Action Plan for Clean Air, Patiala

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Directorate of Environment and Climate Change
Department of Science, Technology and Environment,
Government of Punjab

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Chapter 1 - Introduction

1.1 About Air Pollution

1.1.1 Air pollutant means any solid, liquid or gaseous substance present in the atmosphere in such concentration as may be or tend to be injurious to human being or other living creatures or plants or property or environment. Air pollution means the presence of air pollutants in the atmosphere. The most common sources of air pollution include particulates, ozone, oxides of nitrogen, and sulphur dioxide.

1.1.2 The health effects caused by air pollution may include difficulty in breathing, wheezing, coughing, asthma and worsening of existing respiratory and cardiac conditions.

1.2 About Patiala

1.2.1 History

Patiala district is one of the famous princely States of erstwhile Punjab forming the south-eastern part of the state. Patiala is located around the Qila Mubarak (the Fortunate Castle). It was constructed by Sidhu Jat chieftain 'Baba Ala Singh', who founded the royal dynasty of the Patiala State in 1763. Patiala city is the fourth largest city in the state and is the administrative capital of Patiala district. It is surrounded by the districts of Fatehgarh Sahib &RoopNagar and the Union Territory of Chandigarh in the north, Sangrur district in the west, Ambala and Kurukshetra districts of neighbouring State of Haryana in the east and Kaithal district of Haryana in the south. It is important city located in Malwa region of South Eastern part of Punjab.

1.2.2 Area and Population

Patiala city is spread over an area of about 339.9 Sq. Kms. and accommodates a population of about 4 lakh.

1.2.3 Industry and Trade

No major industrial activity falls in Patiala city, only some industries are operating in the Patiala including Focal Point Patiala. Most of the units are small scale of various categories.

1.2.4 Topography

The district forms a part of the Indo-Gangetic plain and consists of three types of region: -

(i) The Upland Plain

(ii) The Cho-infested Foothill Plain

(iii) The Floodplain of the Ghaggar River

Apart from this, the district has a complex drainage system consisting of canals and rivers.

1.2.5 **Climate**

The climate of Patiala district can be classified as tropical steppe, Semi-arid and hot which is mainly dry with very hot summer and cold winter except during monsoon. There are four seasons in a year. The hot weather season is from mid-March to last week of the June followed by the south west monsoon which lasts upto September. The transition period from September to October forms the post monsoon season. The winter season starts late in November and remains upto first week of March. The mean minimum and maximum temperature in the area ranges from 7.1° C to 40.4° C during January and May or June respectively.

1.2.6 **Rainfall**

The average annual rainfall of the city is about 600 mm, respectively which is unevenly distributed over the area. The south west monsoon sets in from last week of June and withdraws in end of September, contributing about 81% of annual rainfall. July and August are the wettest months. Rest 19% rainfall is received during non-monsoon period in the wake of western disturbances and thunderstorms. Generally, rainfall in the city increases from southwest to northeast.

1.3 **Government's past efforts for control of Air pollution:**

1.3.1 The environment of Patiala has degraded during the last few years due to rapid urbanization, increase in population, vehicles and commercialization of land available within the town.

1.3.2 Punjab Pollution Control Board had taken this as a challenge and also as an opportunity in order to achieve significant improvement in environmental quality and pave the way for sustainable development in the area.

1.4 **About National Green Tribunal directions:**

1.4.1 Nine cities of Punjab namely DeraBassi, Nangal, Patiala, Mandi Gobindgarh, Khanna, Ludhiana, Jalandhar, Pathankot and Amritsar were declared non-attainment cities by Central Pollution Control Board (CPCB) on the basis of Ambient air data for the period of 2011-2015 for not meeting the annual average of 60 µg/m3 for PM10.Directions were issued to the Board by CPCB to prepare action plans for the above stated non-attainment cities of Punjab.

1.4.2 Subsequently, National Green Tribunal has taken cognizance of draft National Clean Air Program and passed directions in the matter of application no. 681 of 2018 dated 8/10/2018. The important points of the said directions given as under:

(i) Action plans to be prepared within two months aimed at bringing the standards of air quality within the prescribed norms within six months from date of finalization of the action plans.

(ii) The action plans may be prepared by six member committee comprising of Director of Environment, Transport, Industries, Urban Development, Agriculture and Member Secretary, State Pollution Control Board under the overall supervision of Principal Secretary, Environment and further supervised by Chief Secretary.

(iii) The Action plans may take into account the GRAP, the CAP and the action plan prepared by CPCB as well as all other relevant factors.

(iv) The Action Plan will include components like identification of source and its apportionment considering sectors like vehicular pollution, industrial pollution, dust pollution, construction activities, garbage burning, agricultural pollution including pollution caused by burning of crop residue, residential and indoor pollution etc.

(v) The Action plan shall also consider measures for strengthening of Ambient Air Quality (AAQ) monitoring and steps for public awareness including issuing of advisory to public for prevention and control of air pollution and involvement of schools, colleges and other academic institutions and awareness programmes.

(vi) The Action plan will indicate steps to be taken to check different sources of pollution having speedy, definite and specific timelines for execution.

(vii) The Action plan should be consistent with the carrying capacity assessment of the non-attainment cities in terms of vehicular pollution, industrial emissions and population density, extent of construction and construction activities etc. The carrying capacity assessment shall also lay emphasis on agricultural and indoor pollution in rural areas. Depending upon assessed carrying capacity and source apportionment, the authorities may consider the need for regulating, number of vehicles and their parking and plying, population density, extent of construction and construction activities etc. Guidelines may accordingly be framed to regulate vehicles and industries in non-attainment cities in terms of carrying capacity assessment and source apportionment.

(viii) The CPCB and SPCBs shall develop a public grievance redressal portal for redressal of public complaints on air pollution alongwith a supervisory mechanism for its disposal in a time bound manner. Any visible air pollution can be reported at such portal by email/SMS.

(ix) The CPCB and all SPCBs shall collectively workout and design a roburst nationwide ambient air quality monitoring programme in a revised format by strengthening the existing monitoring network with respect to coverage of more cities / towns. The scope of monitoring should be expanded to include all twelve (12) notified

parameters as per notification no. B-29016/20/90/PCl-L dated 18th November of CPCB. The Continuous Ambient Air Quality Monitoring Stations (AAQMS) should be preferred in comparison to manual monitoring stations. The CPCB and States shall file a composite action plan with timelines for its execution which shall not be more than three months.

1.4.3 Earlier, NGT had also issued various directions in OA No. 21 of 2014 titled as Vardhaman Kaushik Vs. Union of India and Others for combating air pollution.

Chapter 2 – Vision, Mission and Strategy

2.1 Mission Tandrust Punjab

The Government of Punjab envisions to make Punjab the healthiest State with healthy people by ensuring the quality of air, water, food and a good living Environment.

2.2 Vision for Clean Air, Patiala

To restore the quality of air in Patiala Citytothe prescribed standards to ensure health of the people, ecological balance and socio-economic wellbeing of the people.

2.3 Mission Clean Air, Patiala

To prepare and implement a comprehensive action plan for clean Patiala City:

(i) Creating awareness about the adverse impact of air pollution
(ii) Identifying the sources of air pollution, their apportionment
(iii) Setting up facilities for treating the pollutants
(iv) Ensuring effective operations of the facilities
(v) Ensuring effective monitoring of the quality of air
(vi) Mitigating adverse impact on health of the people due to air pollution

2.4 Strategy for Clean Air, Patiala:-

The key elements of strategy for Clean Air campaign for Patiala will include:

(i) Identification of Government Stakeholders
(ii) Identification of Non-Government Stakeholders
(iii) Integration of Departmental plans – Creating synergies
(iv) Nodal Department
(v) Citizen Participation
(vi) Monitoring and Governance

2.5 Identification of Government Stakeholders

In order to combat the challenges of air 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) Upgradation 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/ Municipal Corporation, Patiala**

(a) Development of engineered municipal solid waste dump site
(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 Implementation of traffic management plan
(b) Checking of vehicles running without PUC certificate
(c) Impounding and challan of vehicles running without permission/ registration.

(v) **Department of Forests**

(a) Preparation of afforestation plan
(b) Organizing awareness camps for Greener City
(c) Providing green belt around the industrial areas

(vi) **Deptt. of Industries and Commerce / Punjab Small Industries & Export Corporation**

(a) Shifting of industries from non-designated areas
(b) Provision of environment infrastructure in Industrial Areas

(vii) **PWD (B&R)**

(a) Improving road conditions for smooth movement of traffic
(b) Increasing green cover on roadside under their jurisdiction

(viii) **Punjab State Council for Science and Technology**

(a) Evolving cost-effective cleaner technologies

(ix) **Department of Agriculture**

(a) Promotion of bio-methanization and compost facilities for agri waste
(b) To provide Machinery for in-situ management
(c) To create awareness about ill-effects of stubble burning

(d) To create awareness regarding alternative crops to break wheat-rice cycle.

(x) **District Administration**

(a) Coordination with all the Stakeholders promoting collaboration and resolving local issues

(b) Public Awareness Campaign

2.6 Non-Government Stakeholders

2.6.1 There is need to involve various Industry Association of Patiala in this plan. Following Industry Association of Patiala will be associated with the plan:

(i). The President, Focal Point Industries Association, (Regd.) Patiala

2.6.2. This association will help in the following activities:

Generic

(i) To stabilize the vehicular movement area within premises of the industries

(ii) To persuade the member industries to comply with emission norms by PPCB

(iii) To evolve more efficient machinery, boiler furnace and air pollution control devices which may be adopted by all the industries for better environment

Specific

(i) To shift over the industries from coal / furnace oil to PNG

(ii) To shift over the industries from coal to PNG

(iii) To modify the existing APCD consisting of canopy hood to the new APCD designed by PSCST, Chandigarh with side hood collection system

2.6.3. Apart from Industry Associations, the support of various NGOs in the city such as Janhit Samiti (NGO) and Great Thinkers (NGO)Patiala will be sought. These NGOs will assist in the following:

(i) To create awareness among the public regarding ill-effects of air pollution

(ii) To motivate residents of Patiala for adopting the practices to minimize the use of fresh water, planting more trees, to promote pooling by minimal use of private vehicles. Parking of vehicles in the designated zones, minimum use of electricity etc

(iii) To give suggestions to District Level Committee to control or minimize the air pollution

(iv) To give feedback on enforcement activities

2.7 Nodal Department

The clean air plan for Patiala is part of State-wide campaign to control air pollution in non-attainment cities. In order to bring necessary impetus, support from other stakeholder departments, uniformity and consistency, there is need to have a Nodal Department. The

Department of Science, Technology and Environment will be the nodal department for coordinating and monitoring activities of the plan. The Department has recently set up Directorate of Environment and Climate Change, which will provide necessary support at the headquarter for coordination and oversight and PPCB will provide necessary technical and field support.

2.8 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.

2.9 Citizen participation

Citizen participation will be key to the success of the plan. Effort will be made to seek citizen participation in various public awareness activities, feedback and support in various enforcement related activities. A strong social media and technology driven platform will be set up to seek citizens particularly youth participation.

2.10 Design of Monitoring System

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

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

2.10.2. 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:

(i) Design of effective online platform including social media to disseminate air pollution related information and seek citizen feedback and participation in the campaign. It will have a monitoring mechanism to see the level of participation and measures to increase the same.

(ii) Design of effective online system to capture various enforcement activities by various agencies to monitor them, evaluate them and provide feedback and enforce accountability.

(iii) Design of an effective monitoring system to monitor the progress of various infrastructure related activities as envisaged under the plan.

(iv) Design of an effective monitoring system for policy advocacy within the Government for expediting formulation of various policies.

(v) Design of an effective monitoring system for various technological interventions to reduce the air pollution.

2.10.3. Directorate of Environment and Climate Change and PPCB will set up a dedicated team for design of monitoring system and setting up of IT platform for tracking progress of the plan.

2.11 **Governance**

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

Chapter 3 – Current Status and Trends of Air Quality in Patiala City

3.1 Monitoring of Air Quality:

In order to monitor the ambient air quality of the city, the Punjab Pollution Control Board has installed two manually operated ambient air stations at Patiala city under National Air Monitoring Programme (NAMP) sponsored by CPCB. The year wise data of PM10, SO2 and NOx for the period 01.01.2014 to 31.12.2018 (**Annexure-A**). Further, the Board has also commissioned one Continuous Ambient Air Quality Monitoring Station (CAAQMS) at Patiala and the real time data of the same is being displayed at Vatavaran Bhawan, Punjab Pollution Control Board, Head Office, Nabha Road, Patiala. The AQI data of 2018 has been given in **Annexure-B.**

3.2 CPCB's norms for Air Quality

The CPCB on 18/10/2009 has revised National Ambient Air Quality Standards (NAAQS) which are reproduced as under:

Sr.No.	Pollutants	Time weighted average	Concentration of Ambient Air	
			Industrial, Residential, Rural and other areas	Notified Ecologically sensitive area
1	Sulphur Dioxide (SO_2) $\mu g/m^3$	Annual	50	20
		24 hours	80	80
2	Nitrogen Dioxide (NO_2) $\mu g/m^3$	Annual	40	30
		24 hours	80	80
3	Particulate Matter (size<10 µm) or PM_{10} $\mu g/m^3$	Annual	60	60
		24 hours	100	100
4	Particulate Matter (size<2.5 µm) or $PM_{2.5}$ $\mu g/m^3$	Annual	40	40
		24 hours	60	60
5	Ozone (O_3) $\mu g/m^3$	8 hours	100	100
		1 hour	180	180
6	Lead (Pb), $\mu g/m^3$	Annual	0.50	0.50
		24 hours	1.0	1.0
7	Carbon Monoxide (CO), mg/m^3	8 hours	02	02
		1 hour	04	04
8	Ammonia (NH_3), $\mu g/m^3$	Annual	100	100

		24 hours	400	400
9	Benzene (C_6H_6) µg/m^3	Annual	05	05
10	Benzo (a) Pyrene (BaP)-particulate phase only ng/m^3	Annual	01	01
11	Arsenic (As) ng/m^3	Annual	06	06
12	Nickel (Ni) ng/m^3	Annual	20	20

3.3 Air Quality Index (AQI)

3.3.1. Awareness of daily levels of air pollution is important to the citizens, especially for those who suffer from illnesses caused by exposure to air pollution. Further, success of a nation to improve air quality depends on the support of its citizens who are well-informed about local and national air pollution problems and about the progress of mitigation efforts. Thus, a simple yet effective communication of air quality is important. The concept of an air quality index (AQI) that transforms weighted values of individual air pollution related parameters into a single number is widely used for air quality communication and decision making.

3.3.2. The AQI system is based on maximum operator of a function (i.e. selecting the maximum of sub-indices of individual pollutants as an overall AQI). The objective of an AQI is to quickly disseminate air quality information (almost in real-time) that entails the system to account for pollutants which have short-term impacts. Eight parameters (PM10, PM2.5, NO2 , SO2 , CO, O3 , NH3 , and Pb) having short-term standards have been considered for near real-time dissemination of AQI.

3.3.3. The AQI has further been classified in six categories as shown below:

AQI	**Quality**	**Impact on health**
0-50	Good	Minimal impact
51-100	Satisfactory	Minor breathing discomfort to sensitive people
101-200	Moderately polluted	Breathing discomfort to people with lungs, asthma and heart diseases
201-300	Poor	Breathing discomfort to most people on prolonged exposure
301-400	Very poor	Respiratory illness on prolonged exposure
≥401	Severe	Affects healthy people and seriously impacts those with existing diseases.

3.3.4. Based on this, the CPCB evolved a Graded Response Action plan (GRAP) which is implemented in the NCR, Delhi when the air quality deteriorates and various steps have been mentioned in GRAP to be taken to immediately control the deterioration of the air quality.

3.4 Trends of Quality of Air

The Board is having 2 no. manual operated Ambient Air Quality Monitoring (AAQM) Stations. The data for the parameters PM_{10}, SO_2 and NO_X are being monitored and the data has been published in the public domain.

3.4.1. The Board has also commissioned one Continuous Ambient Air Quality Monitoring Station (CAAQMS) at Patiala in year 2018 and the real time data of the same is being displayed at Vatavaran Bhawan, Punjab Pollution Control Board, Head Office, Nabha Road Patiala. Annual average of AQI for the last year is given as under:

Year	PM10 (µg/m3)	PM2.5 (µg/m3)	SO2 (µg/m3)	NOx(µg/m3)	AQI
2018	99.57	45.00	7.11	31.02	101

3.4.2. The AQI observed from the data of the year 2018 to be marginally above satisfactory limit.

3.5 Major parameters of concern

The AAQM data of the stations installed by the Board for the period of 2014-18 in **Annexure-A** shows almost at the same trends with little up / down for parameter PM_{10}& NO_X. However, the data of SO_2 shows downwards trends during the year 2014-18.

The perusal of data in **Annexure-B** clearly indicates that air quality index of Patiala city generally remains marginally above satisfactory limit. The sources of pollution and their apportionment is given in the next chapter.

Chapter 4 – Sources of Air Pollution in Patiala City

4.1 Major Sources

4.1.1. The following are the major identified sources of air pollution:

(i) Vehicular Emissions
(ii) Road Dust
(iii) Burning of Garbage and Biomass
(iv) Industrial Emissions
(v) Mining
(vi) Construction and Demolition Activities
(vii) Other Sources

4.1.2. Due to paucity of time, detailed studies regarding source apportionment and carrying capacity could not be done, however, the Board has made some projections w.r.t PM_{10}based on its in house experience:

1.	Vehicular Pollution	48%
2.	Road Dust	27%
3.	Burning of Garbage and Biomass	7%
4.	Construction and Demolition Activities	12%
5.	Industrial Emissions	4%
6.	Mining	1%
7.	Other Sources	1%

4.1.3 PPCB shall carry out source apportionment for the city involving Expert Agency. The estimated cost to be incurred on the Source Apportionment study is Rs. 5.00 lacs.

4.2 Vehicular Emissions

4.2.1 Patiala city is having Head offices of Govt. Departments, educational institutes, commercial establishments. Transport is one of the major contributors to air pollution in Patiala City. At present about 4.42 lakh vehicles (out of which 4160 are three wheelers) are plying on the roads of Patiala City. National highway passes through Patiala which is connecting Sangrur, Barnala, Bathinda with Rajpura and Chandigarh.

4.3 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
(v) Presence of un-stabilized berms along the roads
(vi) Movement of overloaded transport vehicles

4.4 Burning of Biomass and Garbage

4.4.1 There are only small patches of agricultural land within the Patiala City, 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.

4.4.2 At present, Municipal solid waste generation of the city is estimated as 260 TPD, which is being dumped at dumping site in an unscientifically manner along Sanour Road, Patiala. The garbage burning increases during winter season as the general public tend to burn the waste for heating purposes.

4.5 Industrial Emissions

4.5.1 The main stationary sources of air pollution are the industrial units, which are emitting particulate matter, sulphur di-oxide and oxides of nitrogen etc.

4.5.2 The category wise detail of air polluting industries situated in Patiala City area are given as under:

Sr. No.	Category	Number of Units
1.	Milk Plants	01
2.	Induction Furnaces	04
3.	Rice Shellers	11
4.	Brick Kilns	01
5.	Misc. (Food Products, Engg. Goods, Ply Board, Plastic etc.	34
Total		**51**

4.5.3 It is pertinent to mention here that emission standards for most of the above industries are the most stringent for such type of industries i.e. 150 mg/Nm3 except boiler furnaces whose standards are load based.

4.6 Mining

Mining activities also contribute to the PM_{10}.However, in Patiala City, no mining activity is carried out except for Brick Kiln usage.

4.7 Construction and Demolition Activities

Patiala city is having population about 4 lakhs. Construction projects are being set up in the city. Small construction activities are being carried out by the individual house holders/ commercial units, educational institutes and paving of streets by the Municipal Corporation, Patiala on routine basis.

4.8 Others

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.

Chapter 5 –Control of Vehicular Emissions

5.1 Key Activities

5.1.1 The vehicles are major pollution contributor, producing significant amount of nitrogen oxides, carbon monoxides and other polluting gases and particulate matter. To minimize the pollution generated from the vehicles, various actions have to be taken, which have been classified into following categories:

(a) Public Awareness related
(b) Enforcement related
(c) Infrastructure related
(d) Policy related

5.1.2 Some activities may have more than one category but they have been kept in the category where it has the major requirement. Following are the key activities for control on vehicular emissions:

Public Awareness

(i) CVE 1 - Public awareness campaign for control of vehicular emissions

Enforcement Related

(ii) CVE 2 -Remote sensor based PUC system
(iii) CVE 3 - Extensive drive against polluting vehicles
(iv) CVE 4 - Prevent parking of vehicles in non-designated areas
(v) CVE 5 - Check fuel adulteration

Infrastructure Related

(i) CVE 6 - Widening of road and improvement of infrastructure for decongestion of road
(ii) CVE 7 - Introduce intelligent traffic systems
(iii) CVE 8 - Construction of expressways/ bypasses to avoid congestion

Policy Related

(i) CVE 9 – Phasing out commercial diesel vehicles more than 15 years old
(ii) CVE 10 – Promotion of E-vehicles
(iii) CVE 11 – Introduction of CNG based public transport
(iv) CVE 12 – Retrofitting of particulate filters in diesel vehicles for BS-V fuels

5.1.3 Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure – C**.

5.2 CVE 1 - Public awareness campaign for control of vehicular emissions

Public support is essential for clean air mission to be successful. As part of overarching mission of clean air, Patiala, the public must be made aware of ill effects of air pollution on health and contribution of vehicular emissions in the same. The public has to be motivated to play their role in curbing the air pollution. Following action shall be taken:

(i) Public awareness campaign in print and electronic media
(ii) Use of Social Media facebook, twitter, Instagram
(iii) Jingles on air pollution on local radio and tv
(iv) Awareness drives in educational institutions
(v) Public meetings
(vi) Nukarnataks

5.3 CVE 2 - Remote sensor based PUC system

The Department of Transport will implement remote sensor-based PUC system to eliminate the malpractices in the existing system of issuing PUCs. All PUC centres will be made online.

5.4 CVE 3 - Extensive drive against polluting vehicles

There is need to strictly enforce checking of PUC certificates so that unauthorized vehicles could be penalized. The traffic police shall place check points (Nakas) at differed locations and the performance of such check points shall be monitored. A whatsapp number shall be dedicated and publicized among general public so that complaints of public regarding polluting vehicles may be received and action taken.

Traffic Police and Department of Transport will be responsible for the activity.

5.5 CVE 4 - Prevent parking of vehicles in non-designated areas

4(a) Creating parking infrastructure: Presently, vehicles are being parked in a haphazard manner and on the roads as well, which leads to traffic congestion, thus, causing vehicular pollution. Hence, local government shall develop designated parking lots, Multi storey parking facilities, parking area for trucks/ commercial vehicles and ear –mark roadside parking by yellow line.

4(b) Enforcement: Traffic police shall impound vehicles parked in non-designated areas and shall compile the list of prominent areas of such violations & pay special attention to these areas. CCTV cameras shall be installed in such areas to capture the evidence. Number of challans shall be monitored.

5.6 CVE 5 - Check fuel adulteration

Online Automated System has been adopted by the State Level Coordinator, Oil industry, Punjab for transportation & checking the density of Petrol/Diesel. In case of complaint, Department of Food and 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 Coordinator, Oil industry, Punjab.

5.7 CVE 6 - Widening of road and improvement of infrastructure to decongest roads

Widening of road: The major air pollution caused by dust emission along road sides as the condition of roads is very pathetic. Due to the movement of heavy goods vehicles like Trucks, tippers etc. carrying raw materials and final products of the industries, lot of dust / vehicular emissions are generated, which is affecting the ambient air quality of the city. Widening of Roads and construction of over-bridges, wherever possible, is required for smooth and speedy flow of traffic and the pending construction work should be completed in the time bound manner

5.8 CVE 7 - Introduce intelligent traffic systems

The traffic lights installed in the area shall be synchronized in such a way so as to achieve minimal stoppage of vehicles for a stretch of at least 2 Kms. The traffic lights shall be placed at various intersection, so as to avoid traffic jams and smooth operation of the vehicles. Municipal Corporation in consultation with Traffic Police shall identify such places and provide traffic lights.

5.9 CVE 8 - Construction of expressways/ bypasses to avoid congestion

PWD (B&R) shall examine the need for any expressways/bye-passes to avoid congestions.

5.10 CVE 9 – Phasing out commercial diesel vehicles more than 15 years old

The Department of Transport will frame policy at State level to phase out commercial diesel vehicles more than 15 years old.

5.11 CVE 10 - Promotion of E- vehicles

The framing of E-Vehicle policy is at an advance stage of finalization. The Department of Transport shall notify the policy to promote battery operated vehicles.

5.12 **CVE 11 – Introduction of CNG based public transport**

11 (a) Infrastructure development: The Department of Food & Civil Supplies shall facilitate and expedite development of requisite infrastructure such as laying of pipe line and setting up of CNG filling station to promote CNG based public transport.

11 (b) CNG based City Bus Service: Local Government shall take necessary measures to promote CNG based City Bus service.

11 (c) CNG based Auto Rickshaws/Taxis: The Department of Transport shall take necessary steps to promote CNG based Auto Rickshaws/Taxis.The Department of Transport & Local Government shall make policy at State Level to promote CNG based Auto Rickshaws & City Buses, respectively.

5.13 **CVE 12 - Retrofitting of particulate filters in diesel vehicles for BS-V fuels**

State Level Coordinator (Oil Industry) has informed that as per Government of India guidelines, India is going to skip adopting BS-5 norms and progress 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 are available.

Chapter 6–Control of Road Dust

6.1 Key Activities

6.1.1 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. Additionally, the emissions from the vehicular traffic, building construction and renovation, corrosion of metals structures etc. contribute directly to the road dust. To minimize the pollution generated from the dust emissions, following key activities are proposed:

Maintenance Related

(i) CRD1– Maintain potholes free roads for free-flow of traffic
(ii) CRD 2 – Water sprinkling
(iii) CRD 3 – Mechanical sweeping

Infrastructure Related

(i) CRD 4 -Creation of green buffers along the road sides
(ii) CRD 5 - Greening of parks, open areas, community places, schools and housing societies
(iii) CRD 6 - Water fountains at major traffic intersections
(iv) CRD 7 - Blacktopping of metaled road including pavement of road sides

6.1.2 Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-D**.

6.2 CRD 1 – Maintain potholes free roads for free-flow of traffic

All the agencies such as MC/ PWD/ PUDA/ PSIEC/ NHAI will put in place a system of regular inspections to identify the potholes and ensure its maintenance. It shall be monitored on regular basis. A web based/ mobile app shall be set up for Public to lodge complaint against the pothole and it shall be monitored for repair.

6.3 CRD 2 – Water sprinkling

2(a) Water sprinkling on dust prone roads: Municipal Corporation shall identify the dust prone roads and shall prepare schedule for regular sprinkling of water on these roads to suppress dust emissions. This activity shall be started immediately. In order to save the water, the Municipal Corporation shall utilize the treated wastewater of STPs installed in the city.

2(b) Procurement of Water sprinkler: Municipal Corporation need to make arrangements for regular sprinkling of water on dust prone roads for which it may procure suitable number of water sprinklers.

6.4 **CRD 3 – Mechanical sweeping**

Municipal Corporation shall procure adequate number of automatic sweeping machines for efficient and fast sweeping of the road / streets. The frequency of the sweeping shall be fixed appropriately by the Municipal Corporation.

6.5 **CRD 4 – Creation of green buffers along the road sides:**

Municipal Corporation/PSIEC shall identify the trees with the help of Deptt. of Horticulture which may be grown along the roads without any obstruction to the traffic. These trees shall be planted at the suitable places. The maintenance of these trees shall be done by the Municipal Corporation.

6.6 **CRD 5 – Greening of parks, open areas, community places, schools and housing societies**

In order to increase greenery in the city, the Municipal Corporation shall identify open areas/ lawns/ vacant lands including community places and schools in the city and these places be allocated to the NGOs or Industrial Associations for tree plantation and their maintenance. The activity of identification of the suitable sites shall be completed in a time bound manner and shall be allotted to the NGOs or Industrial Associations.

6.7 **CRD 6 – Water fountains at major traffic intersections**

Municipal Corporation shall explore the possibility of setting up of the water fountains atimportant traffic junctions to reduce the emission level including dust at these points.

6.8 **CRD 7 – Blacktopping of roads including pavement of road sides**

7 (a) Kaccha/Brick Paved Roads to be made Pucca road: Some of the city roads are not properly metalled, which are the source of dust and gaseous emissions. These roads shall be converted into metalled road. Municipal Corporation shall undertake this activity in a time bound manner.

7 (b) Existing roads requiring re carpeting: Roads require regular upkeep & re carpeting. The responsible agencies(MC/PWD/NHAI/PSIEC/PUDA) shall ensure re carpeting of damaged existing roads.

7 (c) Pavement of road side using interlocking tiles to prevent road dust emissions: Berms along the roads need to be stabilized with interlocking tiles to prevent road dust emissions.

Chapter 7–Control on Burning of Garbage and Biomass

7.1 Key Activities

7.1.1. There are only small patches of agricultural land within the Patiala 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. To minimize the pollution generated from burning of garbage and biomass, following key activities are proposed:

Enforcement Related

(i) CBGB 1 –Control on open burning of bio-mass in City
(ii) CBGB 2 – Control on burning of municipal solid waste
(iii) CBGB 3 –Control on burning of agriculture waste and crop residue

7.1.2. Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-E**.

7.2 CBGB 1 – Control on open burning of bio-mass in City

The burning of biomass like leaves of the trees creates lot of smoke in the area particularly during winter season, as such, the open burning of these biomass must be stopped. Municipal Corporation shall deploy its staff to have a check on various areas so as to forbid the inhabitants and sweepers open burning of the biomass.

Municipal Corporation shall provide education to the educational institutions, government offices, residents welfare associations regarding horticulture waste collection and its benefits by way of disposing the waste in the form of composting and encouraging the organic farming in the gardens and fields.

A Whatsapp number shall provide to the public along with the setting up of the dedicated control room for receiving complaints of public through this system.

7.3 CBGB 2 – Control on burning of municipal solid waste

Presently, Municipal Corporation has one municipal waste dumping site along the Sanour Road, Patiala, which has not been developed scientifically for the disposal of the municipal solid waste and consequently it has become the source of burning of waste on this dump. Lot of smoke is generated which contribute to the air pollution index. Similarly, at the collection point and after sweeping the streets, the garbage collected may be burnt, instead of transporting to the dumping site.

Municipal Corporation shall identify and develop municipal waste dumping site as per the provisions of Municipal Solid Waste Rules, 2016 and the construction work of the said site shall be completed.

7.4 CBGB 3 – Control on burning of agriculture waste and crop residue

Patiala city is surrounded by agricultural area and a lot of agricultural waste is generated during post harvesting paddy and wheat season. During wheat season stubble burning is lesser than paddy season as the farmers use the wheat crop residue as cattle fodder. Punjab Pollution Control Board shall engage Punjab Remote Sensing Centre, Ludhiana for real time monitoring and reporting of stubble burning incidents. The District Administration shall constitute District Level Committees to verify the reported sites and issue challans to the violators besides filing of proceedings u/s 133 CrPc. Necessary directions / instructions shall be issued by the District Administration u/s 144 IPC to restrict harvesting of crops between6.00 pm to 6.00 am during crop harvesting seasons and attaching of the super SMS with the combine harvesters. Department of Agriculture to promote mechanical reincorporation of paddy straw to prevent its burning.

Chapter 8 – Control on Industrial Emissions

8.1 Key Activities

8.1.1. The environment of Patiala has degraded a lot during the last few years due to rapid urbanization, industrialization, increase in population, vehicles and commercialization of land available within the city. The main stationary sources of air pollution are the industrial units, which are emitting particulate matter, sulphur di-oxide and oxides of nitrogen etc. To minimize the pollution generated from the industries, following key activities are proposed:

Technology Intervention

(i) CIE 1 – Conversion to side hood suction in induction furnaces

(ii) CIE 2 – Conversion to CNG/PNG from coal

Enforcement Related

(i) CIE 3 – Conversion of natural draft brick kilns to induced draft

(ii) CIE 4 – Action against non-complying industrial units

Infrastructure Related

(i) CIE 5 – Shifting of industries from non-designated areas to industrial areas

8.1.2. CIE 6 - Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-F**.

8.2 CIE 1 – Conversion to side hood suction in induction furnaces

PPCB with the technical support from Council for Science and Technology has improvised technology to provide for sidehood suction in induction furnaces to reduce the emissions. The sidehood suction shall be implemented in a time bound manner and shall be monitored by the Board monthly.

8.3 CIE 2 – Conversion to CNG/ PNG from Coal

Someindustrial units in Patiala are using coal as source of energy. With the availability of CNG in the city, PPCB will motivate the industry to convert from Coal to CNG. The State government will be approached to reduce VAT to make it viable alternative.

8.4 CIE 3 - Conversion of natural draft brick kilns to induced draft

There is only one brick kiln in the city. Punjab Pollution Control Board has issued directions to the existing brick kilns of the State to convert their conventional brick kilns to induced draft technology. The Brick kilns located in the district will be monitored for conversion to the new technology in a time bound manner.

8.5 **CIE 4 – Action against non-complying industrial units:**

The regular monitoring of industries is being carried out as per the policy of the Board. In case, any industry is found violating the provisions of the Air (Prevention and Control of Pollution) Act, 1981, action under the provisions of the said Act is initiated against the violating industries. The number of inspections carried out and action taken will be monitored regularly by the District Level Committee.

8.6 **CIE 5 – Shifting of industries from non-designated areas to industrial areas**

There are certain industries, which are located in non-designated areas and the Department of Industries and Commerce shall develop new areas to shift the industries from non-designated areas in coordination with Distt. Town Planner & Punjab Pollution Control Board.

Chapter 9 – Control on Construction and Demolition activities

9.1 Key Activities

9.1.1. Patiala is having population about 4 lakhs. No major construction projects are being set up in the city. However, small construction activities are being carried out by the individual house holders / industrial units / commercial units and paving of streets by the MC on routine basis. To minimize the pollution generated from the construction and demolition activities, following key activities are proposed:

(i) CCDA 1 –Enforcement of Construction & Demolition Rules.
(ii) CCDA 2 – Control measures for fugitive emissions
(iii) CCDA 3 – Ensure carriage of construction material in closed/covered vessels.

9.1.2. Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-G**.

9.2 CCDA 1 –Enforcement of Construction &Demolition (C & D) Rules, 2016:

1(a)- Enforcement: The necessary provisions of the C&D Rules, 2016 shall be implemented in the city to ensure proper management of these wastes. Municipal Corporation shall frame mechanism for challaning the violators found dumping the C&D waste on non-designated areas. The enforcement will be monitored through the use of technology and regular review.

1 (b) – Infrastructure Development: Municipal Corporation shall identify suitable land and set up the processing plant for effective disposal of C&D waste.

9.3 CCDA 2 – Control measures for fugitive emissions

Municipal Corporation shall ensure that

(i) The builders provide proper curtains / sheets on the construction sites to avoid spreading of dust emissions into the environment.
(ii) No dust should be emitted during demolition.
(iii) No construction materials should be kept on the roads. The construction material inside the plots should also be kept in covered conditions and labour should be provided with required personal protective equipment'sduring the course of constructionto safeguard from ill effects of fugitive emissions.

9.4 CCDA 3 – Ensure carriage of construction material in closed/covered vessels

The relevant enforcement authorities will ensure that the construction material to be transported through trucks / vehicles shall be covered with tarpaulin to avoid the dust emissions.

Chapter 10 – Control through Other Steps

10.1 Key Activities

10.1.1. Apart from various measures being taken to control various sources of pollution, following activities will also be undertaken to control the pollution:

Public Awareness

(i) COS 1–Dissemination of information on Air Quality Index

Infrastructure

(i). COS 2 – Establish an Air Quality Management Division at SPCB HQ

(ii). COS 3 – Setup helpline in each city/town as well as SPCB HQ

Enforcement

(i). COS 4 - Monitoring of DG sets and action against violations

10.1.2. Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-H**.

10.2 COS 1 – Dissemination of information on Air Quality Index

Punjab Pollution Control Board shall display the air quality index of the city at its prominent places for the awareness of the public including website, social media and print media.

10.3 COS 2 – Establish an Air Quality Management Division at SPCB HQ

There is need to strengthen technical capability of pertaining to air pollution. The Board will identify the requisite skill sets and number of technical staff required along with future roadmap for the Board's activities.

10.4 COS 3 – Setup helpline in each city/town as well as SPCB HQ

The Board shall set up a helpline system at headquarter and each city to receive the complaints from public and have effective feedback system.

10.5 COS 4 - Monitoring of DG sets and action against violations

Municipal Corporation shall identify the commercial activities where the DG sets have been set up without fulfilling the norms for control of emissions and noise. Time bound action plan shall be prepared by the Municipal Corporation for removal of these DG sets. Punjab Pollution Control Board shall identify the illegal DG sets manufacturers and necessary directions for their non-operation / closure shall be issued. Punjab Pollution Control Board shall identify the industries where the DG sets have been set up without fulfilling the norms for control of emissions and noise.

Chapter 11–Graded Response Action Plan for Patiala

11.1 Graded Responses

11.1.1. In order to mitigate the impact of higher level of pollution when AQI crosses satisfactory level, Graded Response Action Plan has been prepared for Patiala for implementation under different Air Quality Index (AQI) categories namely, Moderate & Poor, Very Poor and Severe.

11.2 Agency Responsible for Graded Response

11.2.1. The concerned authorities responsible for taking action when AQI reaches various levels have been indicated against the proposed action. The authorities will work in coordination with and under the overall supervision of the District Level Committee.

11.3 Action in case of Severe AQI (Value $\geq$ 400)

11.3.1. Following action shall be taken by the concerned authorities:

Sr.No.	Severe (AQI value becomes 401-500)	Agency responsible / Implementing Agency
1	Temporary closure of brick kilns, hot mix plant, Rice sheller, Induction furnaces etc.	PPCB
2	Stop construction activity	Municipal Corporation, Patiala
3	Alert in newspapers / local cable TV to advice people with respiratory and cardiac patients to avoid polluted areas and restrict outdoor movement.	Municipal Corporation, Patiala, Distt. Administration, Patiala & PPCB
4	Sprinkling of water at the various dust emission points	Municipal Corporation, Patiala
5	Deploy Traffic police for smooth traffic flow at the identified vulnerable areas	Traffic Police
6	Stringently enforce / stop garbage burning in landfills and other places and impose heavy fines on person responsible.	Municipal Corporation, Patiala
7	To increase the frequency of mechanized sweeping on roads with heavy traffic and water sprinkling also on unpaved roads.	Municipal Corporation, Patiala
8	Stop entry of heavy good vehicles except essential commodities into Mandi Gobindgarh	Traffic Police
9	To take decision regarding closing of schools	District Administration, Patiala

11.4 **Action in case of Very Poor AQI (Value between 301 to 400)**

11.4.1. Following action shall be taken by the concerned authorities:

Sr.No.	Very Poor (AQI value becomes 301-400)	Agency responsible / Implementing Agency
1	Restraining the operation of air polluting industries i.e. brick kilns, hot mix plant, Rice sheller, Induction furnaces etc. for 8 hours/day	PPCB
2	Banning of construction activities	Municipal Corporation, Patiala
3	Stop of garbage burning in the landfill areas or in the open fields	Municipal Corporation, Patiala
4	Water sprinklings at the dust emission points etc.	Municipal Corporation, Patiala
5	Strict vigil and enforcement of PUC norms	Traffic Police
6	Strict vigil and no tolerance for visible emissions from the vehicles and industries	PPCB and Traffic Police.
7.	Strictly enforce Supreme Court ban on fire crackers	Municipal Corporation, Patiala and Distt. Administration, Patiala
8	Strictly enforce all pollution control regulations in the air polluting industries like induction furnaces, rolling mills, brick kilns etc.	PPCB

11.5 **Action in case of Poor AQI (Value between 201 to 300)**

11.5.1. Following action shall be taken by the concerned authorities:

Sr.No.	Poor (AQI value becomes 201-300)	Agency responsible / Implementing Agency
1	Strictly enforce garbage burning in landfill and other places and impose heavy fines on person responsible	Municipal Corporation, Patiala
2	Increase frequency of mechanized cleaning of road and sprinkling of water on roads. Identify road stretches with high dust generation.	Municipal Corporation, Patiala
3	Stop use of coal / firewood in open eateries	Municipal Corporation, Patiala
4	Strictly enforce rules for dust control in construction activities and close non-complaint sites.	Municipal Corporation, Patiala
5	Close / Strictly enforce all pollution control	PPCB

	regulations in the air polluting industries like brick kilns, hot mix plant, Rice sheller, Induction furnaces etc.	
6	Restricting air polluting industries i.e. brick kilns, hot mix plant, Rice sheller, Induction furnaces etc. for 12 hours/day	PPCB

11.6 **Action in case of moderately polluted AQI (Value between 101 to 200)**

11.6.1. Following action shall be taken:

Sr. No.	**Moderately polluted (AQI value becomes 101-200)**	**Agency responsible / Implementing Agency**
1	Increasing the frequency of mechanized cleaning the roads etc.	Municipal Corporation, Patiala
2	Sprinkling of water at the dust emitting points	Municipal Corporation, Patiala
3	To stop open burning of garbage and municipal solid waste	Municipal Corporation, Patiala
4	Close / strictly enforce all pollution control regulations in the air polluting industries like brick kilns, hot mix plant, Rice sheller, Induction furnaces etc.	PPCB

Chapter 12–Monitoring Requirements and Formats

12.1 Monitoring Requirements

12.1.1 Following are the key components of monitoring requirements of the Plan:

(i) Monitoring of activities for control on Vehicular Emissions
(ii) Monitoring of activities for control on Road Dust
(iii) Monitoring of activities for control on Burning of Garbage and Biomass
(iv) Monitoring of activities for control on Industrial Emissions
(v) Monitoring of activities for control on Construction and Demolition activities
(vi) Monitoring of activities for control on other sources

12.1.2 Further, various activities can be classified into one of the following categories:

(i) Public Awareness
(ii) Enforcement
(iii) New Infrastructure
(iv) Maintenance activities
(v) Policy Advocacy
(vi) Technology Support

12.2 Development of Environment Protection Monitoring System (EPMS)

In order to keep track of the progress made by concerned stakeholder departments on various projects, activities and initiatives, it is proposed to develop a dedicated IT platform namely Environment Protection Monitoring System (EPMS).

12.2.1 To work out detailed formats and setting up online system to track progress of various activities, a dedicated team of PPCB and NIC is working on it.

12.2.2 The system will ensure that information is captured at source and transmitted to the System and the system will be able to analyse and report it in the prescribed format. The system will generate different reports for use at different levels. The System will also have dashboard to present the key indicators and metrics.

Chapter 13–Governance and Supervision

13.1 Three Tier Monitoring

13.1.1. Monitoring will be done by the Departments concerned, which are executing or responsible for particular activities. In addition, there will be three level of Air Quality Monitoring Committees (AQMC) to review and monitor the status:

(i) AQMC at District Level under Deputy Commissioner
(ii) AQMC at State level under Principal Secretary, Environment
(iii) Steering Committee under Chief Secretary

13.1.2. PPCB will set up a dedicated team for supporting coordination and monitoring of the Action Plan. It will also develop suitable IT platform for monitoring purposes.

13.2 AQMC at District Level

District Level Committee will be constituted under the chairmanship of Deputy Commissioner, Patiala and the monthly meeting of the District Level Committee will be conducted to discuss / monitor the progress of the activities to be performed under the Action plan. The committee shall involve civil society organization and their participation will be ensured for achieving various targets mentioned in the Action plan. The district level committee shall constitute the followings:

1	The Deputy Commissioner, Patiala	Chairman
2	The Senior Superintendent of Police, Patiala	Member
3	The Environmental Engineer, Punjab Pollution Control Board, Regional Office, Patiala	Convener
4	The Executive Director, Punjab State Council for Science and Technology, MGIPA Complex, Sector 26, Chandigarh	Member
5	The Regional Transport Authority, Patiala	Member
6	The Divisional Forest Officer, Patiala	Member
7	Sub Divisional Magistrate, Patiala	Member
8	The Commissioner , Municipal Corporation, Patiala	Member
9	The Civil Surgeon, Patiala	Member
10	The Executive Engineer, Punjab Water Supply & Sewerage Board, Division No. 2, Patiala	Member
11	The Executive Engineer, PWD (B & R), Patiala	Member
12	The Executive Engineer, (Drainage), Deptt. of Irrigation, Drainage Division, Patiala	Member
13	The District Town Planner, Patiala	Member
14	The Executive Engineer, Punjab Small Industries & Export Corporation, 18, Himalya Marg, Udyog Bhawan, Sector-17-A, Chandigarh	Member

15	The General Manager, District Industries Centre, Patiala.	Member
16	The Executive Engineer, Punjab Water Supply & Sewerage Board Patiala.	Member
17	The Asstt. Executive Engineer, Punjab Small Industries & Export Corporation, Patiala	Member
18	The District Agriculture Officer, Deptt. of Agriculture, Patiala	Member
19	The General Manager-cum- Project Director, NHAI, Ambala.	Member
20	The President, Focal Point Industries Association, (Regd.) Patiala	Member

13.3 **AQMC at State Level**

13.3.1. State Level Air Quality Monitoring Committee (AQMC) will comprise of the following:

1	Administrative Secretary, Department of Environment	Chairman
2	Director, Local Government	Member
3	Director, Transport	Member
4	Director, Industries and Commerce	Member
5	ADGP, Traffic	Member
6	Director, Directorate of Environment & Climate Change	Member
7	Chairman, PPCB	Member
8	Representatives of NGO/ Expert Members	Member
9	Representatives of NGO/ Expert Members	Member
10	Joint Director, Directorate of Environment & Climate Change	Convener

13.3.2. The State level Committee would meet every month to review the progress of the action plan and take corrective measures and also escalate issued to the Steering committee for intervention.

13.4 **Steering Committee**

13.4.1. There will be a Steering Committee under Chief Secretary and comprising of Administrative Secretaries of relevant administrative departments for monitoring the progress, resolving issues and enforcing accountability.

13.4.2. The Committee will comprise of the following:

1	Chief Secretary	Chairman
2	Administrative Secretary, Environment	Member

3	Administrative Secretary, Local Government	Member
4	Administrative Secretary, Industries and Commerce	Member
5	Administrative Secretary, Transport	Member
6	Administrative Secretary, PWD	Member
7	ADGP, Traffic	Member
8	Director, Directorate of Environment & Climate Change	Member
9	Chairman, PPCB	Member
10	Additional Secretary, Environment	Convener

Chapter 14–Risk Mitigation Plan

14.1 Identification of Major Risks

Following are the major risks

(i) Lack of formal source apportionment study
(ii) Accuracy and completeness of baseline data, targets and milestones
(iii) Lack of formal analysis of implementation barriers

14.2 Source Apportionment Study

It is important to have the assessment of various sources and their contribution to the air pollution and accordingly focus on controlling those sources. Currently no such study has been done. In order to mitigate the risk, Punjab Pollution Control Board shall get source apportionment study of the city conducted to adjudge various sources contributing air pollution in the area and mitigation thereof. The same will be incorporated in the Action Plan.

14.3 Accuracy and completeness of baseline data, targets and milestones

The baseline data, targets and milestones are not very accurate or complete. During the course of implementation detailed surveys and analysis will be carried out and the baseline data, targets and milestones will be suitably updatedand same will be reviewed in the AQMC meeting at District Level.

14.4 Lack of formal analysis of implementation barriers

Various activities included in the action plan need to be carefully analysed with respect to implementation challenges so that suitable remedial measures could be envisaged. Efforts will be made to study various barriers and improving the efficacy and effectiveness of the proposed activities by overcoming the shortcomings in the present system.

Chapter 15 –Action plan for Training and Capacity Building

15.1 Importance

It is important to enhance the capability and skills of the officers of stakeholder departments for effective implementation of Air Action Plans. Therefore, training and capacity building programmes related to various technical aspects are required to be conducted for different functionaries of relevant departments & organizations at various levels of hierarchies.

15.2 Objectives

(i) Raising awareness and changing the mindset.
(ii) Building trust and appreciation for the purpose of various Environment Protection Plans, environmental concerns, issues, roles and responsibilities of different stakeholders.
(iii) Improving skills regarding existing practices, procedures and methodologies.
(iv) Promoting an integrated and holistic approach for addressing the concerns.
(v) Enhancing core competencies of concerned stakeholders in relevant areas of environment improvement.
(vi) Strengthening institutional arrangements
(vii) Reinforcing accountabilities and identifying aspects that require improvement
(viii) Understanding new challenges and requirements

15.3 Need Assessment

Specific modules for training of nodal and other responsible officers of various line departments involved in implementation of Air Action Plan are required to be developed for which need assessment would be carried out.

15.4 Involvement of Institutions and Experts

Organizations of national & international repute having expertise in the area of environment in general and air pollution in particular shall be involved for conducting need specific trainings & capacity building programmes for various target groups and officials of stakeholder departments. Experts would also be involved in developing knowledge products and information material on various issues & technologies for creating mass awareness to build a responsible society with an aim to reduce air pollution in cities. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-I**

Annexure A - The year wise data of PM10, SO2 and NOx for the period 2014-18

1. Station Name: M/s Ceylon Industries/ Kainos, Patiala

Month / Year	RSPM (PM_{10}) ($\mu g/m^3$)					NO_x ($\mu g/m^3$)					SO_2 ($\mu g/m^3$)				
	2014	**2015**	**2016**	**2017**	**2018**	**2014**	**2015**	**2016**	**2017**	**2018**	**2014**	**2015**	**2016**	**2017**	**2018**
January	84	104	110	104	95	15	15	12	11	10	6	5	5	5	4
February	102	97	105	101	100	16	15	13	11	10	5	5	5	5	5
March	101	98	107	109	96	15	15	13	11	11	6	5	5	5	5
April	108	112	108	118	99	14	15	12	11	11	7	5	5	6	5
May	105	117	110	101	98	14	15	14	10	13	6	6	5	5	6
June	94	132	97	99	114	12	15	14	11	11	5	8	5	5	6
July	90	98	105	84	106	12	13	13	10	11	4	5	5	5	5

August	95	94	102	95	112	12	13	12	10	11	5	5	5	5	6
September	92	93	102	91	101	12	15	12	11	12	4	5	5	5	5
October	120	113	112	127	94	15	14	13	13	12	5	5	5	5	5
November	126	133	117	153	98	16	17	13	16	12	5	6	5	6	6
December	122	121	108	100	109	15	14	12	11	11	5	5	5	5	5
Annual Avg.	**103**	**109**	**107**	**107**	**102**	**14**	**15**	**13**	**11**	**11**	**5**	**5**	**5**	**5**	**5**

2. Station Name: Fire Brigade Office, Patiala

Month / Year	PM_{10} ($\mu g/m^3$)					NO_x ($\mu g/m^3$)					SO_2 ($\mu g/m^3$)				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
January	78	104	106	109	84	14	15	12	11	11	7	5	5	5	4
February	93	99	106	105	86	16	16	13	11	10	6	5	5	5	4
March	106	97	108	107	99	16	15	13	11	11	7	5	5	5	5
April	113	114	105	109	102	14	15	13	11	10	7	5	6	5	5
May	104	119	110	102	93	13	15	12	11	12	6	6	6	5	5
June	83	126	102	100	110	12	15	13	10	11	4	6	5	5	6
July	90	97	107	99	103	12	14	14	10	12	4	5	5	5	5
August	93	91	97	90	101	12	14	12	10	10	5	5	5	4	6
September	84	96	102	99	76	13	13	12	12	12	4	5	5	5	6
October	124	123	116	150	83	14	14	12	15	12	5	5	5	5	5
November	147	145	116	190	96	17	18	13	21	12	6	6	5	6	5
December	123	123	111	103	94	15	13	12	10	11	5	5	5	5	5
Annual Avg.	**103**	**111**	**107**	**114**	**94**	**14**	**15**	**13**	**12**	**11**	**6**	**5**	**5**	**5**	**5**

Annexure B - CAAQMS AQI data for year 2018 depicting the air quality in Patiala

Month	AQI	Category
Jan-18	146	Moderate
Feb-18	119	Moderate
Mar-18	84	Satisfactory
Apr-18	99	Satisfactory
May-18	135	Moderate
Jun-18	102	Moderate
Jul-18	44	Good
Aug-18	56	Satisfactory
Sep-18	64	Satisfactory
Oct-18	108	Moderate
Nov-18	114	Moderate
Dec-18	144	Moderate
2018 (Annual avg.)	**101**	Moderate (Marginally above satisfactory)

Annexure B – Action Plan for Control on Vehicular Emissions

Sr. no.	Activity	Implementation period (Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CVE 1 - Public awareness campaign for control of vehicular emissions	Short Term	Department of Transport	Presently, awareness is being done in the Educational Institutes under SadakSurakhya Abhiyan	The public has to be motivated to play their role in curbing the air pollution	Regular Activity	1. Public awareness campaign in print and electronic media-Twice a month 2. Use of Social Media Facebook, twitter, Instagram-Regular 3. Jingles on air pollution on local radio and TV-Local FM Radio will be hired 4. Awareness drives in educational institutions-Monthly 5. Public meetings-Monthly	Nil

							6. Nukarnataks- Quarterly	
			Traffic Police.	29 seminars organised in the month of Jan, 2019 and 42 in the month of Feb, 2019	Public awareness campaigns to be conducted	Regular activity	--	
2	CVE 2 - Remote sensor based PUC system	Medium Term	Department of Transport & PPCB	Manual checking at Pollution Check Centre (PCC) exists	All PCC centres will be linked with VAHAN 4.0 software of the Transport deptt.	31.01.2020	1. Preparation of RFP for selection of vendors - Under Process 2. Allotment of work after selection of vendors – 2 Months 3. Development of software solution to link all PUC centres – 9 months 4. All PCC to be linked with VAHAN 4.0 software of the transport Deptt.- 1 Month	Nil
3	CVE 3 - Extensive drive against polluting	Short Term	Traffic Police.	71 challans issued for violating vehicles	Regular inspection to be continued and	Regular activity	-	Nil

	vehicles			with regard to invalid PUC certificates in Jan & Feb 2019.	violatorsto be challaned.			
4	CVE 4 (a) – Prevent parking of vehicles in non-designated areas by improvement of parking infrastructure	Short term	Municipal Corporation	Designated parking lots: 3 Nos. 1. Leela Bhawan 2. City Center 3. Backside AC Market	Additional 1 Nos. designated parking lots to be made : 1. Bhasha Bhawan	30.9.2019	Work allotment completed.	Rs. 10 Lacs.
		NA		Multi storey parkings - Nil	No Proposal to develop multi storey parking	--	--	Nil
		NA		Parking for trucks/ commercial vehicles : 1 Transport Nagar exists	Additional transport nagar to be provided – Nil	--	--	Nil
	CVE 4b – Enforcement	Short Term	Traffic Police.	135 challans issued in the month of Jan,2019 and 244 in the month of Feb, 2019	Regular inspection to be continued and violators to be challaned.	Regular Activity	-	Nil

		Short Term	Municipal Corporation	Roadside parking earmarked by yellow line: 3 no.	Additional No. of Roadside parking for earmarking : 1. Tripuri Chowk Parking 2. Anar Dana Chowk Parking.	30.9.2019	Estimate Completed Tendering & Work allotment - under process	25 Lac
				"No Parking" sign Boards installed - 1.	Additional No. of "No Parking" sign Boards - Nil			
5	CVE 5 - Check fuel adulteration	Short Term	Department of Food and Civil Supplies/Oil Companies	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	Regular Activity	--	Nil

					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 Coordinator of Oil Company.			
6	CVE 6 - Widening of road and infrastructure for decongestion of roads	MediumTerm	Municipal Corporation	5.550 Km of roads identified for widening	Identified roads to be widened	31.01.2020	Tendering and work allotment-Completed	Rs.20 lacs
		Medium Term	PWD	14.96 km of roads identified for widening	Identified roads to be widened.	31.12.2019	Tendering and work allotment-Completed	Rs. 8.14 Crore
7	CVE 7 - Introduce intelligent traffic systems	Medium Term	Municipal Corporation	17 no. conventional traffic light exists	19 No. intelligent traffic system to be installed	31.10.19	1. DPR-Completed 2.Tendering-Under process 3. Work allotment-after administrative approval	Rs. 3.72 Crore
8	CVE 8 - Construction of	NA	PWD (B&R)	Chandigarh – Bathinda Bypass	Not required	--	--	Nil

	expressways/ bypasses to avoid congestion			and Sirhind Bypass already provided.				
9	CVE 9 – Phasing out commercial diesel vehicles more than 15 years old	Long term	Department of Transport.	New commercial diesel vehicles is 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
10	CVE 10 – Promotion of E-vehicles	Medium Term	Deptt. of Transport	Presently, most of the vehicles are running on diesel and petrol. -Framing of the E-vehicle policy is in the final stages.	After approval from Competent Authority E-Vehicle policy will be notified.	31.12.2019	1. Framing & Notification of E-vehicle policy – 9 months 2. Providing public charging points for battery operated vehicles as per Govt. policy.	Nil

11	CVE 11 (a) – Introduction of CNG based public transport (Infrastructure development)	Medium Term	Department of Food & Civil Supplies	No CNG Stations exists	To upgrade 2 no. conventional filling stations to CNG filling stations.	31.03.20	Upgradation & commissioning of CNG filling stations	Nil
	CVE 11 (b) – Introduction of CNG based city bus service	Long term	Deptt. of Transport	At present no CNG based city bus service exits.	To take measures to introduce CNG based city bus service.	--	--	Nil
	CVE 11 (c) – Introduction of CNG based autos / taxis	Long term	Deptt. of Transport	At present, no CNG based auto/ taxis. PPCB has issued	To take measures to introduce CNG based auto/ taxis	-	-	NIL
12	CVE 12 – Retrofitting of particulate filters in diesel vehicles for BS-V fuels	Long Term	Department of Transport	Presently, India is implementing BS-IV standards	India is going to skip adopting BS-5 norms and shift directly to adopting BS-6 norms by 2020	One year	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 are available	Nil

Annexure D – Action Plan for Control on Road Dust

Sr. No.	Activity	Implementation period (short/med/long term)*	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CRD 1 – Maintain potholes free roads for free-flow of traffic	Short term	MC	1.375 Km has been Identified to make pothole free	Identified roads to be repaired	30.10.2019	Work allotted and shall be completed- Within 6 month	Rs. 44.09 Lacs
		Short term	PUDA	21.3 km has been identified in Urban Estate, Phase-2.	Identified roads to be repaired	30.06.2019	Work allotted and shall be completed within two months.	Rs. 41.12 Lacs
		Short term	PWD	20.58 km length of roads has been identified	Identified roads to be repaired	30.10.2019	Work allotment has been done and shall be completed in 6 months	Rs. 95 Lacs
2	CRD 2 (a) – Water sprinkling	Medium Term	Municipal Corporation	16.4 km of Road length Identified for water sprinkling .	Regular Water sprinkling on identified roads	Regular activity	NA	Nil

	CRD 2 (b) – Procurement of Water sprinkler	Medium Term	Municipal Corporation	One water sprinklers- exists.	2 more sprinklers to be procured.	31.01.2020	1. Identification – completed 2. Estimation - Completed 3.Tendering - After administrative approval.	Rs. 7 Lacs
3	CRD 3 – Mechanical sweeping	Medium Term	Municipal Corporation	-Presently manual sweeping being done.	Procurement of 1 no. Mechanical sweeping of identified road.	31.10.2019	1. DPR- Being prepared 2.Tendering, Work Allotment, Procurement will be completed by – 31.10.2019 subject to administrative approval	Rs.70 lacs
4	CRD 4 - Creation of green buffers along roadsides	Short term	Municipal Corporation	- 2.2 km of roads identified for green buffer as following: 1. Focal paint area 2. Alongwith chotti nadi 3. Mall road	4775 nos. of trees to be planted in the identified areas.	30.09.2019	1. Identification of area- Completed 2. Plantation in rainy season	Rs. 36.60 lacs

				Green belt 4. Leela Bhawan road				
5	CRD 5 - Greening of parks, open areas community places, schools and housing societies	Short term	Municipal Corporation	112 No. of parks comes under MC. All city parks being maintained.	1100 trees to be planted in identified parks/areas.	30.09.2019		
6	CRD 6 - Water fountains at major traffic intersections	NA	Municipal Corporation	Water fountain near Bhagat Singh Petrol pump already exists.	Not required	--	--	Nil
7	CRD 7 (a) Kaccha/Brick Paved Roads to be made pacca road	Medium Term	Municipal Corporation	0.3 Km Kaccha Road have been identified for making pucca.	Identify Kaccha road to be made Pacca roads.	31.01.2020	Estimation and tendering – completed.	Rs. 2.13 Cr.
	CRD 7 (b)- Existing roads requiring recarpeting	Medium Term	Municipal Corporation	16.17 Kms roads roads have been identified for re-carpeting.	Identify existing roads to be recarpetted	31.01.2020		

		Short term	PUDA	6.7 kms of road network identified in Urban Estate, Phase-2	Identify existing roads to be recarpetted	30.06.2019	Estimation and tendering, work allotment – completed.	Rs. 50.95 Lacs
		Medium Term	PWD	44.01 km of the roads identified for recarpetting	Identify existing roads to be recarpetted	31.01.2020	Estimation and tendering, work allotment – completed.	Rs. 35.43 Cr.
	CRD 7 (c) - Pavement of road side using interlocking tiles /any other methods to prevent road dust emissions	Medium Term	MC	3 km. Road length identified for pavement of road sides.	Identified area to be paved by using interlocking tiles	31.01.2020	Estimation and tendering – completed.	Activity to be taken up in budget under Activity 7(a)
		Short Term	PWD	24 no. roads having length 52.782 kms identified for Pavement of road sides using interlocking tiles	Identified roads to be paved by using interlocking tiles	31.12.2019	Estimation and tendering – completed.	Rs. 17.16 Cr.

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

Sr. No.	Activity	Implementation period (Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CBGB 1 – Control on open burning of bio-mass	Short term	Municipal Corporation	59 compost pits have been constructed	141 to be constructed	31.01.2020	1. Identification-Completed 2. Construction of 141 compost pits-Under progress	Rs. 34 Lacs
2	CBGB 2 (a) – Control on burning of municipal solid wastes	Short term	Municipal Corporation	No. Of inspections made – 36 No. No. Of challans issued – 36 No. No. Of awareness camps – 50 No. Recovery from challans Rs. 32000/- Burning of municipal solid wastes stands prohibited.	Regular inspections to be continued for Control on burning of municipal solid wastes and Challans to be issued to the violators.	Regular activity		Nil

3	CBGB 3 – Control on burning of agriculture waste and crop residue	Short term	District Administration, Department of Agriculture, Police, PSPCL, Revenue Department & PPCB	- Identification of sites by PRSC (PAU) · Regular monitoring under supervision of DC - In District Patiala, 771Challan issued imposing Rs 26,32,500 as Environmental compensation in year 2018 by PPCB.	Enforcement by Team	During wheat/rice harvesting season	1. To create awareness among farmers regarding health effects of residue burning 2. Deptt. of Agriculture to provide subsidy for equipment/ machinery as per Govt. policy 3. Teams will be constituted one month prior to start of each harvesting season. 4. Identification of no. of fire incidents by PRSC. 5. Visit to identified sites 6. Imposing Environmental compensation on defaulters 7. PSPCL shall ensure electricity for in-situ	Nil

							management 8. Progress review in District Level Air Quality Monitoring Committee meetings	

Annexure F – 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	CIE 1 – Conversion to Side Hood suction in induction furnaces	NA	Punjab Pollution Control Board	No induction furnace more than 1 T/heat exists	NIL	NIL	NIL	Nil
2	CIE 2 – Conversion to CNG/PNG from coal	NA	Punjab Pollution Control Board	No such industry exist	NIL	NIL	NIL	Nil
3	CIE 3 – Conversion of natural draft brick kilns to induced draft	NA	Punjab Pollution Control Board	One brick kiln- already converted to Induced draft	NIL	NIL	NIL	Nil
4	CIE 4 – Action against non-complying industrial units	Short term	Punjab Pollution Control Board/ PSCST	Regular inspection as per policy of the Board	- Action against defaulting industries. · Checking the adequacy of APCD installed for small	Regular activity	Regular inspections by PPCB	Nil

					induction furnaces (4 no.).			
5	CIE 5 – Shifting of industries from non-designated areas to industrial areas	Long term	Local Govt. / Deptt of Town & Country Planning/ Deptt of Industries.	Industries located in non designated areas need to be identified for shifting.	Identified Industries required to be shifted to the designated areas	Upto 2021	As per the provisions of notified Master Plan	Nil

Annexure G – Action Plan for Control on Construction and Demolition Activities

Sr. No.	Activity	Implementation period (Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	CCDA 1 (a) – Enforcement of Construction & Demolition Rules	Short Term	Municipal Council	No. Of inspections made – 100 No. No. Of challans issued – 21 No. Recovery from challans Rs. 4300/- Inspection of bigger/commercial & road projects is being carried out as per needs .	Regular inspection will be made for Control ofC&D waste. Counter verification to be done by ATP/EO.	Regular activity	Monthly review meetings at District Level	Nil
	CCDA 1 (b) – Infrastructure of Construction & Demolition waste	Long term	Municipal Corporation	4 sites identified for disposal of C & D waste 1)Allipur Road 2)KhanauriAdda 3) Baba Jeewan Singh Basti 4)Sanour road	MC toinstall a C&D plant Installation of CCTV cameras at major construction sites.	30.06.2019	1. Identification-Three months 2. Land acquisition-One year 3. DPR-Three months 4. Tendering-Six months	--

							5. Development& Commissioning-One year	
2	CCDA 2 – Control measures for fugitive emissions	Short term	Municipal Corporation	No. Of inspections made – 80 No. No. Of challans issued – 21 No. At present, minimal measures being taken by the building contractors.	Preventive measures to comply with the C&D Rules	Regular activity	1. Identification of construction sites 2. Checking for compliance of C&D Rules 3. Challaning of violators	Nil
3	CCDA 3 – Ensure carriage of construction material in closed/ covered vessels.	Short Term	Municipal Council	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	Monthly review meetings at District Level	Nil

Annexure H – Action Plan for Control through Other Steps

Sr. No.	Activity	Implementation period (Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	COS 1 – Dissemination of Air Quality Index	NA	Punjab Pollution Control Board	One No. CAAQMS installed.	--	--	Public awareness	NIL
2	COS 2 – Establish an Air Quality Management Division at SPCB HQ	Medium Term	Punjab Pollution Control Board	No such division exists	One required	31.03.2020	1. Develop methodology-Three months 2. Providing infrastructure-Six months 3. Implementation-Three months	Rs 2.0 Lacs
3	COS 3 – Setup helpline in each city/town as well as SPCB HQ	Medium Term	Punjab Pollution Control Board	No such helpline exists	One required	31.03.2020	1. Develop methodology-Three months 2. Providing infrastructure-Six months 3. Implementation-Three months	Rs 0.5 Lacs

4	COS 4 - Monitoring of DG sets and action against violations	Short term	Punjab Pollution Control Board	Manual monitoring exists	Non-complying DG set should not be allowed	Regular	1. Identification- Three months 2. Implementation- Three months	NIL
6	COS 5 – Source Apportionment Study	Short Term	PPCB	Source Apportionment Study not carried out	Source Apportionment Study to be carried out through selected Agency.	31.03.2020	Selection of Agency Develop scope of work Allotment of work	Rs.5.00 lacs

Annexure I – Action Plan for Training & Capacity Building Programmes

Sr. No.	Activity	Implementation period (Short/ Medium/ Long term)	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)	Financial Implications, if any (Estimated Cost)
1	TCB1 – Training & Capacity Building Programmes	Short Term	PPCB	Officers get trainings under various programmes orgnanized by the concerned departments	• District/City level training programmes – 1 Nos. • State level training programmes – 1 Nos.	31.03.2020	Selecting agencies/ experts for organizing theme specific trainings. Organization of programmes at City/District and level.	Rs.2.00 lacs

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.

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