaula Gazipur Road near Karyana Store.
5.	Puli at Kapurthala –Kala Sangha Road near Gurudwara Tahli Sahib.
6.	Puli at Billi-Khanpur Road.

The levels of various pollutants since January, 2020 is as under:

## 3.1.5.1 Nickel

Sr.	Point of Sample Collection	Nickel mg	g/l			
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020
1	Puli adjoining M/s H.B Industry Unit-II, Raowali, Pathankot Jalandhar Road.	BDL	BDL	BDL	BDL	BDL
2	Puli at Jalandhar-Maqsudan Road, adjoining DAV Play Ground.	BDL	0.21	BDL	-	BDL
3	Puli at Basti Peer Dad- Leather Complex Road, adjoining Julka Rubber Industry.	BDL	0.23	BDL	-	BDL
4	Puli at Athaula Gazipur Road near Karyana Store.	0.15	BDL	0.11	BDL	BDL
5	Puli at Kapurthala –Kala Sangha Road near Gurudwara Tahli Sahib.	BDL	0.15	BDL	-	BDL
6	Puli at Billi-Khanpur Road.	0.12	0.14	0.13	BDL	BDL



#### 3.1.5.2 Manganese

Sr.	Point of Sample Collection	Mn mg/l					
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020	
1	Puli adjoining M/s H.B Industry Unit-II, Raowali, Pathankot Jalandhar Road.	BDL	BDL	0.1	BDL	-	
2	Puli at Jalandhar-Maqsudan Road, adjoining DAV Play Ground.	BDL	0.1	BDL	-	-	
3	Puli at Basti Peer Dad- Leather Complex Road, adjoining Julka Rubber Industry.	0.14	0.12	0.1	-	-	
4	Puli at Athaula Gazipur Road near Karyana Store.	0.2	0.15	0.12	BDL	-	
5	Puli at Kapurthala –Kala Sangha Road near Gurudwara Tahli Sahib.	0.22	0.17	0.1	-	-	
6	Puli at Billi-Khanpur Road.	BDL	BDL	0.11	BDL	-	



## 3.1.5.3 COD

Sr.	Point of Sample Collection	COD mg/				
No.		Jan, 2020	Feb <i>,</i> 2020	March, 2020	April, 2020	May, 2020
1	Puli adjoining M/s H.B Industry Unit-II, Raowali, Pathankot Jalandhar Road.	92	96	80	92	88
2	Puli at Jalandhar-Maqsudan Road, adjoining DAV Play Ground.	200	184	172	-	180
3	Puli at Basti Peer Dad- Leather Complex Road, adjoining Julka Rubber Industry.	348	246	242	-	256
4	Puli at Athaula Gazipur Road near Karyana Store.	304	320	336	296	344
5	Puli at Kapurthala –Kala Sangha Road near Gurudwara Tahli Sahib.	252	264	296	-	300
6	Puli at Billi-Khanpur Road.	264	280	256	272	312



## 3.1.5.4 BOD

Sr.	Point of Sample Collection	BOD mg/				
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020
1	Puli adjoining M/s H.B Industry Unit-II, Raowali, Pathankot Jalandhar Road.	30	32	27	30	28
2	Puli at Jalandhar-Maqsudan Road, adjoining DAV Play Ground.	64	59	58	-	62
3	Puli at Basti Peer Dad- Leather Complex Road, adjoining Julka Rubber Industry.	118	72	81	-	85
4	Puli at Athaula Gazipur Road near Karyana Store.	104	112	115	105	122
5	Puli at Kapurthala –Kala Sangha Road near Gurudwara Tahli Sahib.	84	80	103	-	103
6	Puli at Billi-Khanpur Road.	90	96	90	94	109



3.	1.5	.5	Iron

Sr. Point of Sample Collection Iron mg/I						
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020
1	Puli adjoining M/s H.B Industry Unit-II, Raowali, Pathankot Jalandhar Road.	1.22	1.22	0.98	0.47	1.88
2	Puli at Jalandhar- Maqsudan Road, adjoining DAV Play Ground.	2.13	2.13	1.69	-	3.47
3	Puli at Basti Peer Dad- Leather Complex Road, adjoining Julka Rubber Industry.	2.9	2.9	1.58	-	2.79
4	Puli at Athaula Gazipur Road near Karyana Store.	3.05	3.05	2.61	1.16	3.31
5	Puli at Kapurthala –Kala Sangha Road near Gurudwara Tahli Sahib.	1.69	1.69	1.42	-	3.16
6	Puli at Billi-Khanpur Road.	2.66	2.66	2.26	1.4	3.98



- Puli adjoining M/s H.B Industry Unit-II, Raowali, Pathankot
- Jalandhar Road. Puli at Jalandhar-Maqsudan Road, adjoining DAV Play
- Ground. Puli at Basti Peer Dad- Leather Complex Road, adjoining Julka
- Rubber Industry. Puli at Athaula Gazipur Road near Karyana Store.
- Puli at Kapurthala –Kala Sangha Road near Gurudwara Tahli Sabib
- Sahib. ■ Puli at Billi-Khanpur Road.

3.1	.5.6	Zinc

Sr.	Point of Sample Collection	Zinc mg/l				
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020
1	Puli adjoining M/s H.B Industry Unit-II, Raowali, Pathankot Jalandhar Road.	0.3	0.3	0.25	0.15	BDL
2	Puli at Jalandhar-Maqsudan Road, adjoining DAV Play Ground.	0.67	0.67	0.5	-	BDL
3	Puli at Basti Peer Dad- Leather Complex Road, adjoining Julka Rubber Industry.	0.88	0.88	0.68	-	0.4
4	Puli at Athaula Gazipur Road near Karyana Store.	1.04	1.04	1.15	0.4	0.45
5	Puli at Kapurthala –Kala Sangha Road near Gurudwara Tahli Sahib.	0.77	0.77	0.54	-	0.43
6	Puli at Billi-Khanpur Road.	1.15	1.15	0.99	0.62	0.39



- Puli adjoining M/s H.B Industry Unit-II, Raowali, Pathankot Jalandhar Road.
- Puli at Jalandhar-Maqsudan Road, adjoining DAV Play Ground.
- Puli at Basti Peer Dad- Leather Complex Road, adjoining Julka Rubber Industry.
- Puli at Athaula Gazipur Road near Karyana Store.
- Puli at Kapurthala –Kala Sangha Road near Gurudwara Tahli Sahib.
- Puli at Billi-Khanpur Road.

## 3.1.5.7 Total Chromium

Sr.	Point of Sample Collection	Total Chro	omium mg	g/l		
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020
1	Puli adjoining M/s H.B Industry Unit-II, Raowali, Pathankot Jalandhar Road.	BDL	BDL	BDL	BDL	BDL
2	Puli at Jalandhar-Maqsudan Road, adjoining DAV Play Ground.	BDL	0.96	0.62	-	BDL
3	Puli at Basti Peer Dad- Leather Complex Road, adjoining Julka Rubber Industry.	0.11	BDL	BDL	-	BDL
4	Puli at Athaula Gazipur Road near Karyana Store.	0.24	BDL	BDL	BDL	BDL
5	Puli at Kapurthala –Kala Sangha Road near Gurudwara Tahli Sahib.	0.14	BDL	BDL	-	BDL
6	Puli at Billi-Khanpur Road.	BDL	BDL	BDL	BDL	BDL



**Note**: Concentration of Arsenic, Cadmium, Lead and Copper is Below Detectable Limit (BDL) at all the sample collection points in Kala Sanghian Drain

## 3.1.6 Water Quality of Garha Drain

Monitoring of the water quality of Garha Drain for various pollutants is being carried by the Punjab Pollution Control Board at Point Source Garha Drain leading to East Bein. The levels of various pollutants since January, 2020 is as under:

### 3.1.6.1 COD

Sr.	Point of Sample Collection	COD mg/l				
No.		Jan,	Feb,	March,	April,	May,
		2020	2020	2020	2020	2020
1	Point Source Garha Drain leading to East Bein	212	292	-	232	360



## 3.1.6.2 BOD

Sr.	Point of Sample Collection	BOD mg/l				
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020
1	Point Source Garha Drain leading to East Bein	64	85	-	75	120



## 3.1.6.3 T.Coli

Sr.	Point of Sample Collection	T.Coli mg/l					
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020	
1	Point Source Garha Drain leading to East Bein	84000	110000	-	110000	170000	



## 3.1.6.4 Sodium

Sr.	Point of Sample Collection	Na mg/l				
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020
1	Point Source Garha Drain leading to East Bein	98	128	-	128	86



## 3.1.6.5 Chloride

Sr.	Point of Sample Collection	Chloride mg/l				
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020
1	Point Source Garha Drain leading to East Bein	90	112	-	82	100



Note:- Samples were not collected in the Month of March 2020 due to Lockdown.

## 3.1.7 Water Quality of East Bein

Monitoring of the water quality of East Bein for various pollutants is being carried by the Board from the followings four locations.

S. No.	Name of the location
1.	River Sutlej at Phagwara U/s Chaheru Bridge
2.	River Sutlej at Phagwara D/s Kanganiwal Bridge
3.	River Sutlej at Jalandhar U/s Peeru Shah Ki Dargah
4.	River Sutlej at Jalandhar D/s Malsian bridge

The levels of various pollutants since January, 2020 is as under:

## 3.1.7.1 COD

Sr.	Point of Sample Collection	COD mg/l					
No.		Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020	
1	River Sutlej at Phagwara U/s Chaheru Bridge	48	56	-	68	30	
2	River Sutlej at Phagwara D/s Kanganiwal Bridge	60	72	-	68	40	
3	River Sutlej at Jalandhar U/s Peeru Shah Ki Dargah	176	220	-	188	228	
4	River Sutlej at Jalandhar D/s Malsian bridge	208	240	-	232	200	



## 3.1.7.2 BOD

Sr.	Point of Sample Collection	BOD mg/				
No.		Jan,	Feb,	March,	April,	May,
		2020	2020	2020	2020	2020
1	River Sutlej at Phagwara	14	16	-	15	10
	U/s Chaheru Bridg					
2	River Sutlej at Phagwara	14	18	-	15	12
	D/s Kanganiwal Bridge					
3	River Sutlej at Jalandhar U/s	50	64	-	52	68
	Peeru Shah Ki Dargah					
4	River Sutlej at Jalandhar D/s	62	70	-	75	60
	Malsian bridge					



## 3.1.7.3 T.Coli

Sr.	Point of Sample	T.Coli mg/l					
No.	Collection	Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020	
1	River Sutlej at Phagwara U/s Chaheru Bridg	2000	1700	-	26000	11000	
2	River Sutlej at Phagwara D/s Kanganiwal Bridge	17000	22000	-	26000	33000	
3	River Sutlej at Jalandhar U/s Peeru Shah Ki Dargah	28000	43000	-	41000	84000	
4	River Sutlej at Jalandhar D/s Malsian bridge	94000	94000	-	110000	94000	



## 3.1.7.4 Sodium

Sr.	Point of Sample	Na mg/l	ng/l					
No.	Conection	Jan, 2020	Feb, 2020	March, 2020	April, 2020	May, 2020		
1	River Sutlej at Phagwara U/s Chaheru Bridge	103	125	-	92	73		
2	River Sutlej at Phagwara D/s Kanganiwal Bridge	98	204	-	92	95		
3	River Sutlej at Jalandhar U/s Peeru Shah Ki Dargah	124	127	-	116	67		
4	River Sutlej at Jalandhar D/s Malsian bridge	122	138	-	128	152		



## 3.1.7.5 Chloride

Sr.	Point of Sample Collection		Chloride mg/l					
No.		Jan, 2020	Feb, 2020	March, 2020	April <i>,</i> 2020	May, 2020		
1	River Sutlej at Phagwara U/s Chaheru Bridg	36	41	-	60	47		
2	River Sutlej at Phagwara D/s Kanganiwal Bridge	58	52	-	60	58		
3	River Sutlej at Jalandhar U/s Peeru Shah Ki Dargah	84	102	-	86	70		
4	River Sutlej at Jalandhar D/s Malsian bridge	76	88	-	82	92		



Note:- Samples were not collected in the Month of March 2020 due to Lockdown.

## 3.1.8 Water quality of River Sutlej

The East Bein meets River Sutlej at Village GidderPindi, which is located the downstream of Jalandhar City. The water quality of the River Sutlej is being monitored by Punjab Pollution Control Board regularly at the following points:

- 1. Satluj at Boat Bridge, Dharamkot Nakodar Road)
- 2. Satluj at D/s East Bein
- 3. Satluj at Harike

The average values of the various parameters for the last 2 years are as under:-

#### 3.1.8.1 T. Coli

Name of Location	Average 2018	Average 2019
	(MPN/100ml)	(MPN/100ml)
Satluj at Boat Bridge, Dharamkot Nakodar Road	107800	57500
Satluj at D/s East Bein	24742	16488
Satluj at Harike	14167	5438



From above, it is clear that there is a decline in the level of T. Coli.

#### 3.1.8.2 pH

Name of Location	Average 2018	Average 2019
Satluj at Boat Bridge, Dharamkot Nakodar Road	7.5	7.4
Satluj at D/s East Bein	7.5	7.6
Satluj at Harike	7.6	7.6



From above, it is clear that pH has remained almost neutral i.e 7.

## 3.1.8.3 D.O.

Name of Location	Average 2018 (mg/l)	Average 2019 (mg/l)
Satluj at Boat Bridge, Dharamkot Nakodar Road	5.3	4.9
Satluj at D/s East Bein	5.1	5.7
Satluj at Harike	5.6	6.4



From above, it is clear that there is an increase in the level of D.O.

## 3.1.8.4 COD

Name of Location	Average 2018 (mg/l)	Average 2019 (mg/l)
Satluj at Boat Bridge, Dharamkot Nakodar Road	72	37
Satluj at D/s East Bein	50	24
Satluj at Harike	26	17



From above, it is clear that there is a decline in the level of COD.

## 3.1.8.5 BOD

Name of Location	Average 2018 (mg/l)	Average 2019 (mg/l)
Satluj at Boat Bridge, Dharamkot Nakodar Road	19	7.9
Satluj at D/s East Bein	11	3.9
Satluj at Harike	3.7	2.3



From above, it is clear that there is a decline in the level of BOD.

## 3.1.8.6 TSS

Name of Location	Average 2018 (mg/l)	Average 2019 (mg/l)
Satluj at Boat Bridge, Dharamkot Nakodar Road	38	42
Satluj at D/s East Bein	73	39
Satluj at Harike	72	34



From above, it is clear that there is a decline in the level of TSS.

As per the Designated Best Use (DBU), the classification of the water quality of the River Sutlej for the following points is as under:

S.No.	Name of Location	Classification
1	Satluj at Boat Bridge, Dharamkot Nakodar Road	D
2	Satluj at D/s East Bein	D
3	Satluj at Harike	D

#### 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, hydrocarbon, sulphur dioxide, oxides of nitrogen, VOCs and acid mist. As per inventory prepared by the Punjab Pollution Control Board, there are 227 no. of air polluting industries in Jalandhar 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 Jalandhar 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 deteriorating. The air polluting industries located in the jurisdiction of Jalandhar city are as under:

Sr. No.	Category	Number of Units *
1.	Industries with boilers	20
2.	Induction Furnaces	138
3.	Cupola/ Foundry Units	20
4.	Forging Industry	32
5.	Lead smelting Units	20
	Total	227

\*The nos. of units within MC limits and in its immediate vicinity connected to an industrial cluster.

#### a) Industries With Boilers

There are 20 industries which have installed boiler, includes dyeing units, milk plants, oil refining units and rubber units. All of these units have installed APCD as air pollution control devices in their individual units.

#### b) Induction Furnace

Iron scrap is melted in electrically heated in induction, which results into lot of emissions containing oxides of metals etc. There are 135 such units and all of them have installed APCD like bag filter house, scrubber etc. Metal contents especially iron present in the solid waste generated in the form of slag from these units, is recovered through physical processes such grinding, sieving etc. and reused back into the processes. The remaining solid waste, which is non-hazardous in nature, is disposed off onto low lying area as a filling material.

#### c) Cupola Furnace

There are 20 Cupola furnaces. All of these units have installed wet cap as air pollution control devices in their individual units as per the design of PSCST.

### d) Forging Industries

There are 32 Forging units in Jalandhar. All of these units have installed adequate stack and suction arrangements as air pollution control device.

#### e) Lead/Battery Manufacturing Units

There are 20 Lead / Battery manufacturing industries and all such units have installed adequate air pollution control devices to contain the concentration of pollutants within the standards laid down by the Board.

#### **3.2.2** Other Sources of Air Pollution

#### 3.2.2.1 Mobile sources (Majorly)

In Jalandhar city, the main mobile sources of air pollution are various motor vehicles i.e. auto rickshaw, buses, mini & large trucks, car and 2 wheelers etc. which are emitting air/vehicle emissions into the atmosphere within the city limits

#### 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

Jalandhar 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 level s 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** The Board is monitoring Ambient Air Quality of Jalandhar city and have installed 4 nos. Stations at the following locations:-

- a) Punjab Pollution Control Board Building Focal Point, Jalandhar.
- b) PWSSB Guest House Near Manbro Chowk, Jalandhar.

- c) Municipal Corporation Jalandhar building.
- d) ESI Hospital SUS Nagar, Jalandhar.

These stations have been installed under National Ambient Air Quality Scheme and the data alongwith graphical representation pertaining to each station is as below:-

**3.2.3.1** Station [Name: - **PWSSB Guest House, Near Manbro Chowk, Jalandhar** Comparative Values of RSPM, SO<sub>2</sub> &NO<sub>x</sub> μg/m<sup>3</sup> for the years 2013-2019

Year	RSPM (µg/m³)	NO <sub>2</sub> (μg/m³)	SO <sub>2</sub> (µg/m³)
2013	154	25	13
2014	135	24	13
2015	138	25	13
2016	152	22	12
2017	164	22	12
2018	156	20	11
2019	147	23	11



# 3.2.3.2 Station Name: -Punjab Pollution Control Board Office building, Near Water Tank, Focal point, Jalandhar

Comparative Values of RSPM,  $SO_2 \& NO_x \mu g/m^3$  for the years 2013-2019

Year	RSPM (µg/m³)	NO₂(μg/m³)	SO₂ (µg/m³)
2013	170	29	14
2014	149	28	14
2015	162	28	14
2016	197	30	13
2017	213	24	13
2018	203	22	12
2019	134	24	12



# 3.2.3.3 Station Name: - Municipal Corporation Building, Nehru Garden, Jalandhar Comparative Values of RSPM, $SO_2 \&NO_x \mu g/m^3$ for the years 2013-2019

Year	RSPM (µg/m³)	NO₂(μg/m³)	SO <sub>2</sub> (µg/m³)
2013	156	25	13
2014	141	25	13
2015	134	26	14
2016	108	21	11
2017	165	22	13
2018	151	20	11
2019	159	23	12



## 3.2.3.4 Station Name: - ESI Hospital, Shaheed Udham Singh Nagar, Jalandhar

Comparative Values of RSPM,  $SO_2 \& NO_x \mu g/m^3$  for the years 2013-2019

Year	RSPM (µg/m³)	NO₂(μg/m³)	SO <sub>2</sub> (μg/m³)
2013	177	28	13
2014	153	28	14
2015	166	28	14

2016	179	23	12
2017	144	22	12
2018	113	19	11
2019	100	20	10



## 3.2.3.5 Trends of Quality of Air

The Punjab Pollution Control Board has installed one no. Continuous Ambient Air Quality Monitoring Station (CAAQMS) at Jalandhar and the real time data of the same is being displayed at Circuit House Skylark Chowk Jalandhar. Annual average of the various parameters is given as under:

Year	PM10	PM2.5	SO2	NOx	AQI
	(mg/m3)	(mg /m3 )	(mg /m3)	(mg /m3 )	
2018	101	56.06	9.84	34.22	117
2019	123.8	53.73	11.18	47.02	126

#### 3.3 Sources of Land Pollution

#### 3.3.1 Municipal Solid Waste

About 400-450 MTD of Municipal Solid Waste is generated in the jurisdiction of Municipal Corporation, Jalandhar. As per the census of 2011, the population of the city is 8,62,886 Municipal Solid Waste @ 500 gm/day/capta is generated in the city. The Municipal Corporation, Jalandhar has provided a landfill site at Vill. Waryana, Kapurthala Road where municipal solid waste of the city is dumped. This landfill site is established in an area of approx. 12 Acres.

Presently, Municipal Solid Waste waste is dumped in an unscientific manner at this landfill site. 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 Jalandhar has proposed to treat its Municipal Solid Waste already dumped at Wariana dump site with bio remediation technique, which is yet to start at site.

The present status w.r.t compliance of Solid Waste Management Rules, 2016 for Jalandhar city is as under:

## i) Submission of SWM action plans by ULBs:

Name of ULB	Date of Preparation of Action Plan	Date of approval of resolution by the House	Date of approval by PMIDC
Jalandhar	03.01.2019	29.11.2019	NA

## ii) Door to Door Collection and segregation of Solid Waste

Name of ULB	Total Wards	Target Date for source segregation	Status of Door to Door (D2D) collection of waste		Status of Sourc	ce Segregation
			Nos. of Wards covered	% coverage	Nos. of Wards covered	% coverage
Jalandhar	80	30.09.2020	80	100%	65	81.2%

## iii) Sweeping of Residential, Public and Commercial areas

Name of ULB	Once / Twice a day	Night sweeping (Yes / No)
Jalandhar	Twice a day	No

Name of ULB	Required nos. of Aerobic	No. o constru	f Compost ucted	t Units	No. of units/compo individuals/c	processing ost units by others	No. of MRF built	No. of Functional MRF
	Units	With shed	Without shed	Total	Home composting (No. of households)	Other establishment (Colonies, welfare societies/hote ls/marriage palaces etc)		
Jalandhar	1200	524	329	194	4000	524	19	19

## iv) Aerobic composting units/processing units/Material Recovery Facilities (MRFs)

## v) Identification and compliance status of Bulk Waste Generators (BWGs)

Name of ULB	Total No. of Bulk Waste Generators	Compliance by BWGs (nos.)
Jalandhar	105	52

## vi) Horticulture / green waste management

Name of ULB	Places	Total No.	Target Date	On site composting being done (Nos.)
Jalandhar	Parks/Gardens/ Green Belts under ULB	450	30.09.2020	33

## vii) GPS Monitoring in case of mechanized waste collection and transportation vehicles

Name of ULB	Total No. of Mechanized vehicles	Target Date	Total No. of Mechanized vehicles with GPS
Jalandhar	70	30.09.2020	70

## viii)leanup drives for removal of legacy waste from littering/ Garbage vulnerable points/ vacant plots

Name of ULB	Leg	acy waste	Identification and elimination of Garba Vulnerable Points(GVPs)/Vacant Plots		
	Total no. of sites having legacy waste	No. of sites wher remediation ha been Done	<sup>e</sup> Total No. of GVPs <sup>s</sup> /Vacant Plots identified	No. of GVPs /Vacant Plots cleared	
Jalandhar	01	0	11	0	

#### ix) Citizen Grievance Redressal system through SWACHH App.

Name of ULB	Citizen Grievance Redressal system set up along with the Name, mobile No. email Id of Nodal Officer	No. of complaints Received as on during the month	No. of complaints resolved as on during the month
Jalandhar	Dr.Shree Krishan Sharma	70	70
	Mobile No.9872433888		

### x) Prevention of mixing of solid waste into water bodies/drains/river etc.

Name of ULB	Total no. of solid waste dumping points along water bodies/drain/rivers etc.	No. of sites where arrangements made to avoid entry of solid waste	
Jalandhar	0	0	

#### 3.3.2 Bio-Medical Waste Management

The Punjab Pollution Control Board has identified 314 health care establishments having total bed capacity of 7870 and 577 nos. of non-bedded health care establishments in Jalandhar city, which are generating about 1.4 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, 21 nos. of health care establishments have additionally installed ETP for treatment of effluent generated from their premises. Punjab Pollution Control Board insure that HCF does not mix bio-medical waste with municipal solid waste. Bio-medical waste generated under different categories is handled by Common Bio-medical Waste Treatment Facility established in District Mohali and Pathankot. 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

#### 3.3.3 Hazardous Waste Management

There are 523 hazardous waste generating industries which majorly includes leather tanneries, electroplating, induction furnaces etc. Presently, these industries are generating total hazardous waste of 2594.5 MTA. Out of which 2594.5 MTA, 2571.5 MTA is recyclable and 23 MTA is incinerable. All these industries are storing their hazardous waste temporarily in their premises. A common Treatment, Storage & Disposal Facility has been developed by M/s

Nimbuan Greenfield (Punjab) Ltd., at Vill. Nimbuan, Tehsil DeraBassi, Distt. Mohali for environmentally sound disposal of the hazardous waste, which came in operation in the month of October 2007 and its life span is about 15-years. The Common TSDF is collecting, transporting, treating & disposing hazardous waste after lifting from industrial premises of various industries to be disposed at village Nimbuan.

### **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	No. of MRFs	No. of MRF	No. of MRF	No. of MRF under construction
ULB	required	constructed	operational	
Jalandhar	15	3	0	1

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 recyclable plastic waste disposed to authorized recycler (Yes/No)	Whether non- recyclable plastic waste used in road construction / cement kiln / RDF (Yes/No)
Jalandhar	No	No	No

Monitoring of littering/open burning of plastic waste:

Name of ULB	No. of violations regarding	Action taken against violators		
	littering/open burning of	No. of challans	Amount of fine	
	plastic waste observed	issued	collected in Rs	
Jalandhar	40/05	Littering 37/Plastic	40800/3000	
		burning 01		

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

Plastic Carry Bags Violations				
Plastic bag violations observed	Qty of plastic bags confiscated	No of plastic carry bag challans issued	Plastic fine amount (Rs.)	
50	5000	35	88500	

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	26	05	21	
Brand Owner	10	1	09	Notices issued
Recycler	01	0	01	
Manufacturer	1	1	Nil	

#### 3.3.5 E-Waste

The 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 a E-waste recycling unit in Jalandhar namely M/s K.J Recyclers, Plot no. C-38 Sanjay Gandhi Nagar, Industrial Area, Jalandhar.

## 3.3.6 Construction & Demolition Waste Rules.

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

Name of ULB	Total no. of sites identified for processing of C&D Waste	Name/Description of site along with location	Notified (Yes/No)
Jalandhar	04	Village Salempur Musalmana, Birring, Basti Bawa Khel, Ladhewali	Yes

## i) Progress of allocation of Sites for Construction and Demolition Waste

## ii) Progress on Collection and Segregation of C&D Waste

Name of ULB	Whether Segregation is done or not?
Jalandhar	DPR approved under smart city project. Tender to be called.

## iii) Progress of processing/ recycling of C&D waste

Name of ULB	No. of processing / recycling facilities required	No. of processing / recycling facilities already established
Jalandhar	1	0

## iv) Levy of Penalties by ULBs on Violators of C&D Waste Rules

Name of ULB	No. of violations observed	Action taken against violators	
		No. of challans issued	Amount of fine collected (in Rs)
Jalandhar	50	43	86000

Chapter -4: Pollution Control Action Plan for CPA- Jalandhar City

- 4.1 Water Pollution Control Action Plan for CPA- Jalandhar City
- 4.1.1 Action Plan for restoration of Kala Sanghian Drain, Garha Drain, East Bein and River Sutlej
- 4.1.1.1 Measures proposed to prevent discharge of treated/untreated domestic effluent into Drains
  - i. Municipal Corporation Jalandhar has proposed to install two new STPs and Rehabilitation of one of the existing STP, in order to prevent discharge of untreated domestic effluent into drains. Details of project including timelines for various milestones to be achieved under these projects are tabulated below:

1) Name of the Project: Re-habilitation of STP located at Village Pholriwal, Jalandhar			
Brief Scope of Work		Re-habilitation of existing STP of capacity 100 MLD at Pholriwal based on UASB Technology	
Sr.No.	Stage	Start Date	Completion Date
1	Preparation of DPR	C	Done
2	Financial Closure	C	Done
3	Tendering of the work including allotment	01.12.2019	31.10.2020
4	Commencement of work	01.1	12.2020
5	Quarterly milestones during the construction stage	01.12.2020	30.11.2021
6	Completion and Commissioning of re- habilitated STP	01.12.2021	30.06.2022
2) Name Jalandł	of the Project: Installation nar based on SBR Technol	n of new STP of capacity ogy	15 MLD at Basti Peer Dad,
1	Preparation of DPR	30.06.2020	
2	Financial Closure	01.07.2020	31.07.2020
3	Tendering of the work including allotment	01.08.2020	31.12.2020
4	Commencement of work	ement of 01.03.2021	
5	Quarterly Milestones duringthe construction stage	01.03.2021	28.02.2022

6	Completion and Commissioning	01.03.2022	30.08.2022	
3) Name ( capacity	3) Name of the Project: Installation of new STP at Village Pholriwal , Jalandhar of capacity 50 MLD based on SBR Technology			
1	Preparation of DPR Done			
2	Financial Closure	Done		
3	Tendering of the work including allotment	01.12.2019	31.10.2020	
4	Commencement of work	01.12.2020		
5	Quarterly milestones during the construction stage	01.12.2020	30.11.2021	
6	Completion and commissioning	01.12.2021	30.06.2022	

ii. PSIEC Jalandhar has proposed to install a STP of capacity 05 MLD at Focal Point to treat effluent generated from this industrial cluster. Details of timelines for various milestones to be achieved under this project is tabulated below:

1) Name of the Project: STP for Focal Point, Jalandhar				
В	rief Scope of Work	Installation of STP of capacity 05 MLD		
Sr.No	Stage	Start Date	Completion Date	
1	Preparation of DPR	Done		
2	Financial Closure		Done	
3	Tendering of the work including allotment	01.06.2020	31.07.2020	
4	Commencement of work	01.08.2020		
5	Quarterly milestones during the construction stage	01.08.2020	01.07.2021	
6	Completion and commissioning	01.07.2021	30.09.2021	

**iii.** Department of Rural Development and Panchayat will divert all outlets of the villages which are discharging their untreated/treated effluent into Kala Sanghian Drain/Garha Drain, by providing stabilization pond in the villages and treated effluent to be re-used for irrigation purpose.

#### 4.1.1.2 Measures proposed to prevent discharge of untreated Dairy Waste/Industrial Effluent into drains

There are three dairy complexes in Jalandhar City which are located at Village Bulandpur, Village Nahal and Village Jamsher Dairy Complex. Presently the untreated effluent from these dairy complexes are discharged into Kala Sanghian Drain and Garha Drain. Dairies in Village Bulandpur and Village Nahal will be shifted to Jamsher Dairy Complex. Municipal Corporation Jalandhar has proposed to setup a common ETP of capacity 05 MLD at Jamsher to treat dairy waste. The timeline for various milestones to be achieved under this project is tabulated below:

Sr.No.	Project Milestone	Date of Start	Date of Completion
1	Preparation of DPR		
2	Financial Closure	01.07.2020	31.07.2020
3	Tendering of the work including allotment	01.08.2020	31.12.2020
4	Commencement of work	01.03.2021	
5	Quarterly Milestones during the construction stage	01.03.2021	28.02.2022
6	Completion and Commissioning	01.03.2022	30.08.2022

Punjab Effluent Treatment Society has proposed up-gradation of existing CETP of capacity 5 MLD installed at Leather Complex Jalandhar. The timeline for various milestones to be achieved under this project is tabulated below:

Name of the Project: Punjab Effluent Treatment Society for Tanneries, Leather Complex, Jalandhar- Upgradation/modification of 5 MLD CETP of Tanneries				
Brief Scope of Work		Scope : Upgradation/modification of 5 MLD CETP		
Sr.No	Stage	Start Date	Start Date	
1.	Preparation of DPR	Done		
2.	Financial Closure	Done		
3.	Tendering of the work including allotment	26.06.2020	31.07.2020	
4.	Commencement of work			
5.	Quarterly milestones	01.08.2020	31.03.2021	
6.	Completion and commissioning	31.03.2021		
### 4.2 Air Pollution Control Action Plan for CPA-Jalandhar City

Action Plan for Clean Air, Jalandhar consists of subsets of plans to control air pollution from various sources as listed below-

### 4.2.1 Vehicular Emissions

Transport sector is one of the significant contributors to air pollution in Jalandhar due to movement of heavy goods vehicles carrying raw materials and products of the industries located in and around the city. At present about 10 lacs vehicles (heavy transport vehicles, LMVs, cars & jeeps, two wheelers and three wheelers) are plying on the roads of Jalandhar. National Highway NH-1 passes through Jalandhar, which is connecting tourist destination like Amritsar, Pathankot, Kapurthala, Hoshiarpur and other industrial hubs like Ludhiana. Activities to be performed by various government departments to control vehicular pollution alongwith time lines are tabulated as per **Annexure-4A** 

### 4.2.2 Road Dust

The particles of dust that deposit from the atmosphere and accumulate along road sides are called road dust particles. Two main sources of road dust are deposition of previously suspended particles (atmospheric aerosols) and displaced soil. Some of the factors contributing to road dust are:

- (i) Emissions from the vehicular traffic
- (ii) Construction and demolition activities, corrosion of metals structures etc.
- (iii) Presence of potholes on the road
- (iv) Absence of metaled roads / stabilized roads / un-stabilized movement area within industries
- Presence of un-stabilized berms along the roads (vi) Movement of overloaded transport vehicles

Activities to be performed by various government departments to control road dust alongwith time lines are tabulated as per **Annexure-4B** 

## 4.2.3 Burning of Bio-mass & Garbage

There are only small patches of agricultural land within the Jalandhar city, however, the city is surrounded by agricultural area and a lot of biomass is generated during post harvesting paddy and wheat seasons. During wheat season biomass burning is lesser than paddy season as the farmers use the wheat crop residue as cattle fodder. The effect of biomass burning in the paddy season is augmented due to the cold climate conditions.

At present, Municipal solid waste generation of the city is estimated as 400-450 TPD, which is being dumped unscientifically in the present dumping site at Wariana, Kapurthala road, Jalandhar. The garbage burning increases during winter season as the general public tend to burn the waste for heating purposes. Activities to be performed by various government departments to control burning of bio-mass & garbage alongwith time lines are tabulated as per **Annexure-4C** 

### 4.2.4 Industrial Emissions

The main stationary sources of air pollution are the industrial units, which are emitting particulate matter, sulphur di-oxide and oxides of nitrogen etc. The electric fired induction furnaces, coal fired cupola furnaces, lead smelting units & boilers are emitting the aforesaid pollutants, besides the process / fugitive emissions. Activities to be performed by various government departments to control industrial emissions alongwith time lines are tabulated as per **Annexure-4D** 

### 4.2.5 Construction and Demolition Activities

Jalandhar is a big city having population about 8.62 lacs. The residential colonies & commercial complexes are being setup in the city. Further, small construction activities are also being carried out by the individual house holders / industrial units / commercial units and paving of streets by the MC on routine basis. Activities to be performed by various government departments to control industrial emissions alongwith time lines are tabulated as per **Annexure-4E** 

### 4.2.6 Other Sources

Other than above mentioned sources, episodic incidents like Holi, Dushera, Diwali, Gurupurab, New Year etc. are celebrated by bursting crackers, spraying colours etc. which also contribute to the ambient air quality. Presently, Source Apportionment Study of Jalandhar is being carried out by IIT, Delhi. Preventive measures, as suggested by IIT Delhi will be part of Action Plan for Clean Air. Activities to be performed by various government departments to control emissions from other miscellaneous sources alongwith time lines are tabulated as per **Annexure-4F**.

Punjab Pollution Control Board shall carry out training and capacity building programmes as per timeline prescribed in **Annexure-4G** 

### 4.3 Solid Waste Management Action Plan for CPA-Jalandhar City

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

### i) Source Segregation of Waste

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

### iii) Tracking of Collection and Transportation Vehicles

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

### iv) Sweeping of Public Areas

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

### v) Demarcation of Space for Waste Processing

Municipal Corporation, Jalandhar 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, Jalandhar 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, Jalandhar 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 check-up, etc.

### ix) Treatment of Legacy Waste

Municipal Corporation, Jalandhar 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 intro water bodies/ drains/ rivers etc.
- xii) Awareness mechanism for behaviour change.
- xiii) Implementation of Bio-methaniation plan at Wariana Dump Site

## 4.3.2 Action Plan for regular management of Diary Waste (Animal Dung):-

i) Proposal to Installation of Bio-Gas Plant at Jamsher Dairy Complex:-

In Jalandhar, the dairy complex at Jamsher caters 362 dairies, with approximate cattle count of 18150. As per the Action Plan for clean air and water, there is a proposal for setting up of 1 MW capacity/ equivalent to 12000 cum Biogas per day – Biogas based power generation / Bio-CNG plant at Jamsher dairy Complex. The project will be setup in an area of 2.25 acre and will be capable to handle cattle dung, thus eliminating the process of animal dung falling into Garha Drain. This solves the issue of non-scientific disposal of animal excreta and fulfils the guidelines set up by National Green Tribunal. PEDA being the Nodal Agency, has been entrusted with the responsibility of managing and implementing the project. With the due procedure followed, PEDA had called for tenders, and then finalising Ms Pharose Remedies Ltd for the project. A Land Lease Agreement has been signed between the agency i.e Ms Pharose Remedies Ltd) and Municipal Corporation Jalandhar. The lease has been done for 23 years (3 Years construction period + 20-year commissioning period). The project is scheduled for commissioning within 720 days from the time of Implementation Agreement as per project implementation plan. The process of preparation of DPR is under process and it will be completed shortly. The project will lead to significant decrease in pollution levels and the waste will be used and recycled to green energy. Details of project including timelines for various milestones to be achieved under these projects are tabulated below

Sr.No.	Project Milestone	Date of Start	Date of Completion
1	Preparation of DPR	D	one
2	Financial Closure	D	one
3	Tendering of the work including allotment	D	one
4	Commencement of work	01.04	4.2021
5	Quarterly Milestones during the construction stage	01.04.2021	01.08.2023
6	Completion and Commissioning	01.08.2023	31.11.2023

## 4.4 Plastic Waste Management Action Plan for CPA- Jalandhar City

### i) Setting up of Material Recovery Facilities

Adequate number of Material Recovery Facilities (MRFs) shall be established by Municipal Corporation, Jalandhar 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, Jalandhar 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, Jalandhar 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, Jalandhar 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 30<sup>th</sup> 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 CPA- Jalandhar City

Punjab Pollution Control Board (PPCB) has devised a detailed plan for managing bio-medical waste. About 1.4 tons per day of bio-medical waste is generated in Jalandhar city, which is collected, transported, treated and disposed through Common Bio-Medical Waste Treatment Facilities (CBWTF) located at Mohali and Pathankot.

## 4.5.1 Following measures will be undertaken to meet the challenges of pollution due to biomedical 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 of CBWTFs in Jalandhar 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, 21 nos. of health care establishments have additionally installed ETP for treatment of effluent generated from their premises. Punjab Pollution Control Board insure that HCF does not mix bio-medical waste with municipal solid waste. Bio-medical waste generated under different categories is handled by Common Bio-medical Waste Treatment Facility established in District Mohali and Pathankot. 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

The regular 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.

## 4.5.5 Ensuring effective operations of the CBWTFs

For ensuring effective operations of the CBWTF, PPCB will insure that all the collection vehicles of the CBWTF are installed with Bar-code Based Software system and GPS system to track the collection of bio-medical waste and to track the movement of the vehicles. The stack of the Incinerator to be equipped with Online Continuous Emission Monitoring System (OCEMS) to monitor the concentration of pollutants in the emissions online. Further, CCTV cameras to be installed in the processing areas of the CBWTF which are connected with PPCB.

## 4.6 Construction & Demolition Waste Management Action Plan for CPA- Jalandhar City

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

The Municipal Corporation, Jalandhar has already identified and notified 4 no. sites for setting up of storage, processing and recycling of C & D waste.

## ii) Monitoring of awareness

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

#### v) Monitoring of Penalties by Municipal Corporation, Jalandhar

The Municipal Corporation, Jalandhar 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, Jalandhar 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, Jalandhar 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, Jalandhar shall be done by PPCB through its Regional Offices on quarterly basis.

### 4.7 Hazardous Waste Management Action Plan for CPA- Jalandhar City

There are 523 hazardous waste generating industries which includes leather tanneries, electroplating, induction furnaces etc. Presently, these industries are generating total hazardous waste of 2594.5 MTA. Out of which 2594.5 MTA, 2571.5 MTA is recyclable and 23 MTA is incinerable. All these industries are storing their hazardous waste temporarily in their premises. A common Treatment, Storage & Disposal Facility has been developed by M/s Nimbuan Greenfield (Punjab) Ltd., at Vill. Nimbuan, Tehsil DeraBassi, Distt. Mohali for environmentally sound disposal of the hazardous waste, which came in operation in the month of October 2007 and its life span is about 15-years. The Common TSDF is collecting, transporting, treating & disposing hazardous waste after lifting from industrial premises of various industries to be disposed at village Nimbuan.

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 CPA- Jalandhar 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 an E-waste recycling unit in Jalandhar namely M/s K.J Recyclers, Plot no. C-38 Sanjay Gandhi Nagar, Industrial Area, Jalandhar.

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

- 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 Action Plan for surveillance and monitoring of Polluting Units – Jalandhar City.

Punjab Pollution Control Board shall visit the industries located in the Polluted Industrial Area of Jalandhar & 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-4H**.

#### **Chapter 5: Expected impact on the Comprehensive Environment Pollution Index**

The present action plan for abatement of pollution in the critically polluted area of Jalandhar City has been prepared keeping in view the present environmental quality based on the Comprehensive Environment Pollution Index (CEPI). The CEPI Score for Jalandhar City for the year 2018 as calculated by CPCB has been observed to be 74.76, which is cumulative Score of the environment pollution index calculated for the Air (53.50), Water (66.88) and Land (44.50), 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 Jalandhar, pollutants like PM<sub>10</sub>, PM<sub>2.5</sub> and CO have been taken as the critical pollutants. These critical pollutants belong to Group-B of pollutants, which are known organics/pollutants/chemicals that are probable carcinogens (USEPA class 2 & 3) or with some systemic toxicity. The Exceedance Factor in regard to PM10, PM2.5 and CO has been observed to be 1.68, 1.09 and 0.64 respectively. However, no evidence of loss of flora/ fauna/ significant damage to eco-geological features has been observed. The whole of the population residing in Jalandhar City has been observed to be potentially affected and the level of exposure has been observed to be critical. The additional high risk element has been assigned due to lack of common action plan for control of the pollutants. The presence of these critical pollutants is basically related with the pollution caused mainly due to the vehicular traffic, road dust& to some extent from the industries. The Comprehensive Environment Pollution Index calculation for Water Environment Quality has considered BOD, TP and TN as the critical pollutants. These critical pollutants belong to Group-A & B of the pollutants. The Exceedance Factor in regard to BOD, TP and TN has been observed to be 11.30, 20.65 and 30.82 respectively. The presence of these critical pollutants is basically related with the pollution caused mainly due to discharge of un-treated domestic effluent and inefficient operation of STPs. While calculating the score for Comprehensive Environment Pollution Index for Land Environment Quality for Jalandhar, pollutants like Mn, Fe and B have been taken as the critical pollutants. The Exceedance Factor in regard to Mn, Fe and B has been observed to be 1.02, 1.72 and 0.73 respectively. These critical pollutants belong to Group-A & C of the pollutants.

On perusal of the above discussion, it has been observed that the air, water and land environment of the Jalandhar City has been impacted mainly due to the pollution caused by vehicular movement, industrial combustion and lack of common effluent treatment plant for electroplating units, engineered common municipal solid waste disposal site. The Action Plan has been prepared keeping in view all the above factors impacting the environment. Action Plan includes installation of the common effluent treatment facilities for electroplating industries as well as capacity enhancement of the sewage treatment plants for the domestic effluent, Implementation of Bio-methaniation plan at Wariana Dump Site, improvement/ up-gradation in the pollution control devices installed by the various industries 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 action plan for the Critically polluted Area of Jalandhar has been prepared by obtaining requisite data/information and valuable inputs from the various departments as listed below :-

- (a). Zonal Office and Regional Office of PPCB, Jalandhar
- (b). Municipal Corporation, Jalandhar
- (c). Irrigation Deptt. (Drainage Division).
- (d). Punjab State Council for Science and Technology(PSCST)
- (e). Punjab Small Industries & Export Corporation (PSIEC)
- (f). Punjab Water Supply and Sewerage Board (PWSSB)
- (g). Punjab Works Department (PWD)
- (h). Department of Transport
- (i). Traffic Police
- (j). Punjab Urban Planning and Development Authority (PUDA)

Sr.	Point of Collection	рН	Turb.	Cond	TSS	TDS	TFS	T.H as	Са	Mg	F	NO <sup>3</sup> as	Cl	SO <sub>4</sub>	T.Alk	Na	К	SAR	%Na	В	Fe	Zn
no.			NTU	(µs/cm)	(mg/l)	(mg/l)	(mg/l)	CaCO₃	(mg/l)	(mg/l)	(mg/l)	Ν	(mg/l)	(mg/l)	as	(mg/l)	(mg/l)			(mg/l)	(mg/l)	(mg/l)
								(mg/l)				(mg/l)			CaCO <sub>3</sub>							
															(mg/l)							
1	CETP Module 2	7.2	BDL	1985	BDL	1180	1008	712	178	65.2	0.48	2.7	437	162	147	73	3.4	1.2	18.1	BDL	0.92	0.32
	(Leather Complex)																					
	Entry Gate, Jalandhar																					
2	M/s Kalsi	7.3	BDL	2066	BDL	1210	1098	645	139.6	72.4	0.7	2.3	410	136	194	112	14.5	1.9	26.8	0.22	0.26	0.1
	International, Plot No.																					
	144, Leather Complex,																					
	(Opp. CETP), Jalandhar																					
Stand	ards(Permissible Limit)	6.5-8.5		-	-	2000	-	600	200	100	1.5	10.2	1000	400	600	-	-	-	-	1	0.3	15

# Annexure-3-A – Analysis results of ground water sample – April 2017

Annexure-3-B – Analysis results of ground water sample – October 2017

Sr.	Point of Collection	рН	Turb.	Cond	TSS	TDS	TFS	T.H as	Ca	Mg	F	NO <sup>3</sup> as	Cl	SO <sub>4</sub>	T.Alk	Na	к	SAR	%Na	В	Fe	Zn
no.			NTU	(µs/cm)	(mg/l)	(mg/l)	(mg/l)	CaCO <sub>3</sub>	(mg/l)	(mg/l)	(mg/l)	Ν	(mg/l)	(mg/l)	as	(mg/l)	(mg/l)			(mg/l)	(mg/l)	(mg/l)
								(mg/l)				(mg/l)			CaCO <sub>3</sub>							
															(mg/l)							
1	CETP Module 2	7.2	BDL	1534	BDL	927	834	505	115.6	52.5	0.19	7.6	304	106	176	127	7.5	2.5	34.9	0.2	BDL	BDL
	(Leather Complex)																					
	Entry Gate, Jalandhar																					
2	M/s Kalsi	7.5	BDL	1823	BDL	1076	925	604	156.8	51.5	0.23	7.3	408	92	196	140	8	2.5	33.2	0.1	BDL	1.7
	International, Plot No.																					
	144, Leather Complex,																					
	(Opp. CETP), Jalandhar																					
Stand	ards(Permissible Limit)	6.5-8.5		-	-	2000	-	600	200	100	1.5	10.2	1000	400	600	-	-	-	-	1	0.3	15
					1								1						1			

Sr.	Point of Collection	рН	Turb.	Cond	TSS	TDS	TFS	T.H as	Са	Mg	F	NO₃ as	Cl	SO <sub>4</sub>	T.Alk	Na	К	SAR	%Na	В	Fe	Zn
no.			NTU	(µs/cm)	(mg/l)	(mg/l)	(mg/l)	CaCO₃	(mg/l)	(mg/l)	(mg/l)	Ν	(mg/l)	(mg/l)	as	(mg/l)	(mg/l)			(mg/l)	(mg/l)	(mg/l)
								(mg/l)				(mg/l)			CaCO <sub>3</sub>							
															(mg/l)							
1	CETP Module 2	7.9	BDL	384	BDL	212	150	139	30	15.6	0.42	0.45	10	5	174	31	3.5	1.14	32.4	0.07	BDL	BDL
	(Leather Complex)																					
	Entry Gate, Jalandhar																					
2	M/s Kalsi	7.2	BDL	1875	BDL	1050	836	622	130.8	71.7	0.13	11.38	424	38	154	105	6.9	1.83	26.8	0.07	0.35	0.1
	International, Plot No.																					
	144, Leather Complex,																					
	(Opp. CETP), Jalandhar																					
Standa	ards(Permissible Limit)	6.5-8.5		-	-	2000	-	600	200	100	1.5	10.2	1000	400	600	-	-	-	-	1	0.3	15

# Annexure-3-C – Analysis results of ground water sample – April 2018

Annexure-3-D – Analysis results of ground water sample –October 2018

Sr.	Point of Collection	рН	Turb.	Cond	TSS	TDS	TFS	T.H as	Ca	Mg	F	NO₃ as	Cl	SO <sub>4</sub>	T.Alk	Na	К	SAR	%Na	В	Fe	Zn
no.			NTU	(µs/cm)	(mg/l)	(mg/l)	(mg/l)	CaCO₃	(mg/l)	(mg/l)	(mg/l)	Ν	(mg/l)	(mg/l)	as	(mg/l)	(mg/l)			(mg/l)	(mg/l)	(mg/l)
								(mg/l)				(mg/l)			CaCO <sub>3</sub>							
															(mg/l)							
1	CETP Module 2	7.4	BDL	1623	BDL	1064	946	513	107.2	59.5	0.11	9.65	309	153	195	115	6.9	2.21	32.4	BDL	0.27	BDL
	(Leather Complex)																					
	Entry Gate, Jalandhar																					
2	M/s Kalsi	7.7	BDL	1549	BDL	1209	996	538	110.8	63.4	0.13	8	332	115	153	92	6.4	1.7	26.8	BDL	0.7	0.69
	International, Plot No.																					
	144, Leather Complex,																					
	(Opp. CETP), Jalandhar																					
Stand	lards(Permissible Limit)	6.5-8.5		-	-	2000	-	600	200	100	1.5	10.2	1000	400	600	-	-	-	-	1	0.3	15
					1		1												1			

Sr.	Point of Collection	рН	Turb.	Cond	TSS	TDS	TFS	T.H as	Са	Mg	F	NO₃ as	Cl	SO <sub>4</sub>	T.Alk	Na	К	SAR	%Na	В	Fe	Zn
no.			NTU	(µs/cm)	(mg/l)	(mg/l)	(mg/l)	CaCO <sub>3</sub>	(mg/l)	(mg/l)	(mg/l)	Ν	(mg/l)	(mg/l)	as	(mg/l)	(mg/l)			(mg	(mg/l)	(mg/l)
								(mg/l)				(mg/l)			CaCO <sub>3</sub>					/I)		
															(mg/l)							
1	CETP Module 2	7.62	BDL	305	BDL	213	193	149	28	19.2	0.33	0.6	7	9	170	27	3.6	0.96	27.65	BDL	BDL	0.15
	(Leather Complex)																					
	Entry Gate, Jalandhar																					
2	M/s Kalsi	7.43	BDL	1554	BDL	924	813	510	140.4	38.6	0.18	14.5	362	79	114	119	7.3	2.29	33.26	BDL	BDL	1.13
	International, Plot No.																					
	144, Leather Complex,																					
	(Opp. CETP), Jalandhar																					
Stand	ards(Permissible Limit)	6.5-8.5		-	-	2000	-	600	200	100	1.5	10.2	1000	400	600	-	-	-	-	1	0.3	15

## Annexure-3-E– Analysis results of ground water sample – April 2019

Annexure-3-F – Analysis results of ground water sample – October 2019

Sr.	Point of Collection	рН	Turb.	Cond	TSS	TDS	TFS	T.H as	Са	Mg	F	NO₃ as	Cl	SO <sub>4</sub>	T.Alk	Na	К	SAR	%Na	В	Fe	Zn
no.			NTU	(µs/cm)	(mg/l)	(mg/l)	(mg/l)	CaCO <sub>3</sub>	(mg/l)	(mg/l)	(mg/l)	N	(mg/l)	(mg/l)	as	(mg/l)	(mg/l)			(mg/l)	(mg/l)	(mg/l)
								(mg/l)				(mg/l)			CaCO₃							
															(mg/l)							
1	CETP Module 2	7.9	BDL	340	BDL	232	204	156	30	19.9	0.38	0.9	27	12	188	29	3.8	1.01	28.0	0.12	0.31	0.12
	(Leather Complex)																		6			
	Entry Gate, Jalandhar																					
2	M/s Kalsi	7.7	BDL	1589	BDL	954	840	548	147.2	43.7	0.24	14.8	380	84	196	122	7.6	2.27	32.2	0.11	0.70	0.56
	International, Plot No.																		6			
	144, Leather Complex,																					
	(Opp. CETP), Jalandhar																					
Stand	ards(Permissible Limit)	6.5-8.5		-	-	2000	-	600	200	100	1.5	10.2	1000	400	600	-	-	-	-	1	0.3	15

Note: BOD, T. Coli, F. Coli, TKN, Amm. N., P. alk, Turbidity, COD, TSS, Pb, Cu, Ni, Cr, Cd, As, Hg were BDL in all the samples

Pesticides i.e Alpha HCH, Beta HCH, Gama HCH, 4,4'DDT, Endosulphan-I, Endosulphan-2, Dieldrin, Aldrin, Malathian, Methyl Parathian, Anilophos & Chloropyriphos were BDL

As, Hg, Cd, Cu, Ni & Pb- were BDL

**BDL** means below method Detection Limit

## Annexure-4A Action Plan for Control on Vehicular Emissions

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	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	Public awareness campaign in print and electronic media- Twice a month Use of Social Media Facebook, twitter, Instagram -Regular Jingles on air pollution on local radio and TV-Local FM Radio Awareness drives in5 no. educational institutions- Monthly Public meetings-Monthly Nukarnataks-Quarterly	Nil
		Short Term	Traffic Police	Organized 531 Awareness/ Educational program conducted during year 2018 in the educational institutes etc.by traffic education cell. Through these awareness programs total 90,678 students, 8,864 drivers and 3,580 individuals were educated.	Public awareness campaigns to be continued	Regular Activity		Nil

2 Extensive drive against polluting vehicles	Short Term	Traffic Police	7300 no. of vehicles inspected & 1825 no. of challans issued during year 2018	Regular inspection to be continued and violators to be challaned.	Regular Activity	-	Nil
3 Enforcement to prevent parking in non- designated areas	Short Term	Traffic Police.	24,273 challans issued in 2018.	Regular inspection to be continued and violators to be challaned.	Regular Activity	-	Nil
4 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. - In case of complaint, Department of Food & Civil Supplies in coordination with local oil company officials shall check fuel adulteration & if any discrepancy is noticed then action against the violator shall be taken by State Level	Regular activity		Nil

					Coordinator of Oil Company.			
5	Widening of roads to prevent decongestion	Short Term	PUDA	2.4 Km of road length identified (66 Feet wide road backside UE Ph-2 Jalandhar)	ldentified roads to be widened	31.03.2021	<ol> <li>1. Estimation- Completed</li> <li>2. Tendering including Work allotment -completed</li> <li>3. Completion-within 9 months</li> </ol>	Rs. 2.96 Crore
6	Construction of expressways/ bypasses to avoid congestion	Short Term	NHAI	<ul> <li>Road stretch identified (between PAP Chowk &amp; Rama Mandi chowk on NH1)</li> <li>Six Lane Highway already exists from Amritsar- Jalandhar- Delhi- NH 1 and Four Lane from Jalandhar to Panthakot-NH 1(A)</li> </ul>	Construction of road stretch between PAP Chowk & Rama Mandi chowk on NH1.	Target Achieved	Target Achieved	Nil

7	Remote sensor based PUC system	Medium Term	Department of Transport	Manual checking at Pollution Check Centre (PCC) exists	All PCC centres will be linked with VAHAN4.0 software of the Transport deptt.	31.07.2020	Work of linking PCC centers to VAHAN 4.0 software is under progress.	Nil
8	Prevent parking of vehicles in non- designated areas by creating parking infrastructure	Medium Term	Municipal Corporation	<ul> <li>Roadside parking earmarked by yellow line : 6No.</li> <li>"No Parking" sign Boards installed - 200</li> </ul>	<ul> <li>4 no. Additional Roadside parking to be earmarked.</li> <li>150No. Additional "No Parking" sign Boards to be installed</li> </ul>	Target achieved	Target achieved	-
9	Widening of road sand improvement of infrastructure for decongestion of roads	Medium Term	Municipal Corporation	1.5 Km road length identified for widening (BM Shri Ram Chowk towards Patel Chowk)	Identified roads to be widened	31.03.2021	<ol> <li>Estimation         <ul> <li>Completed</li> </ul> </li> <li>Tendering including             Work allotment             -Under process</li> <li>Completion             <ul> <li>Years with subject to administrative approval</li> </ul> </li> </ol>	Rs.0.50 Crore

		Medium Term	Municipal Corporation	<ul> <li>i) 2.1 Km Road</li> <li>length identified</li> <li>for widening (PAP</li> <li>Chowk to Bhagat</li> <li>Namdev chowk )</li> <li>and,</li> <li>ii) 3.5 Km road</li> <li>length identified</li> <li>for widening (DAV</li> <li>Flyover to</li> <li>Maqsudan)</li> </ul>	Identified roads to be widened	Target achieved	Target achieved	-
		Medium Term	PWD	6.50 Km of road length identified (Urban Estate Phase- II Jalandhar to Jalandhar Nakoder Road)	ldentified roads to be widened	30.10.2020	Completion - 4.5 months	Rs. 6.40 Crore
10	Introduce intelligent traffic systems	Medium Term	Traffic Police & Municipal Corporation	11 No. sites identified	11 no. intelligent traffic system to be installed	30.09.2021	<ol> <li>DPR-Completed</li> <li>Tendering including Work allotment - Under process</li> <li>Completion-12 Months</li> </ol>	Rs. 3 Crore
11	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	After approval from Competent Authority E- Vehicle policy will be notified.	Policy matter	<ol> <li>Framing &amp; Notification of E- vehicle policy – 9 months</li> <li>Providing public charging points for</li> </ol>	NIL

				policy is in the final stages.			battery operated vehicles as per Govt. policy.	
12	Introduction of CNG based public transport (Infrastructure development)	Medium Term	Deptt. of food & civil supplies Jalandhar	<ul> <li>2 nos. of CNG filling Stations exists</li> <li>Survey by M/s Jay Madhok co.</li> </ul>	<ul> <li>To upgrade</li> <li>01 no.</li> <li>conventional</li> <li>filling</li> <li>stations to</li> <li>CNG filling</li> <li>stations.</li> </ul>	Approval Pending from MoPNG.	Up gradation to CNG filling station have been done. Approval for allotment of APM gas is awaited from MoPNG.	Nil
13	Prevent parking of vehicles in non- designated areas by creating parking infrastructure	Long Term	Municipal Corporation	<ul> <li>Designated Parking lot         <ul> <li>3 No.</li> </ul> </li> <li>Identified 2 multi- level car parking sites:         <ul> <li>Near</li> <li>Kapurthala</li> <li>chowk,</li> </ul> </li> <li>Near Model town market</li> <li>Parking for trucks/ Commercial vehicles : NIL</li> </ul>	<ul> <li>Additional Designated Parking lots not required.</li> <li>Identified multi level parking sites to be developed</li> <li>No new parking for trucks / Commercial vehicles proposed.</li> </ul>	- 31.12.2022	<ul> <li>(a) 13 number designated parking sites already existed in MC Jalandhar and parking on these sites is being done by the residents. In addition to this, 12 more designated car parking sites have been identified and tenders for 25(13+12) have been called after the allotment, 25 no. of designated parking sites will be available for the residents.</li> <li>(b) 3 no. underground multilevel car parking sites are already in operation which are as under:</li> <li>(i) Outside Nehru Garden, MC Jalandhar</li> <li>(ii) Rangla Vehra near</li> </ul>	- Rs. 80 Crore

							Bhagwan Valmiki Chowk.	
14	Phasing out Of commercial Diesel vehicles more than 15 years old	Long Term	Department of Transport.	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
15	Introduction of CNG based city bus service	Long Term	Municipal Corporation	At present no CNG based city bus service exits.	To take measures to introduce CNG based city bus service.	30.09.2022	No proposal yet	Nil
16	Introduction of CNG based auto/taxis	Long Term	Deptt. of Transport	At present, no CNG based auto/ taxis exits. PPCB has issued direction vide letter no 05 dated 03.01.2019 under section 31-A of Air Act 1981 to stop registration of new diesel / petrol driven auto rickshaw (s), in 5 districts including Jalandhar w.e.f	To take measures to introduce CNG based auto/taxis.	-	Implementation of PPCB orders dated 03.01.2019.	Nil

				01.02.2019.				
17	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 is going to skip adopting BS- 5 norms and shift directly to adopting BS-6 norms by 2020	_	The steps for retrofitting of particulate filters in diesel vehicles is to be undertaken by Automotive industry under directions from Government of India as and when BS-VI fuels will be available.	NIL

## Annexure-4B Action Plan for Control on Road Dust

Sr. No.	Activity	Implementat ion 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	Water sprinkling	Short Term	Municipal Corporation	19 Roads identified for water sprinkling with in MC limit	Regular Water sprinkling on identified Road	Regular Activity	-	Nil
	Procurement of Water sprinkler	NA	Municipal Corporation	2 Nos water sprinklers-exists.	No new water sprinkler required.	-	-	NA
2	Creation of green buffers along the roadsides	Short Term	Municipal Corporation	60 km of road length identified for creating green buffer along road sides as under :- (Mahavir Marg, Ladowali road, cool road, PAP to shri Ram chowk. -No. of parks under MC -No. being maintained.	4000 plants to be planted along the identified roadsides.	Target achieved	Target achieved	-

3	Water fountains at major traffic intersections	Short Term	Municipal Corporation	Water fountains already provided at 10 no. traffic intersections (each at Guru Amar Das Chowk, Bhagwan Ram Dass Chowk, Masan Chowk, Skylark Chowk, Namdev Chowk & inside Company Bagh)	No immediate proposal to install any fountain.	NA	-	NIL
4	Kaccha/Brick Paved Roads to be made Pucca road	Short Term	PUDA	2.4 Km of Katcha/Brick road length identified for making pucca road at backside UE Ph- 2,Jalandhar	2.4 Km Identified road made to be Pucca road.	31.03.21	<ol> <li>Proposal-completed</li> <li>Tendering -completed,</li> <li>Work allotment- completed</li> <li>Completion- within 9 Months</li> </ol>	Rs. 2.96 Crore
5	Maintain potholes free roads for free- flow of traffic	Medium Term	MC	<ul> <li>14.9 Km road length</li> <li>identified</li> <li>I. (PAP to BSF and upto Sh. Ram chowk- 1.0 Km</li> <li>II. Nakodar road to B.R Ambedkar chowk to MC limit – 5.0Km</li> <li>III. DAV Flyover to Maqsudan chowk – 1.5 Km,</li> </ul>	14.9 Km of road length tobe repaired	Target achieved	Target Achieved	-

			<ul> <li>IV. Patel chowk to Mai Heera Gate – 1.5 Km,</li> <li>V. Guru Ravidass chowk to Manbro Chowk – 0.9 Km,</li> <li>VI. Footwall Chowk to Kapurthala chowk canal to Babu Jagjeevan Ram chowk – 3.5 Km,</li> <li>VII. Road from GPO to Madam Elaure</li> </ul>					
	Medium Terms	PWD	<ul> <li>VII. Road from GPO to Madan Flour Chowk –1.5 Km)</li> <li>4.30 Km road length identified (Dhaliwal to Jalandhar Nakodar road-</li> </ul>	Repair of 4.30 Km of road	31.03.2021	1.	Identification- Completed Tendering and Work	Rs.12.50 Lacs
			0.70 Km, Jalandhar Nakoder road to Khambra Dhina- 2.15 Km, Mithapur to Lohar Nangal - 1.46 Km)	length		3.	allotment – Under process Completion – 6 months after administrative approval.	

							L	
6	Mechanical	Medium	MC	No mechanical	2 no.	31.10.2020	Two Mechanical sweeping	-
	sweeping	Term		sweeping machine	mechanical		machine have been	
				exists.	sweeping to		procured by M.C	
					procured		Jalandhar. One is truck	
					city project		mounted machine which	
					city project.		is operational and second	
							is self-propelled machine	
							which has been delivered	
							at Jalandhar and its	
							registration, insurance is	
							under progress. It could	
							not be made operational	
							due to pending	
							registration with RTA	
							department.	
7	Greening of	Medium	мс	475 No. Of parks are	-12700	Target	Target achieved	-
	parks, open	Term		being maintained by	plants to	achieved		
	areas	_		MC.	be planted.			
	community			Out of 475 parks about				
	places. school			100 parks need fresh				
	and housing			plantation.				
	societies			25 GOVL SCHOOIS,				
	societies			open MC areas have				
				been identified for				
				plantation.				

	Kanala (D. 14					1	<b>T</b> 1 1 4 4 14 11 11	
8	Raccha/Brick Paved Roads to be made Pucca road	Medium Term	MC	Identified 41.0 Km of Kaccha roads for making pucca roads in Jalandhar Cantt. Constituency, Jalandhar North, Jalandhar West and Jalandhar Central Constituency	Blacktoppin g of identified Kaccha roads to be made Pucca for Control of road dust emissions.	31.12.2021	Total 41 Km road length was proposed in January 2019, out of which 34 Km road length is completed. No further progress due to lockdown/COVID-19. Remaining work is likely to be completed upto 30.09.2021	Rs 9.88 Crore
9	Existing roads requiring re-carpeting	Medium Term	MC	45 km of existing road within MC limit requiring re- carpeting identified	179.75 km of existing road to be re- carpeted	31.12.2021	45 Km of road length have been identified to be re carpeted, out of which 35 Km have been re-carpeted The balance work has started at site and is likely to be complete by 31.12.2021	Rs. 30.48 Crore
		Medium Term	PWD	5.06 Km of Existing road length identified	5.06 km of existing road to be re- carpeted	30.09.2020	40 percent of the work has been completed.	Rs. 2.17 Crore
		Medium Term	PSIEC	7 km. of existing Road length identified.	7 km. road to be re- carpeted.	31.12.2020	Out of 7 Km road length, 5.5 km road length has been completed. Funds for lying balance 1.5 Km road length have been allocated for concrete road. Tenders to be floated in the month of June'20.	Rs. 2.56 Crore

10	Pavement of road side using interlocking tiles to prevent road dust emissions	Medium Term	PWD	1.60 Km of road length of berm identified along roads on both sides (Jalandhar Nakodar road to Khambra Dina road	1.60 Km of road length of berm identified along roads on both sides to be paved by using interlocking tiles.	Departme nt has not yet approved the project and hence target date of completio n of project could not be ascertain.	-	Rs. 25.50 lacs
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## 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	Control on open burning of bio-mass in City	Short Term	Municipal Corporation	- Presently no compost pits exists	- 100 no. compost pits to be constructed.	31.03.2021	Out of 100 proposed compost pits, 80 pits have been constructed.	Rs.4.8 Crore
2	Control on burning of municipal solid wastes	Short Term	Municipal Corporation	Burning of municipal Solid wastes stands Prohibited. 6 No. Challans issued and 4No.Awareness camps held in 2018.	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	Control on burning of Agriculture crop residue	Short Term	Distt. Admn, Department of agriculture, Police, Revenue Department, PPCB & PSPCL	<ul> <li>Identification of sites by PRSC (PAU)</li> <li>Regular monitoring under supervision of DC</li> </ul>	Enforcement by Team	During wheat/rice harvesting season	<ol> <li>To create awareness among farmers regarding health effects of residue burning</li> <li>Deptt. of Agriculture</li> </ol>	Nil

- 122 challan issued	to
in which total	provide subsidy for
amount of Rs	equipment/
3,80,000/- imposed	machinery as per
as Environmental	Govt. policy
compensation in year	3. Teams will be
2018 by Punjab	constituted one
Pollution Control	month prior to start
Board - Rs.30,000/-	of each harvesting
Environmental	season.
compensation	4. Identification of no.
recovered unto	of fire incidents by
Dec 2018	PRSC.
	5. Visit to identified sites
	6. Imposing
	Environmental
	compensation d
	7. PSPCL shall ensure
	electricity for in-situ
	management
	8. Progress review in
	District Level Air
	Quality Monitoring
	Committee meeting
	9. Recovery of
	Environmental
	compensation

## Annexure-4D Action Plan for Control on Industrial 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	Conversion to side hood suction in furnace	Short Term	Punjab Pollution Control Board	Total 132 no. induction furnaces are of capacity upto 1 ton/heat. However, 3 no. induction furnaces are of capacity more than 1 T/heat which require to upgrade the suction system.	Adequacy of 132 furnaces be checked and 3 no. induction furnaces are required to the upgraded to side hood suction system.	Target Achieved	2 no. unit has already modified its APCD design as per the drawings received from PSCST. Action against remaining 1 no. industry for failure to convert to side suction hood system is under process.	NIL
2	Conversion to CNG from pet coke / coal	Short Term	Punjab Pollution Control Board /M/s Madhok Energy Pvt. Ltd.	5 industries are using coal as fuel in boilers. Conversion to CNG/PNG not feasible since these units are scatteraly located.	Regular monitoring of these industries shall be carried out.	Regular activity	Monthly review meetings.	NIL

3	Conversion of natural draft brick kilns to induced draft	Short Term	Punjab Pollution Control Board	6 no. brick kiln exists within 5 Km radius of M.C limit operating on Conventional technology.	To convert 6 no. brick kilns to induced draft technology	Target achieved	Out of 3 nos. BKOs which are yet to convert to new technology, 1 no. BKO no longer exist as the same has been demolished. Directions u/s 31-A of Air Act 1981 have been confirmed agaisnt remaining 2 nos. BKOs for their closure and DFSC has been directed to cancel the license of these 2 nos. BKOs.	NIL
4	Action against non- complying industrial units	Short Term	Punjab Pollution Control Board	Regular inspection as per policy of the Board	<ul> <li>Action against defaulting industries.</li> <li>Checking the adequacy of APCD installed by the industries</li> </ul>	Regular activity	-	NIL

5	Shifting of	Long Term	Deptt. of	Industries located in	Identified	Upto 2025	As per the	NIL
	industries from		Industries,	non designation areas	industries are		provisions of	
	non-		Department of	need to be identified	required to be		notified Master	
	designated		Town & Country	for shifting.	shifted to		Plan.	
	areas to		Planning and		designated			
	industrial areas		Deptt. of Local		industrial area			
			Government					

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

Sr. No.	Activity	Implement ation period (short/Med ium/long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implication s, if any (Estimated Cost)
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	34 no. challans have been issued against violators.	Nil
2	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 conditions Regular inspections to be made and challan will be issued to violators	Regular activity	Regular inspections	Nil
3	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
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4	Infrastructure of Construction & Demolition waste.	Long Term	Municipal Corporation	<ul> <li>4 no. sites notified by M.C. Jalandhar for disposal of construction debris at</li> <li>1. Vill.Ladhewali</li> <li>2. Vill. Satampur Musalamana</li> <li>3. Vill.Birring</li> <li>4. Basti Bewa Khel,</li> </ul>	Setting up of processing/ recycling plant as per C&D Rules, 2016.	31.09.2022	Proposal has been made for construction of C&D waste plant at Municipal Land in Gadaipur. DPR regarding this has been made by JSCL and tenders are to be called.	Rs. 6.98 Crore

### Annexure-4F Action Plan for Control through Other steps

Sr. No.	Activity	Implementati on period Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implication s, if any (Estimated Cost)
1	Monitoring of DG sets and action against violations	Short Term	РРСВ	Regular monitoring exists	Non-complying DG set should not be allowed	Regular Activity	-	NIL
2	Source Apportionment Study	Short Term	РРСВ	Source Apportionment Study not carried Out	Source Apportionment Study to be carried out through selected Agency.	30.10.2020	Selection of Agency Develop scope of work Allotment of work	Rs.5.00 lacs
3	Establish an Air Quality Management Division at SPCB HQ	Medium Term	Punjab Pollution Control Board	No such division exists	One required	Target achieved	Target achieved	-
4	Setup helpline in each city / town as well as SPCB HQ Policy	Medium Term	Punjab Pollution Control Board	No such helpline exists	One required	31.03.2021	A helpline has been setup at SPCB HQ. However, it has not been setup at district level.	Rs. 0.50 lacs

5	Dissemination of Air	1	Duratala Dalluttar		True solutions	24 02 2024	1 Expected Allotment	Do 20 loss
5	Ouality Index	Long	Punjab Pollution	One No. CAAQIVIS	I wo additional	31.03.2021	of Station by CDCP	Rs. 30 lacs
	Quality muex	Term	Control Board	installed.	CAAQM to be			
					installed.		on 50:50 sharing	
							basis.	
							2. Finalization of	
							specifications by	
							CPCB -completed.	
							3.Tendering- under	
							process	
							4.Identification of	
							site and its	
							approvalfrom CPCB	
							(Simultaneously	
							with tendering-	
							under process).	
							5.Procurement &	
							installation of	
							CAAQMS	
							08.02.2021.	
							6.Calibration,	
							Commissioning &	
							data procurement-	
							31.03.2021.	

# Annexure-4G Action Plan for Training & Capacity Building Programmes

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	Training &Capacity Building Programmes	Short Term	PPCB	Officers get trainings under various programmes organized by the concerned departments	<ul> <li>District/City level training programmes         <ul> <li>1Nos.</li> </ul> </li> <li>State level training programmes         <ul> <li>1Nos.</li> </ul> </li> </ul>	31.03.2021	Selecting agencies/ experts for organizing theme specific trainings. Organization of programmes at City/District and level.	Rs.2.00 lacs

# Annexure-4H Action Plan for surveillance of polluting units- Jalandhar City

Sr. No.	Activity	Implementati on period (Short/ Medium/ Long	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications , if any (Estimated Cost)
1.	Shifting of scattered dairy units to Jamsher Dairy Complex	Short Term	Department of Rural Deveplome nt and Panchyat, M.C and PPCB	Appox. 40 scattered dairy units are located in the critically polluted area of Jalandhar.	All these units are required to be shifted to Jamsher Dairy Complex	28-11-20	Compliance to the directions to be issued by the Board to the scattered dairy units	Nil
2.	Monitoring of 17 category highly polluting units	Medium Term	PPCB	One no. 17 category highly polluted identity i.e CETP Leather Complex is located in the critically polluted area of Jalandhar.	Mandatory monthly inspection of CETP Leather Complex and collection of effluent samples.	Regular activity	Monthly review meetings. Steps:- 1) Improvising design and technology of CETP 2) Compliance towards Punjab Pollution Control Board norms	Nil
3.	Surveillance of water intensive dyeing & printing units.	Medium Term	РРСВ	Total 05 water intensive dyeing & printing units are located in the critically polluted area of Jalandhar with common ETP.	Mandatory Half yearly inspection of these units and collection of effluent as well as air emission samples after every 6 months.	Regular activity	Quarterlyreviewmeetings.Steps:-1.ImprovisingdesignandtechnologyofAPCDs/ETPs2.CompliancetowardsPunjabPollutionControlBoardnorms	Nil

					1			
4.	Surveillance of electroplating/ phosphating/ pickling/ surface coating units.	Medium term	РРСВ	Total 254 electroplating/ phosphating/ pickling/ surface coating units are located in the critically polluted area of Jalandhar.	Mandatory half yearly inspection of these units and verification of the records for effluent generation and lifting of effluent to CETP operator	Regular activity	<ul> <li>Half yearly meetings.</li> <li>Steps:-</li> <li>1. Adopting technologies for reducing water consumption.</li> <li>2. Compliance towards Punjab Pollution Control Board norms</li> </ul>	Nil
5.	Action against non- complying industrial units	Medium term	РРСВ	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> <li>Identification of industries in which ETP/APCD is not installed.</li> <li>Checking the adequacy of ETP/APCD already installed.</li> <li>Issuing show cause notice to the industries violating norms.</li> <li>Facilitating industry to get set right the inadequate ETP/APCD.</li> </ul>	Nil

Note: '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 time period.

		As per calculations by Central Pollution Control Board for the year 2018											
					Wate	Quality	y Analysis Re	eport					
	Pollutan	ts		Group			A1		A2				
	TP	TP B TNH4-N A				2	Moderate		ite	!			
	TNH4-N			Α		0.25						A (A1 X A2)	
	BOD			В			0.5						
						2.75		2.5			6.875		
	Pollutant	Avg	(1)	Std (2)	E	F [(3)=	No. of	To	tal No	). S	NLF	SNI	F
	S					1/2]	Samples		of	Valu	ue [(6)	Sco	re
							Exceeding (4)	g Sa	mples	s = 4	/5 x3]		
	TP	9.2	5	0.30	3	30.82	24		24	3	0.82	С	30
	TNH4-N	30.9	)7	1.50	2	20.65	24		24	20	0.65	С	10
	BOD	90.3	8	8.00		11 30	24		24	1	1 30	C	10
		50.5		0.00	-	1.50	24		27	1	1.50	C	10
				B Value	= (B1 -	(B1 + B2 + B3)					В	50	)
										·		·	
		С					0				< 5%	6	
		D					10				A-A-	A	
					1								
	W	ATER E	PI			(A+	B+C+D)				66.88		
-					Air (	Quality /	Analysis Rep	ort					
	Pollutan	ts		Group			A1		A2				
	PM10			В			2						
	PM2.5			В			0.5		المداد	<b>.</b>	•	(	,
	СО			В			0.5	IV	iodera	ite	A	(A1 X A2	2)
							3		2.5			7.5	
	Pollutants	Avg	(1)	Std (2)	EF [(3)	=	No. of Samples	To No.	tal . of	SNLF \ [(6) =	/alue 4/5	SNLF S	core

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

				1/2]	Exceed	ling (4)	Samples	x3]			
PM10	168	.29	100	1.68	2	4	24	1.68		С	30
PM2.5	65.	46	60	1.09	1	.5	24	0.68		Н	6
CO	1.2	27	2.00	0.64	(	C	24	0.00		L	0
			ΒV	/alue = (	B1 + B2 +	B3)					36
C 0 < 5%											
	D				10			A	A-IA		
ļ	AIR EPI				(A+B+C+	D)		53	3.50		
GROUND WATER Quality Analysis Report											
Pollutar	ollutants Group				A1			A2			
Mn	Mn A				0.25	;	Moder	ate	A (A	1 X A	A2)
Fe			А		0.25						
В			А		2						
				2.5			2.5	6	6.25		
Pollutant s	Avg	(1)	Std (2)	EF [(3) 1/2]	)= No San Exce	o. of nples eding 4)	Total No. of Samples	SNLF Value [( = 4/5 x3	6) 3]	NLF S	Score
Mn	0.3	0	0.30	1.02		3	24	0.13	Ν	N	3.25
Fe	0.5	2	0.30	1.72		12	24	0.86	ł	Η	21
В	0.7	3	1.00	0.73		9	24	0.27	27 M		4
			B V	alue = (E	31 + B2 + I	33)				28.	25
(	0			0	< 5%						
[[	)			10				A-A-IA			
GROUND	WATER	EPI	(	A+B+C+	D)			44.50			

CEPI Air= 53.5 CEPI Water= 66.88 CEPI Ground Water= 28.25

Hence overall CEPI score calculated by CPCB for the year 2018 = 74.76



#### - \_\_\_\_ Impact Area i.e 5 Km Boundary From Core Area