Original Application. No. 1038 of 2018, dated 13.12.2018

In the matter of

NEWS ITEM PUBLISHED IN "THE ASIAN AGE"

Authored by Sanjay Kaw
Titled
"CPCB to rank industrial units on pollution levels"

ACTION PLAN

For

Baddi Industrial Cluster

(For Severely Polluted Areas of Himachal Pradesh)

Submitted in compliance to the Hon'ble National Green Tribunal (NGT) order Dated 13th December, 2018

HP State Pollution Control Board
Him Parivesh, Phase – III, New Shimla - 171009

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FOREWORD

Need of action plan is justified to control pollution in any area where pollution sources are identified, pollutants are measured, assessed and found exceeding permissible limits. To implement such action plans is a duty of any SPCB and all concerned agencies/stakeholders.

After declaration of critically polluted areas by Office Memorandums (OMs) dated 13.1.2010 and 15.3.2010 of MoEF, GOI, necessary directions were issued to prepare and finalise action plans for theses specified areas. Although as per the orders, no area of Himachal Pradesh was classified under Critically Polluted Areas, however 3 areas namely, Baddi, Kala Amb and Parwanoo were identified as Severely Polluted Areas.

The Hon'ble National Green Tribunalin its order dated 13-12-2018 passed in OA no. 1038/2018 directed that all the State Pollution Control Boards should finalize time bound action plans with regard to identified polluted industrial clusters (Critically and Severely Polluted Areas) in accordance with revised norms laid down by the Central pollution Control Board to restore environmental qualities within the norms.

A comprehensive remedial environmental action plan has been prepared in consultation with all the stakeholders, including Industrial Associations. The Public Private Partnership (PPP) model is proposed to be effectively used for the success of the environmental action plan. The multi-disciplinary action plan is based on Prevention and Mitigation (PPM) principles emphasizing on a time bound implementation of effective measures. The key role of monitoring the action plan itself is proposed to be bestowed on a high-level steering committee, which will ensure collaborative efforts among various implementing agencies and industries.

We are hopeful that this will serve the purpose and help various agencies/ authorities to implement and monitor the Action Plans for the 3 industrial clusters/ areas of the state identified as Severely Polluted Areas.

Place: Shimla

Date: 18-03-2019

INTRODUCTION:

The Hon'ble National Green Tribunal (NGT) in its order dated 13-12-2018 passed in OA no. 1038/2018 observed that 3 industrial areas of Himachal Pradesh fall under the Severely Polluted Areas.

In compliance to the Hon'ble NGT order to prepare and finalize time bound action plans with regard to 3 Severely Polluted Areas of Himachal Pradesh namely Baddi, Kala Amb and Parwanoo which have been identified based on Comprehensive Environment Pollution Index (CEPI) criteria, an Environment Monitoring Committee (EMC) under the Chairmanship of Additional Chief Secretary (Environment, Science and Technology) to the Government of Himachal Pradesh have been constituted by the State Government vide notification no. STE-E(3)-34/2018 dated 11-01-2019(Copy enclosed at **Annexure-I**).

The committee comprises of:

1. Addl. Chief Secretary (EST) to the Govt. of Himachal Pradesh	**Chairman**
2. Pr. CCF (HOFF), Forest Department, H.P.	Member
3. Director, Environment, Science and Technology, H.P.	Member
4. Director, Industries Department, H.P.	Member
5. Director, Urban Development Department, H.P.	Member
6. Director, Rural Development Department, H.P.	Member
7. Engineer-in-Chief, I & PH, Department, H.P.	Member
8. Director, Health Department, H.P.	Member
9. Director, Transport Department, H.P.	Member
10. The Member Secretary, HPSPCB	**Convener**

After the above notification, the Environment Monitoring Committee (EMC) held its four meetings on 22-01-2019, 20-02-19, 1-03-2019 and 8-03-2019 respectively (Copy of the minutes are enclosed **Annexure-II, III, IV, V**)

After detailed deliberations, the Environment Monitoring Committee (EMC) has finalised the action plans for 3 severely polluted areas of Himachal Pradesh.

Baddi Industrial Cluster

Chapter-1

Industries

1. Area Details

1.1 Brief history:

Baddi, Barotiwala, an industrial belt of district Solan in Himachal Pradesh has carved out a name for itself not only in the State of Himachal Pradesh but in North India as Asia's largest pharmaceutical manufacturing hub. It is one of the important growth centres of the economy of Himachal Pradesh having one major urban settlement, Baddi Municipal Council.

Baddi-Barotiwala-Nalagarh Special Area is strategically located in the lap of Shiwalik foothills of the Solan District. By virtue of peculiar setting NH-21A passes through the centre of BBN Special area from south to north direction. Though entire industrial corridor starting from Parwanoo to Nalagarh along the foot-hills of the Shiwaliks, is emerging an urban agglomeration, yet Baddi-Barotiwala-Nalagarh is most important industrial belt of the State. This area is fast developing as industrial hub, and is most popular among entrepreneurs because of its geographical edge over other area of the State on account of nearness to city beautiful Chandigarh, nearness to broad gauge Rail head at Kalka, adequate developable land, better accessibility and availability of basic infrastructure.

1.2 Location:

This Action Plan has been contemplated for entire BBN Special area of which 25 percent is not suitable for development purpose as it is covered by water bodies, forest and undevelopable land where in development permission shall not be allowed under provisions of HP Town & Country Planning Act, 1977. Out of this total land 15 percent has already been developed under various urban uses viz residential, commercial, industrials, public & semi-pubic and park and open space. Net developable land is 60 percent of the total land, which has been further proposed for various urban uses, accommodation of anticipated population as well as agriculture use up to the plan period of 2025.

The latitude 30.95 °N and longitude 76.79°Eare the geo coordinates of the Baddi. It houses 20 industrial sheds and 865 Industrial plots other land use detail of the cluster is summarized in the Table given below:

Table-1: Land use detail of the cluster

Sr. No.	Type of Plots	Total Nos.	Allotted	Vacant
1.	Industrial Shed	20	20	0
2.	Industrial Plot	865	850	15
3.	Housing Plot	0	0	0
4.	Commercial plots	0	0	0
5.	Housing Quarters	0	0	0
6	Shops	84	84	0
7.	Go down	0	0	0

Source: H.P. Industries Department.

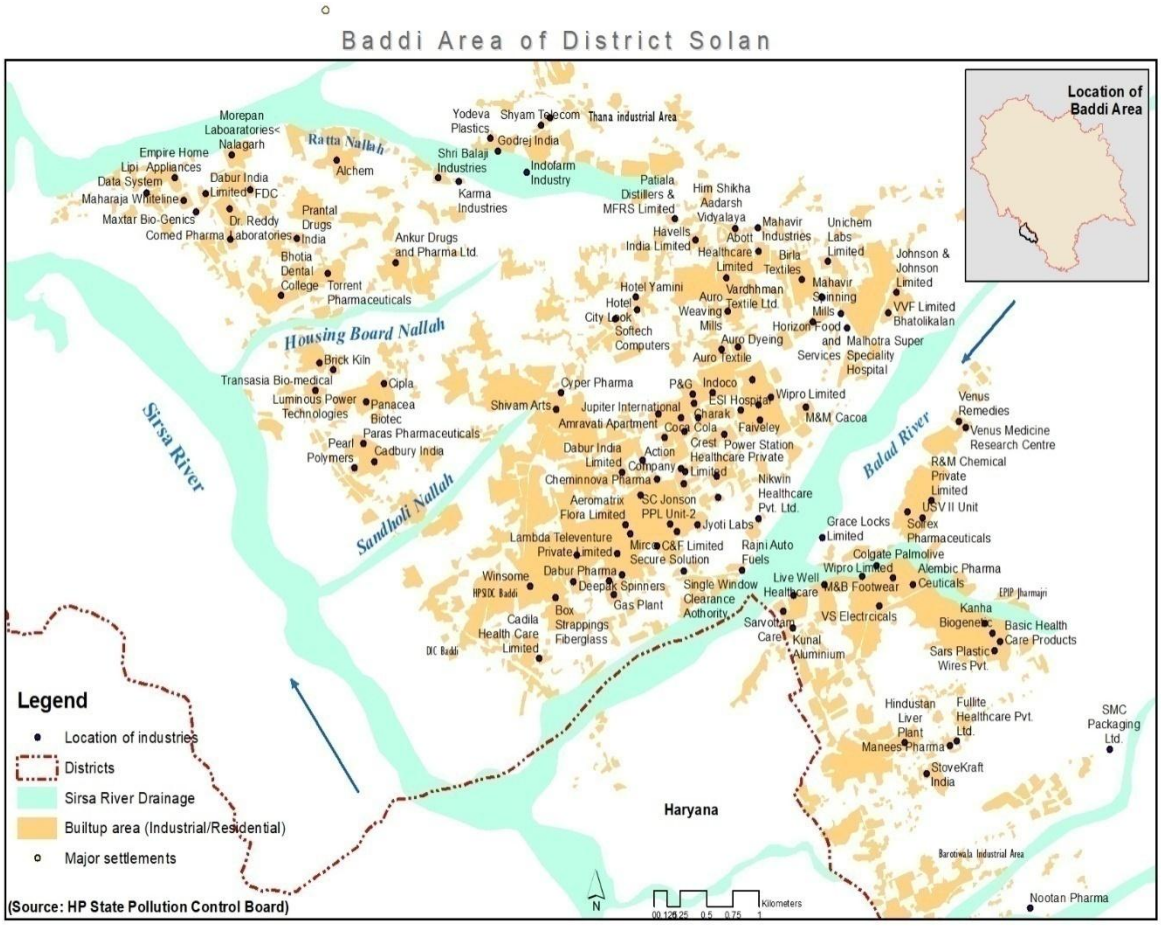
Table-2: The details of total investment and employment are given as below:

Sr. No.	Particulars	Present Status -2019
1.	Investment (Rs. In crore)	13027.48
2.	Employment Nos.	85550

Source: H.P. Industries Department.

1.3 Location Map:

Baddi's geographic coordinates are 30.95 °N 76.79°E. The Baddi town is situated at an average elevation of 426 metres. Map showing geographical location and Impact Zone is below:



1.4 CEPI Score (Air, Water, Land and Total)

Central Pollution Control Board (CPCB) in collaboration with Indian Institute of Technology (IIT), Delhi and other institutes formulated the concept for Comprehensive Environmental Pollution Index (CEPI) and has analysed the Environmental status of industrial clusters which were identified in consultation with the Ministry of Environment and Forests for CEPI analysis.

Baddi is one of the severely polluted industrial clusters identified by CPCB and its CEPI Score is 69.07. This critically polluted industrial cluster needs further detailed study in terms of the extent of damage and formulation of appropriate remedial action plan.

	A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	Total
Air	6.00	5.00	30.00	7.00	0.00	0.00	7.00	3.00	3.00	0.00	9.00	10.0	56.00
	A1	**A2**	**A**	**B1**	**B2**	**B3**	**B**	**C1**	**C2**	**C3**	**C**	**D**	**Total**
Water	3.00	5.00	15.00	7.50	0.00	3.00	10.50	3.00	3.00	5.00	14.00	15.00	54.50
	A1	**A2**	**A**	**B1**	**B2**	**B3**	**B**	**C1**	**C2**	**C3**	**C**	**D**	**Total**
Land	3.00	5.00	15.00	7.50	0.00	3.00	10.50	3.00	3.00	5.00	14.00	15.00	54.50

Source: CPCB report: EIAS/5/2009-10

- **Water Comprehensive EnvironmentPollution Index Score = 54.50**
- **Air Comprehensive Environment Pollution Index Score = 56.00**
- **Land Comprehensive Environment Pollution Index Score = 54.5**
- **Aggregate Comprehensive Environment Pollution Index Score = 69.07**

1.5 Eco-geological features

The area is geographically located at foothills of Shivalik range. The local topography is plain, undulating and is dissected by khuds and nallahs. Generally, khuds and nallahs are formed by erosion of alluvial soils during rainy season due to steep channel gradient and very high speed discharge and flow of rainwater. Local topography formed by deposition of sediments and it is shaped like alluvial fans. It has vast range of hills and area is surrounded by Dharampur range, Surajpur-Haripur-Mandhala range and Shivalik hills.

1.6 The Climate of the Region:

The area experiences humid subtropical climate characterized by very hot summers and mild winters. The rainy season commences from the first week of July and continues up to the first half of September. Average yearly rainfall in the Baddi-Nalagarh area is about 105 cms with occasionally foggy weather. Winter rains generally commence from the last week of December and continue up to the end of February. October, November and March to May are relatively dry months. Temperature varies from 8°C to 42°C.

1.7 Geological Pattern:

The geological structure depends upon the tectonic and lithologic condition of region. The BBN special area consists of lower tertiary sediments (Palaeocene to early Miocene) Dagshai and Kasoli formations which are marine to brackish water sediments and the upper tertiary sediments (Middle Miocene to Middle Pleistocene) consisting of the Shivalik group fluvial deposits, along with the late organic inter montane deposits and alluvium. Most of the lesser Himalayan zone is covered by brown hill and sub-montane soils. They are productive for agrarian use having combination of sufficient minerals for producing cereal crops, mangoes and citrus fruits etc. These soils are namely

shallow black, brown and alluvial soils. The bearing capacity of soil is 15 tonne/sq m that is suitable for urban development and construction of super structures.

BBN Special area falls in moderate vulnerable risk category on the basis of matrix devised for natural hazards. Seismically Shivalik foothills are less risky as compared to other districts of the state.

1.8 Major water bodies

Local topography is dissected by numerous khuds and Nallahs. These water channels flow from east to west direction and finally join River Sirsa.

The River Sirsa is the main perennial river stream in BBN Special area. It has its source in the hills above Kalka (Haryana) and runs North West along the base of the Shiwaliks eventually joining the Sutlej at Avankot in Ropar (Punjab) district. Its other tributaries are non-perennial like Ratta, Ballad, Surajpurchoe and Nanakpurchoe, emanating from Kasauli range and etc emanating from Nalagarh ranges of Sirsa are Kundlu Ki Khad, Chikni Khad, KhokrakaChoe, Kali Nadi, Pola Nallah.

There are numerous surface water channels, which are openly flowing/ carrying out industrial effluents like Housing board Nallah, Gullarwala, Barotiwala and Sandholi Nallah and Baddi main town nallah. Along the built-up area, stretch of drains are properly channelized by different agencies in order to carry out proper runoff water during rainy seasons.

As referred to the Hon'ble NGT orders passed in (OA No. 673/2018) River Sirsa falls under Priority-III of designated criteria depending upon the level of Bio-chemical Oxygen Demand.

River Sirsa falls under Priority –III of designated criteria depending upon the level of Bio-chemical Oxygen Demand.

Sr. No.	River Stretch	Priority -III	BOD (mg/L)
1	River Sirsa (Baddi-Nalagarh Region)	Nalagarh to Solan	08-16

1.9 Ecological parks, sanctuaries, fauna and flora or any eco sensitive zone

The BBN Special Area contains Reserved, Protected, unclassified and other forests. Popularly two ranges namely Nalagarh and Baddi fall in BBN Special area. It has area of 6507.27 hectare, out of which 3360.97 hectare comes under Nalagarh Range and 3146.3 hectares in Baddi Range. The area under Reserved Forest falling under BBN Special Area is 3120 ha and under dense forest is 8664 ha. The different kind of plant in forests are khair, kiker, neem, shisham, Mango and Babul. In addition to this, shrubs like Vitex, Munj and Ber are found but quantum of tree cover is very scanty and scattered. So there is need to plant more trees in order to make the BBN area green and clean.

1.10 Industry classification

At present, 2261industrial units which have been covered under purview of Consent Mechanism under Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981with Authorizationrequiredunder various Rules.Industries located in this cluster are bifurcated depending on the pollution potential of the unit as Red, Orange and Green. Out of these 98nos. industries are covered under Red Category, 931 nos. are covered under Orange category, 1232 nos. are covered under Green Category. Based on investment criteria, 1871small, 207 medium and 183 large scale units are located within the cluster.

Table-3: B**ifurcation of industries based on pollution potential**

Industries Detail	**Red**	**Orange**	**Green**	**Total**
Large	13	114	56	183
Medium	24	106	77	207
Small	61	711	1099	1871
Total	**98**	**931**	**1232**	**2261**

Table-4: Highly Polluting industries (17 categories)

Sr. No.	**Type of Industries**	**No. of Industries**
1.	Cement (>=200 TPD)	**4**
2.	Distillery	**1**
3.	Pulp and paper (>=30 TPD)	**1**
4.	Bulk Drug	**1**
Total		**7**

Name of the industries:

1. Asian Concretes & Cements Pvt Ltd (Unit-I) Vill. Birplassi P.O. Manjholi Tehsil Nalagarh, Distt-Solan HP
2. Asian Concretes & Cements Pvt Ltd (Unit- II) Vill- Birplassi P.O. Manjholi Tehsil-Nalagarh, Distt.- Solan HP
3. Jaypee Himachal Cement Grinding & Blending Unit IV Vill. Tikri Padiyana (BAGHERI), P.O. Khillian, Tehsil Nalagarh, Distt. Solan, H.P.
4. Ambuja Cement Ltd (Unit Nalagarh) Vill- Nayagaon PO Jajhera Tehsil- Nalagarh, Distt.- Solan HP
5. Sabacchus distillery Pvt. Ltd., Village Reru Upperla, Tehsil- Nalagarh, Distt. Solan, H.P.
6. Bhandari Deepak Industries Pvt. Ltd. P. N. 36, Ind Area Baddi, Distt- Solan HP
7. Morepen Laboratories (unit IV), Vill- Malkumajra, Baddi, Tehsil- Nalagarh, Distt- Solan HP

1.10.1 Red category industries:

There are total 98 nos. of units falling under red category.List of names of industries is enclosed. Sector wise distribution of the Red category units is as below:

Table-5:

Industry Type **Name of sector**	**Red**
Distillery (blending and bottling)	1
Bulk drug	1
TSDF	1
Paper industry	1
Miscellaneous Chemical manufacturing	1
Miscellaneous/Electroplating Chemicals	1
Synthetic Fibres	1
Distillery	1
Washing contaminated drums	1
Chemical manufacturing	1
e-Waste Dismantler/Recycler	2
Pulp and Paper (Waste paper based)	3
Industries engaged in recycling/ reprocessing/reuse of hazardous waste	3
Organic Chemical Industry	3
Pesticides (excluding formulation)	4
Cement	4
Lead Acid Battery manufacturing	7
Recycling of Contaminated containers	11
Yarn/ Textile processing	13
Industry involving Metal finishing process	38
Total	**98**

1.10.2 Orange and Green category industries

There are 931 units falling under orange category and 1232 units falling under green category which does not have significant pollution load.

1.10.3 Grossly polluting industries

There is no grossly polluting industry in Baddi industrial area and thus it does not have significant role towards pollution at large for the entire component of Air, Water and Land.

Chapter-2

Ambient Env. Quality (Air/SW/GW)

2 (A) Air Quality

2.A.1 Present status of Air environment

The industries generating air pollution are mainly due to use of induction furnaces/boilers/ thermic fluid heaters etc. (having Particulate Matter - PM, Oxides of Sulphur and Oxides of Nitrogen as pollutant). The main air pollutants of concern are PM_{10} and $PM_{2.5}$.

All the air/emission emitting industries have installed adequate air pollution control devices such as dust collectors/ bag filters/cyclone/wet scrubbers/dry scrubbers /Electrostatic precipitators (ESP)/alkaline wet scrubber along with online continuous SO_2 meter/gravity settling chambers. The contribution to air emissions is mainly from the gases emitted from the industries. Coal, pet coke, high speed diesel, wood, Furnace Oil, rice husk, diesel are the major fuels used in the Boilers, Furnaces, Thermic Fluid Heaters, which is contributing to the Particulate Matter emission in the ambient air.

Air pollutants like PM - represented as PM_{10}/$PM_{2.5}$, SO_2 and NO_x are likely to be emitted from the above and can be considered as the key indicator pollutants. PM10 and PM2.5 can be considered as indicators for the air environment.

2.A.2 Critical locations for air quality monitoring

At present there are 3 monitoring stations installed at Baddi under National Ambient Air Quality Programme (NAMP), which are in operation. The locations areas below:

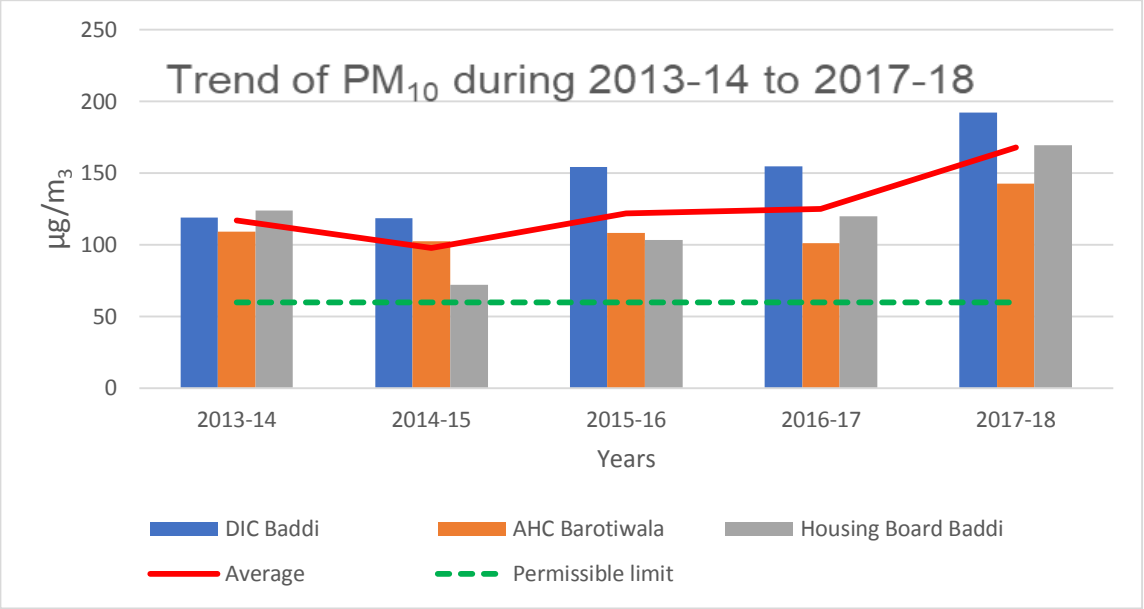
A. DIC Baddi,
B. AHC Barotiwala
C. Housing Board,Baddi

2.A.3 Ambient Air Quality Status Baddi–

Ambient air quality is being monitored at aforesaid 3 locations. The annual average values of SO2 and NOx at all the NAMP stations were observed well below the permissible limit. The annual average values of RSPM (PM_{10}) at all the three stations were observed above the permissible limit. The trends of annual average of RSPM (PM10) for the last 5 years are shown below:

Table-6: Annual Average values of PM 10 in µg/m^3 from 2013-14 to 2017-18

Name of Station	2013-14	2014-15	2015-16	2016-17	2017-18
DIC Baddi	119	118.5	154.4	154.6	192.4
AHC Barotiwala	109	102.7	108.3	101	142.8
Housing Board Baddi	124	72.2	103.3	119.7	169.6
Average	**117**	98	122	125	168



In compliance to the direction of Hon'ble NGT passed in O.A. No. 681/2018 dated 8-10-2018 for the control of air pollution in Non-attainment cities of Himachal Pradesh, an Air Quality Monitoring Committee (AQMC) was constituted on 17-11-2018, who have prepared and finalised action plan aimed at bringing the standards of air quality. The action plan submitted for Baddi industrial cluster with reference to air quality has already been approved by the Central Pollution Control Board vide their letter dated 12-02-2019.

After the approval of action plan Monitoring mechanism for implementation of action plan in Baddi Non-attainment city:

A committee comprising of following officers shall be responsible for implementation of approved action plan for the control of air pollution in the respective area and shall submit its report to the AQMC on monthly basis.

1.	Deputy Commissioner/District Magistrate, Solan	**Chairman**
2.	Superintendent of Police, Baddi	**Member**
3.	CEO, BBNDA, Baddi	**Member**
4.	Sub Divisional Magistrate, Nalagarh	**Member**
5.	Regional Transport Officer, Nalagarh	**Member**
6.	Executive Engineer, HPPWD, Nalagarh	**Member**
7.	Dy. Director, DIC Baddi	**Member**
8.	DFO, Forest Department, Nalagarh	**Member**
9.	Deputy Director, Department of Agriculture, Solan	**Member**
10.	EO, Municipal Council, Baddi	**Member**
11.	Regional Officer, HPSPCB, Baddi	**Member Secretary**

2.A.4 Predominant sources:

Apart from industries as already mentioned in 2.A.1, vehicular exhaust, Road Dust, Constructional activities, Biomass garbage burning, domestic fuel also add substantially contribution in air pollution.

Air pollutants like PM - represented as PM_{10}/ $PM_{2.5}$, SO_2 and NOx are likely to be emitted from the above and can be considered as the key indicator pollutants.

2.A.5 Sources of Air Pollution viz industrial, domestic (Coal & Biomass burning), natural and Transport & Heavy Earth Movers

There are total 519 air/emission emitting industries in BBNDA industrial cluster. Bio mass burning is also practiced around the citywhich also have significant impact on the air quality of the area.Apart from above it is again reiterated that vehicular exhaust, Road Dust, Construction activities, Biomass and garbage burning, domestic fuel also adds substantially towards air pollution.

Transportation of crushed stones and sand in open trucksalso leads to high levels of Suspended Particulate Matter and Respirable Suspended Particulate Matter.

2.A.5.1 Air/Emission emitting Industries in the area/cluster

Sector wise distribution of Air polluting industries in Baddi are as below:

Table-7

Name of the sector	**No. of industries**
Red	52
Orange	467
Green	0
Total	**519**

The major types of air/emission emitting industries are cement, stone crushers, brick kiln, metal finishing, pulp and paper, steel/ferroalloy-based industries and electroplating industries. The detailed of list of air polluting industry is enclosed as **Annexure-VI.**

2.A.6 Impact of activities on nearby areas:

This cluster is surrounded by habitation along-with commercial centres, schools, hospitals and educational institutions. The area falls under BaddiBarotiwalaNalagarh Development Authority (BBNDA) which has been constituted under the provision of Himachal Pradesh Town and Country Planning Act, 1977. The BBN area is the biggest planning area in Himachal Pradesh. The BBNDA has very vast planning area consisting of 41 nos. of Panchayats having 229 revenue villages measuring 3184 hectares including industrial units, 4 growth centres and 2 urban local bodies (MC Baddi and MC Nalagarh).

2.A.7 Action Plan for compliance and control of pollution

2.A.7.1 Existing infrastructure facilities – Ambient air quality MonitoringNetwork:

3 Air Quality Monitoring Stations are at present working in Baddiindustrial area. These stations are being funded through National Ambient Air Quality Monitoring Program. The parameters at present being monitored at these stations are SO_2, NO_X, $PM_{2.5}$and PM_{10}. Ambient air quality monitoring is also carried out randomly by the Board's officers in the industrial clusters.

Stack monitoring of process stack and boiler stacks is regularly carried out by the Board. It is mandatory for the industries to self-monitor stack emissions and submit the report to the State Board.

2. A.7.2 Pollution control measures installed by the individual sources of Pollution

The Board has laid down specific conditions to all industries like:

- **a.** To provide specific height of stacks to their boilers on the basis of fuel consumption.
- **b.** To provide dust collection system like dust collectors, cyclone, bag house filters, electrostatic precipitators, gravity settling chambers etc. on a case to case basis.
- **c.** To provide adequate scrubbing system for process emissions on case to case basis.

2. A.8 Technological Intervention

2. A.8.1 Inventorisation of prominent issues with Technological Gaps

Pharmaceutical Formulations, Chemical Formulation, Cement Plants, Textile, Dyeing, Automobile, Cosmetic, Food Products, Distillery, Pulp and Paper and Metal Finishing etc.are identified as prominent type of industries contributing to highest pollution potential. Most of these industries have proper air pollution control systems to control emissions however; the maintenance is one of the issues. Fugitive emissions occur during improper storage and handling of the chemicals, improper storage, handling and transportation of hazardous waste generated by the industries. Hazardous waste generated by the Industries is being sent to TSDF, Dabhota, Nalagarh, Solan.

2. A.8.2 Identification of technologyfor air pollution control

The identification of proper technology can only be done after proper technical studies for identification of sources of emissions.However, all the air polluting units have provided adequate air pollution control devices (APCDs) as per the guidelines issued from Central Pollution Control Board from time to time and as mentioned in Schedule-I of EnvironmentProtection Rules, 1986.

Providing adequate APCDs in form of dust collectors and water scrubbing system by the industries, units ensures that the air emissions are complied with the standards as prescribed under Schedule I of Environment Protection Rules, 1986.Providing online continuous emission monitoring system by all the Red-Large category industries of this cluster is being mandatory.

2. A.9 Need of infrastructure Renovation

2.A.9.1 Development of roads

The traffic and transportation networking in BBN Special area is exclusively road based as National Highway 21A, collector road, sub-arterials, sector

and local roads. NH-21 is main life line of this area it emanates from Pinjore and connects to Swarghat. It has total length of around 28 kms.

It carries out the highest number vehicular traffic. The State Highway-16 also passes through this area. Construction of pucca pavement along the roads to avoid dust needs to be carried out by H.P. PWD and Municipal Council. Tree plantation along the roads shall also be helpful for decreasing the road dust.

With regard to vehicular emissions regular checking and issuance of pollution under control certificate (PUC) same is being done by the Transport Department.

Development of green belts in open areas, gardens, parks/community places be carried out by Forest Department.

2.A.10 Action Plan:- Managerial and Financial aspects – Cost and time estimates

Sr. No.	Description of Action Point	Implementation Period (short/mid/long term)	Implementation Agency	Cost	Time Frame
1.	Upgradation of existing Air Pollution Control Systems	Short term and continuous	HPSPCB	-	March, 2019
2.	Direction to the industry for improving the conditions of APCDs and increase in vigilance	Short term and continuous	HPSPCB	-	March, 2019
3.	Providing Online Continuous Emission Monitoring System in all Red-Large industries.	Long term	HPSPCB and individual industries	-	September, 2019
4.	Conversion of brick kiln to forced/induced draft.	Mid term	HPSPCB	-	April, 2019
5.	Control of air pollution due to vehicles in the area.	Short term and continuous	Transport Department	10 lakhs.	March, 2019
6.	Restriction on open burning of municipal solid waste, biomass, plastic, agricultural/horticultural waste and display of hoardings for awareness.	Short term and continuous	Local bodies i.e. District Administration, BDOs, MC, Agriculture/Horticulture Department, Rural Development and Forest Department.	-	March, 2019
7.	Providing air pollution control measures during demolition of old building and new	Short term and continuous	MC Baddi and MC Nalagarh.	-	March, 2019

	constructions.				
8.	Traffic management in the area.	Short term and continuous	Traffic and Transport Department	-	March, 2019
9.	Changing the fuel pattern of industry to cleaner fuel.	Long term	Industries Department and HPSPCB	-	Studies needs to be conducted.
10.	Construction of pucca pavement along the roads, tree plantation along the roads and development of green belts.	Long term	Public Work Department, Municipal Council and Forest Department	707.03lakhs	June, 2019
11.	Action plan to minimize forest fires.	Midterm and continuous	Forest Department	-	-
12.	Checking of adulteration of fuel	Short term and continuous	Department of Food and Civil Supplies	-	March, 2019
13.	Action against the industries operating without valid consent and authorisation required of the State Board.	Short term and continuous	HPSPCB	-	March, 2019
14.	Up-gradation of existing NAMP Stations for monitoring of 12 parameters from the MoEF/CPCB financial Assistance	Long Term	HPSPCB	-	June, 2019
15.	Public Awareness: Issue of advisory to public for prevention and control of air pollution Involvement of school and other academic institution in awareness program	Short term and continuous	HPSPCB	3.5 lakhs	March, 2019
16.	Tree plantation along the roads	Long Term	PWD/Forest Department	10 lakhs	June, 2019
17.	Development of green belt in open areas, gardens, parks/community places, school and housing societies.	Long term	Forest Department and HPSPCB	20 Lakhs	June 2019

As the air pollution control equipment's to be installed at individual sources depends upon the nature and type of industries with quantum of pollution being emitted in the air. The cost of air pollution control measures is to be borne by individual industries hence no such funding is required. The air pollution in the cluster needs to be controlled through individual sources of the industry which can be achieved through rigorous monitoring and self-discipline.

Most of the industries carry out their stack monitoring sampling through agencies approved by MoEF& CC, Government of India; moreover, HPSPCB regularly monitors the industries for air emissions and air quality.

2.A.11 Government Support

To control forest fire Hazard from biomass (pine needle etc.) in the State which ultimately causes the degradation of air quality, H.P.Government have made a decision by making it mandatory to all the major cement plants of the State to substitute 0.1 % of existing fuel by Biomass and Combustible Solid Waste (RDF and Plastic Waste). (Copy of approval is at **Annexure-VII)**

2.A.12 Agencies responsible for efficient Implementation

The Public Works Department, Municipal Council Baddi, Transport Department,Forest Department, Urban Development, Rural Development,Transport Department, District Administrations, Local Administrations, Department of Food and Civil Supplies, Agriculture Department, HP State Pollution Control Board along with industries associations and industries to follow-up for efficient implementation of the action plan.

2.A.13 Data linkages to SPCB/ CPCB

The State Pollution Control Board was already having a facility for online data maintenance related to industrial records and monitoring records vide their online Him-XGN facility, which have now shifted to Online Consent Management and Monitoring System (OCMMS). The same shall be provided in the same.

At present all the 17 categories of highly polluting of industries have provided continuous online monitoring systems which are already linked with the servers of HPSPCB and CPCB.

In future the continuous Air Quality monitoring systems that will be set up will be linked to servers of SPCB and CPCB.

2 (B) WATER QUALITY

2.B.1 Present status of Water Environment:

The industrial units in Baddi-Barotiwala-Nalagarh area are located in the catchment and subcatchment of River Sirsa and on its tributaries as per Drainage pattern. The Drains and rivulets carrying Domestic Sewage is the major contributor in degrading the water quality of River Sirsa and the certain impact of industrial effluents, despite subjected to treatment either through Common Effluent Treatment Plant (CETP), Kenduwal, Baddi or through individual ETPs and STPs installed within their premises. Housing Board Nallah and Sandholi Nallah are carrying mainly untreated sewage from industrial areas and from Baddi Area besides treated effluent from various industries. The CETP, Baddi caters to catchment extending from Barotiwala to Bhud Barrier. The industrial units operating in the Baddi industrial area are comprised of Pharmaceutical Formulation, Chemical Formulation, Textile, Dyeing, Automobile, Cosmetic, Food Products, Distillery, Pulp and Paper and Metal Finishing etc.Thereare 7 units which falls under 17 categories of highly polluting industries apart from one CommonEffluent Treatment plant (CETP) provided at Baddiof 25 MLD capacity which had installed Real Time Online Continuous Water Quality Monitoring Station at the outlet of the treated effluent discharge.

At present, 2261 industrial units have been covered under purview of Consent Mechanism under Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981. Out of these 98 nos. industries are covered under Red Category, 931 nos. are covered under Orange category, 1232 nos. are covered under Green Category.

Out of these industrial units, total 576 nos. of Water Polluting Industries have been identified inBaddi industrial area which are either connected with CETP, Baddi or have individual ETP, STP or ETP cum STP installed for the treatment of effluent generated from trade or domestic activities. Out of 576 units 412 units are connected with CETP, Baddi through pipeline or tankers while 164 unit are having individual ETP, STP or ETP cum STP for final disposal and treatment of Effluent generated. As per the details available, total industrial effluent generated is 20779.99 KLD. Out of which 17894.74 KLD effluent is being disposed off to CETP, Baddi of 25 MLD capacity while 2885.25 KLD is being treated in individual ETP/STP/ETP cum STP of sufficient capacity.

Table-7: Water Polluting Industries in Baddi

Sr. No.	Type of unit	Number of units
1.	Battery Manufacturing	4
2.	Surfactants and other Chemical Manufacturing	6
3.	Pulp & Paper	7
4.	Textiles Dyeing	8
5.	Automobile manufacturing	9

6.	Surface Treatment (Electroplating and phosphating)	29
7.	Food Processing Industries	29
8.	Cosmetics	36
9.	Soap and Detergent	37
10.	Electrical & Electronic assembling, Home appliances, Light engineering, spinning and weaving and other Misc. Units having manpower more than 150 and installed STPs.	90
11.	Pharmaceutical Formulation	321
Total		**576**

Total population of Baddi-Barotiwala and Nalagarh region including 121 nos. villages is approximately 81,109 Persons (as per census 2011 & updated to 2018 with growth @ 1.59% per annum). Source (as reported by IPH Department) Out of which, the population residing within Municipal Council limits has been proposed to be covered under sewerage scheme being implemented by Department. of IPH in Baddi and Nalagarh town. On the basis of per capita water consumption of 120 ltrs, the estimated sewage load for Baddi and Nalagarh town is 5.5 MLD and 3.62 MLD respectively, as per IS 1172:1993 Indian Standard Code of Basic Requirements for basic supply, drainage and sanitation.The list of Water polluting industries is enclosed as **Annexure-VIII.**

2.B.2. Water bodies/effluent receiving drains in the area:

The pollution load of various drains in the catchment of River Sirsa has been calculated on the basis of flow measurement by V-Notch apparatus. The pollution load calculated is contributed from Sandholi, Housing Board Nallah and from outfall of CETP is contributing towards the high BOD Load of around 111.45 Kg/Day, 360 Kg/Day and 385 kg/Day. The Pollution loads coming out in abovementioned drains are basically from local habitation and Baddi Town and nearabout areas as stipulated citing the sources of Pollution in River Sirsa Catchment. For this, Irrigation and Public Health Department has proposed a sewerage scheme for Baddi Town comprising of laying the Sewerage Lines and installation and commissioning of Sewage Treatment Plant (STP) within the premises of CETP, Baddi at Kenduwal, H.P. The sanctioned cost for the project is Rs. 33.34 Crore considering the population of Design year 2048, i.e. 57,522 Persons, with total area coverage of 6.96 Sq. Km under the jurisdiction of Municipal Council, Baddi. Total length of distribution covers the area of MC, Baddi with capacity of STP is 5.5 MLD to be combined with CETP for further treatment.

The Pollution load of Housing Board Drain is BOD Load of 120-138 Kg/Day which is significantly degrading the Water Quality of River Sirsa, so the proposal has been submitted by Deputy Director Industries to connect these sewage tanks through tankers to CETP Baddi with an estimate of 32.5 Lacs and completion timeline of 02 months. Other drains are carrying minimal load of BOD ranging from 5-40 Kg/Day from habitations outside the jurisdiction of Municipal Council, Baddi and Nalagarh. The local habitations have provided the septic tanks/ soak pits in individual households.

Table-8: Details of Drains and Pollution Load

Sr. No.	Name of Rivulet / Drain	Flow MLD	BOD (mg/l)	Load Kg/Day
1.	Balad Khadd	9.9	16	158.4
2.	Sandholi Nallah	7.34	56	411.04
3.	Housing Board Nallah	3.715	30	111.45
4.	Khera Nallah	0.5	10	5
5.	Manpura Nallah	5.5	8	44
6.	Ratta khad	0.2	14	2.8
7.	Chikni khad	10	2.8	28
8.	HPSIDC Drain	0.6	200-230	120-138
9.	Bagbania Khad	Dry		
10.	Kanhan Khad	Dry		
11	CETP outfall	17.5	22	385

2.B.3. Present levels of pollutants in water bodies:

River Sirsa is the Tributary of River Satluj, it originates from the foothill of Kasauli near Kalka in Haryana having total length 54.00 km. After travelling 20.00 km in Haryana it enters the Himachal Pradesh near Baddi Town and after covering 28.00 km stretch in Himachal Pradesh and thereafter enters the Punjab near Ghanauli and after flowing 6.00 km in Punjab, it finally merges into River Satluj. State Pollution Control Board is collecting the samples of River Sirsa on monthly basis under National Water Quality Monitoring (NWQM)and its tributaries on quarterly basis under State Water Quality Monitoring (SWQM.)

As referred to the Hon'ble NGT orders (passed in OA No. 673 of 2018), River Sirsa falls under Priority –III of designated criteria depending upon the level of Bio-chemical Oxygen Demand.

Sr. No.	River Stretch	Priority -III	BOD (mg/L)
1	River Sirsa (Baddi-Nalagarh Region)	Nalagarh to Solan	08-16

Table-9: Water Quality Status at various locations under River Sirsa catchment of Baddi-Nalagarh

River Sirsa U/s Sitomajri Nallah

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	7.87	5.2	**4**	17	40	Non complying
Feb,2018	7.72	6.8	2.8	23	150	Complying
Mar,2018	7.23	7.2	3.2	11	120	Non-Complying
Apr,2018	7.29	6.4	2.8	17	47	Complying
May,2018	7.55	6.2	3.2	17	48	Non-Complying
Jun,2018	7.22	6.4	2.8	21	70	Complying
July,2018	8.14	5.7	4.8	25	58	Non-Complying
Aug,2018	8.07	6.5	2.8	23	79	Complying

Sep,2018	7.51	6.2	4.8	21	58	Non-Complying
Oct,2018	7.55	6.9	2.8	6.1	25	Complying
Nov,2018	7.97	6.9	0.1	9.1	58	Complying
Dec,2018	7.55	6.90	0.2	2	22	Complying
Jan,2019	7.49	9.2	4.0	17	38	Non-Complying
Feb,2019	8.12	7.8	1.8	14	40	Complying

River Sirsa D/s Sitomajri Nallah

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.83	6.2	6	23	46	Non-Complying
May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	7.98	5.2	5.2	22	48	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	7.56	6.6	5.2	17	48	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.72	8.9	5.8	12	40	Non-Complying
Feb,2019	7.66	7.7	5.8	21	46	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Balad U/s Land fill site at Baddi

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.27	5.1	6	23	70	Non-Complying
May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	8.15	4.2	9.0	33	110	Non-Complying

Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	8.02	5.1	9.2	13	47	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.25	4.2	6.2	17	38	Non-Complying
Feb,2019	7.47	8.7	4.0	17	39	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Bald D/s Land fill site at Baddi

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.52	4.8	10	21	94	Non-Complying
May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	7.59	2.6	14	49	280	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	7.64	5.2	14	23	94	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.21	5.0	7.0	21	94	Non-Complying
Feb,2019	8.03	8.5	6.0	17	43	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa U/s Sandholi Nallah

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.64	5.4	12	>1600	>1600	Non-Complying
May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--

July,2018	8.15	5.7	16	46	350	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	6.89	6.6	16	33	140	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.66	7.9	5.2	20	48	Non-Complying
Feb,2019	6.25	7.0	4.2	17	39	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa D/s Sandholi Nallah

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.63	3	14	>1600	>1600	Non-Complying
May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	8.20	4.6	20	>1600	>1600	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	7.04	6	20	920	>1600	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.70	8.2	40.0	70	170	Non-Complying
Feb,2019	7.88	5.1	36.0	40	350	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa U/s Housing Board Nallah

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.64	4	10	70	540	Non-Complying
May,2018	--	--	--	--	--	--

Jun,2018	--	--	--	--	--	--
July,2018	7.90	4.7	12	79	540	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	7.64	6.2	12	58	540	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.70	7.5	20.0	38	150	Non-Complying
Feb,2019	7.62	6.0	30.0	39	280	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa D/s Housing Board Nallah

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.54	3.9	12	140	920	Non-Complying
May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	6.96	3.8	16	70	430	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	6.83	5.8	16	70	920	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.65	7.0	21	34	220	Non-Complying
Feb,2019	8.01	5.2	40	40	350	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa U/s River Ratta

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.4	3.9	4	22	40	Non-Complying

May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	7.81	2.3	3.2	17	39	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	7.84	6.5	3.2	11	21	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.90	8.3	7.0	48.0	170	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa D/s River Ratta

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.28	5.2	10	110	>1600	Non-Complying
May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	7.72	3.1	3.8	17	48	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	7.72	6.4	3.8	13	26	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.63	8.5	8.0	21	120	Non-Complying
Feb, 2019	7.43	5.2	16.0	26	140	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa U/s Manpura Nallah

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.67	4.8	3.2	17	31	Non-Complying

May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	6.76	6.4	48	41	70	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	7.41	6.3	48	41	70	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.89	7.0	4.8	17	94	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa D/s Manpura Nallah

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.16	4.7	8	21	43	Non-Complying
May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	7.13	4.9	40.0	>1600	>1600	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	7.13	6.6	40	31	84	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	8.09	9.0	6.0	22	130	Non-Complying
Feb,2019	8.42	6.2	28	22	130	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa U/s Khera Nallah

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.48	4.3	8	17	58	Non-Complying
May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	7.96	5.5	10.0	>1600	>1600	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	7.86	5.9	10	23	70	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	8.14	8.8	1.4	22	130	Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa D/s Khera Nallah

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	--	--	--	--	--	--
Feb,2018	--	--	--	--	--	--
Mar,2018	--	--	--	--	--	--
Apr,2018	7.55	3.1	12	46	94	Non-Complying
May,2018	--	--	--	--	--	--
Jun,2018	--	--	--	--	--	--
July,2018	8.00	5.3	8.0	23	70	Non-Complying
Aug,2018	--	--	--	--	--	--
Sep,2018	--	--	--	--	--	--
Oct,2018	8.13	6.2	8	31	130	Non-Complying
Nov,2018	--	--	--	--	--	--
Dec,2018	--	--	--	--	--	--
Jan,2019	7.94	7.5	2.4	23	49	Complying
Feb,2019	8.47	7.0	18	26	120	Non-Complying

* This is the quarterly monitoring points, till December, 2018

River Sirsa D/s Nalagarh Bridge

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	7.76	6.4	8	21	58	Non-Complying
Feb,2018	7.5	5.5	10	26	210	Non-Complying
Mar,2018	7.54	6.9	10	26	220	Non-Complying
Apr,2018	7.7	4.2	6	21	70	Non-Complying
May,2018	7.54	6.1	12	23	63	Non-Complying
Jun,2018	7.28	5.9	12	31	120	Non-Complying
July,2018	--	--	--	--	--	--
Aug,2018	8.09	6.2	8	33	110	Non-Complying
Sep,2018	8.24	5.8	6.4	21	63	Non-Complying
Oct,2018	8.8	6.2	4	13	43	Non-Complying
Nov,2018	8.62	6.2	1.8	21	94	Non-Complying
Dec,2018	8.34	5.2	2.2	23	110	Complying
Jan,2019	7.53	8.4	6.2	21	84	Non-Complying
Feb, 2019	8.56	7.1	8.2	22	77	Non-Complying

River Sirsa D/s Nalagarh Town

Month/Year	pH	D.O. mg/l	BOD mg/l	FC MPN/100 ml	TC MPN/100 ml	Water quality criteria of Bathing
Jan,2018	8.01	3.7	7	21	43	Non-Complying
Feb,2018	7.84	5.5	12	21	170	Non-Complying
Mar,2018	7.53	6.1	12	21	210	Non-Complying
Apr,2018	7.91	3.9	10	21	94	Non-Complying
May,2018	7.53	6.4	6	33	79	Non-Complying
Jun,2018	7.25	6.2	8	25	84	Non-Complying
July,2018	8.24	6.4	8.0	33	70	Non-Complying
Aug,2018	8.02	6.8	10	46	120	Non-Complying
Sep,2018	7.61	6.5	8	21	70	Non-Complying
Oct,2018	7.9	6.4	3.6	17	40	Non-

						Complying
Nov,2018	8.53	6.6	1.2	34	220	Non-Complying
Dec,2018	8.56	6.4	1.8	94	220	Non-Complying
Jan,2019	7.56	8.2	6.4	31	150	Non-Complying
Feb,2019	8.90	8.3	6.2	21	70	Non-Complying

2.B.4. Predominant sources contributing to various pollutants

2.B.4.1 Industrial

Total 576 nos. of Water Polluting Industries have been identified in Baddi industrial area which are either connected with Common Effluent Treatment Plant, CETP, Baddi of 25 MLD capacity or have individual ETP, STP or ETP cum STP installed for the treatment of effluent generated from trade or domestic activities of sufficient capacities. Out of 576 units, 412 units are connected with CETP through pipeline or tankers while 164 unit are having individual ETP, STP or ETP cum STP for final disposal and treatment of Effluent generated. As per the details available, total industrial effluent generated is 20779.99 KLD. Out of which 17894.74 KLD effluent is being disposed off to CETP, Baddi of 25 MLD capacity while 2885.25 KLD is being treated individual ETP/STP/ETP cum STP of sufficient capacity.

2.B.4.2. Domestic

Irrigation and Public Health Department has proposed a sewerage scheme for Baddi Town comprising of laying the Sewerage Lines and installation and commissioning of Sewage Treatment Plant (STP) within the premise of CETP, Baddi at Kenduwal, H.P. The Sanctioned cost for the project is Rs. 33.34 Crore considering the population of Design year 2048, i.e 57,522 Persons, with total area coverage of 6.96 Sq.Km under the jurisdiction of Municipal Council, Baddi. Total length of distribution covers the area of MC, Baddi with capacity of STP is 5.5 MLD to be combined with CETP for further treatment.

Irrigation and Public Health Department has proposed a sewerage scheme for Baddi Town comprising laying of sewerage lines and installation & commissioning of Sewage Treatment Plant (STP) at Nalagarh. The Sanctioned cost for the project is Rs. 16.36 Crore considering the population of Design year 2048, i.e 36,239 Persons, with the total area coverage of 3.5 Sq. Km under the jurisdiction of Muncipal Council, Nalagarh. Total length of distribution covers the area of MC, Nalagarh with capacity of STP is 3.62 MLD.

2.B.4.3. Ground Water

The 06 locations of Ground water of Wells located at the River Sirsa Basin at Baddi-Nalagarh Area is being conducted by HPSPCB three times a year on 2017-18. The ground water is the main source for domestic and industrial use in the Baddi area. I&PH have collected 26 Nos. of Ground Water Samples from different Tubewells and Borewells and Drinking Water Supply Shemes at catchment of River Sirsa. The results are complying with the norms for Indian Standards for Drinking Water Supply (IS: 10500:2014).The details of sampling results are attacked as **Annexure-IX.**

2.B.4.4 Surface Water

Total 576 nos. of Water Polluting Industries have been identified in Baddi industrial area which are either connected with Common Effluent Treatment Plant, CETP, Baddi of 25 MLD capacity or have individual ETP, STP or ETP cum STP installed for the treatment of effluent generated from trade or domestic activities. Out of 576 units 412 units are connected with CETP through pipeline or tankers while 164 unit are having individual ETP, STP or ETP cum STP for final disposal and treatment of Effluent generated. As per the details available, total industrial effluent generated is 20779.99 KLD. Out of which 17894.74 KLD effluent is being disposed off to CETP, Baddi of 25 MLD capacity while 2885.25 KLD is being treated individual ETP/STP/ETP cum STP of sufficient capacity.

2.B.5 Impact on surrounding area of the water

The ground water is the main source for domestic and industrial use in the Baddi area. As sampling of all the wells are well within the prescribed limits, thus it is cleared that there is no adverse impact on the water quality of the area.

2.B.6. Details of Commercial Water Polluting Industries in the area/cluster

The details of Sources of sewage generation fromEducational Institutions, Housing Apartments and Hotels, is as under:

Table-10

S.No	Type of Industry	No. of units	Water Consumption in KLD	Waste Water Generation in KLD
1.	Educational Institutions	6	1300	750
2.	Housing Apartments	10	2300	1795
3.	Hotels	4	120	80
Total		**20**	**3780**	**2625**

2.B.7. Effluent Disposal Method- Recipient water bodies etc.

Discharge of treated trade effluent is not permitted into the water bodies. All the industries are directed to apply for treated trade effluent with specific standards to land for agriculture/ gardening purpose. Stringent standards for the treated effluent applied for gardening is imposed in the consent granted by the Board. No individual industry will be permitted to discharge effluent over land.

2.B.8. Quantification of wastewater pollution load

The major source of wastewater pollution is untreated sewage and industrial effluent. Total industrial effluent generated is 20779.99 KLD. Out of which 17894.74 KLD effluent is being disposed off to CETP, Baddi of 25 MLD capacity while 2885.25 KLD is being treated individual ETP/STP/ETP cum STP of sufficient capacity.

Pollution load calculated is contributed from Sandholi, Housing Board Nallah and from outfall of CETP is contributing the high BOD Load of around 111.45 Kg/Day, 360 Kg/Day and 385 kg/Day. The Pollution loads coming out in abovementioned drains are basically from local habitation and Baddi Town and nearabout areas as stipulated citing the sources of Pollution in

River Sirsa Catchment. For this, Irrigation and Public Health Department has proposed a sewerage scheme for Baddi Town comprising of laying the Sewerage Lines and installation and commissioning of Sewage Treatment Plant (STP) within the premise of CETP, Baddi at Kenduwal, H.P. The Sanctioned cost for the project is Rs. 33.34 Crore considering the population of Design year 2048, i.e. 57,522 Persons, with total area coverage of 6.96 Sq. Km under the jurisdiction of Muncipal Council, Baddi. Total length of distribution covers the area of MC, Baddi with capacity of STP is 5.5 MLD to be combined with CETP for further treatment.

2.B.9. Action Plan for compliance and control of pollution

2.B.9.1. Details of CETP, Baddi:

Baddi-Barotiwala industrial corridor has been the flag bearer of industrialisation in Himachal Pradesh.In view of incentives and policies of the State and Central Government, this area has witnessed phenomena industrial growth. Although there was a dire necessity for an integrated waste collection and treatment facility for the industrial waste water generated from various industrial units but lack of such facility was a major infrastructure gap felt by the existing as well as prospective entrepreneurs.

Baddi, was declared as severely polluted area in 2009-10 by Central Pollution Control Board. In 2006, Hon'ble High Court of Himachal Pradesh took suo-moto notice of news in the news paper with regard to high pollution level in the water bodies in Barotiwala as CWPIL-13/2006 and suggested to the State of Himachal Pradesh to set up Common Effluent Treatment Plant for Baddi and Barotiwala area.

Accordingly, BBN Development Authority (BBNDA), Baddi prepared the DPR and a Memorandum of Understanding (MoU) was signed between BBNDA and BBNIA on 21-12-2009 for the constitution of SPV. Subsequently, Baddi-Barotiwala-Nalagarh Industries Association (BBNIA) constituted a special purpose vehicle and got registered on 6-05-2010 under section 25 of the companies Act, 1956.

Major components of the project included the waste water collection from the individual industries and a Common Effluent Treatment Plant (CETP) at Kenduwal. Collection was envisaged through Pipeline or in case of scattered industrial units and those having very low volumes of waste water, collection by means of tankers was envisaged.Based on the secondary and primary data related to industries, capacity of the CETP was designed for 25 MLD (Million litres per day).

Environmental Clearance was mandatory prior to undertaking construction of the plant which was granted by the Ministry of Environment & Forests, Government of India on 8-01-2013. Thereafter, the construction was started for a network of about 61.231 kilometres of conveyance pipeline and CETP of 25 Million litres per day (mld) capacity. This is the first kind of its project in the country where CETP is designed to cater for segregated collection and treatment of five categories.The plant also got best PPP project award for 2016 from India Today Group.

Categories	**Type of Industries**	**Volume (in MLD)**
Category -1	Textile, Food, Paper & Sewage from Industries	17.55
Category-2	Soap & Detergent	2.00
Category-3	Pharmaceutical & Pesticides	2.00
Category-4	Concentrated Dye Effluent	2.70

Category-5	Electroplating Industry and Miscellaneous Effluents.	0.75
Total Volume		**25.00**

At Present (January 2019), 412 industrial units have been connected to the CETP, Baddi, through Tankers and Pipelines.

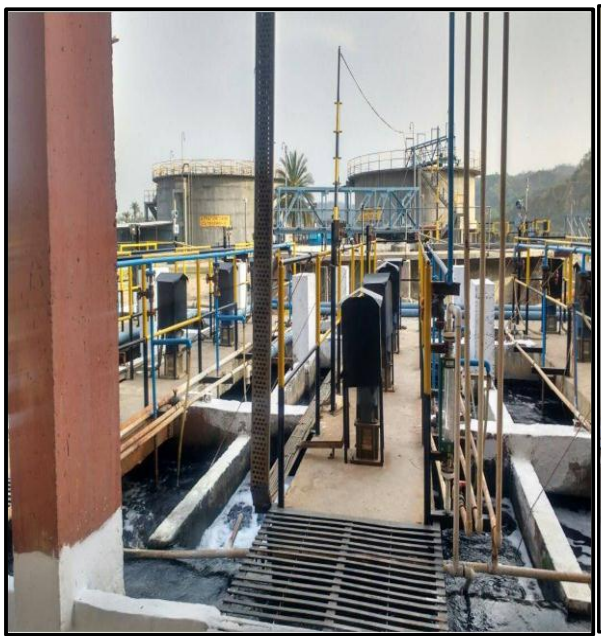
2.B.9.2. Technological Intervention for CETP Baddi:

Improvement in functioning of existing CETP at Baddi w.r.t. connecting the near about areas with conveyance pipelines (6945-meter stretch) to treat the 1.10 MLD waste water from industries falling in river Sirsa catchment for an estimated cost of Rs. 2.78 crore and final time line for completion is 31-07-2019.The funds shall be bear by Industries Department of Himachal Pradesh.

An additional proposal of connecting of sewerage lines to be incorporated in proposed CETP at Baddi for an estimated cost of Rs, 33.34 Crore and final time line for completion is 31-07-2019.

- Contract for 5.5 MLD STP has been allotted to BEIL for integration of Municipal sewage with CETP.
- Work has commenced in mid of February 2019 and the progress is satisfactory.
- Completion of the project is scheduled for May, 2019, however the integral target for the completion is April, 2019 plus two months trial.
- The required funds have been conveyed to Nagar Parishad (Municipal Council) Baddi under intimation to the Executive Engineer (I& PH)- Nalagarh and CEO BBNDA.

Photos of CETP




2.B.9.3 Installation of Gen sets at CETPs

Three diesel generator sets of 625 KVA capacities each has been installed at the Common Effluent Treatment Plant, Kenduwal, Baddi which is sufficient to operatethe entire plant in event of failure of regular power supply.

2.B.10 Pollution control measures installed by Industries

All the water polluting industries are either connected with CETP through pipeline or tankers or have provided individual ETP, STP or ETP cum STP for final disposal and treatment of Effluent generated.

All the 7 units falling under 17category of highly polluting industries and Common Effluent Treatment Plant Baddihave installed online real time continuous emission/effluent monitoring stations. The results are being displayed on the CPCB and State Pollution Control Boards servers on real time basis.

2.B.11 Technological Intervention

2.B.11.1 Inventorisation of prominent industries with technological gaps

To ensure effective implementation with regard to the compliance to the norms as prescribed in Environment Protection Act, 1986, Water Act, 1974 and Air Act, 1981, it will be ensured that all the Red large industry in this Industrial area shall provide online continuous effluent monitoring system.

All the units falling under the category of 17 category of highly polluting industries have already installed real time online continuous emission/effluent monitoring stations. The results are being displayed on the CPCB and State Pollution Control Boards servers on real time basis.

2.B.11.2 Need of up gradation of existing facilities

Irrigation and Public Health Department has proposed a sewerage scheme for Baddi Town comprising of laying the Sewerage Lines and installation and commissioning of Sewage

Treatment Plant (STP) within the premise of CETP, Baddi at Kenduwal, H.P. The Sanctioned cost for the project is Rs. 33.34 Crore considering the population of Design year 2048, i.e. 57,522 Persons, with total area coverage of 6.96 Sq.Km under the jurisdiction of Municipal Council, Baddi. Total length of distribution covers the area of MC, Baddi with capacity of STP is 5.5 MLD to be combined with CETP for further treatment.

Irrigation and Public Health Department has proposed a sewerage scheme for Baddi Town comprising laying of sewerage lines and installation & commissioning of Sewage Treatment Plant (STP) at Nalagarh. The Sanctioned cost for the project is Rs. 16.36 Crore considering the population of Design year 2048, i.e. 36,239 Persons, with the total area coverage of 3.5 Sq. Km under the jurisdiction of Municipal Council, Nalagarh. Total length of distribution covers the area of MC, Nalagarh with capacity of STP is 3.62 MLD.

In addition to above for improvement in the existing CETP, Baddi, a proposal of laying additional pipelines of 6945 meter stretch for the collection of effluent from the industries to CETP, Baddi amounting to Rs. 2.78 Crore shall bebear by the industries Department of Himachal Pradesh.

In compliance to the directions of Hon'ble NGT passed in OA NO. 673/2018 dated 20.09.2018 and 19-12-2018 for bringing all the 7 polluted river stretches to be fit at least for bathing purpose in Himachal Pradesh, the action plan prepared by State Pollution Control board for River Sirsa at Baddi has been submitted on 31st January 2019.

2.B.12 Action Plan: Managerial and Financial aspects-Cost and time estimates

Short Term and Long Term Action Plan & Cost Estimates.

Sr. No.	Description of Action Point	Implementation Period (short/mid/long term)	Implementation Agency	Cost	Time Frame
1.	Inventorization of Water polluting industries in the industrial area.	Short term and continuous	HPSPCB	-	March , 2019 and continuous process
2.	Direction and action to be taken against the industry for improving the conditions of existing Water Pollution Control Devices and increase in vigilance	Short term and continuous	HPSPCB	-	March, 2019 and continuous process
3.	Providing Online Continuous Effluent Monitoring Systems in all Red-Large industries.	Long term	HPSPCB and individual Industries	-	June, 2019
4.	Action against the	Short term and	HPSPCB	-	March, 2019

	industries operating without valid consent and authorisation of the State Board.	continuous			and continuous process
5.	Execution of Project proposal for Sewage Management by laying of pipelines, and installation and commissioning of STP at Nalagarh.	Long term	I & PH Department and BBNDA	16.36 Crore.	July, 2019
6.	Proper design, execution of sewerage lines to be incorporated in proposed CETP at Baddi.	Short term	I & PH, Industry Department, Baddi Infrastructure, MC Baddi and BBNDA	33.34 Crore	July, 2020
7.	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas	Mid term	I & PH, HPGWA Sr. Hydrologist, Gwa, IPH Una	-	July, 2019
8.	Sampling of Tube wells, Bore wells, Hand Pumps in Baddi	Short term and continuous	I& PH, HPSPCB	-	March, 2019 and continuous process
9.	Sealing of contaminated Hand pumps and found to be unfit for drinking purpose by the Public.	Short term and continuous	I & PH, HPGWA	-	July, 2019
10.	Laying of additional conveyance pipelines of 6945 mtrs. Stretch to treat 1.10 MLD of CETP	Long term	BBNIA and Industries department.	2.78 Crore	July, 2020
11.	Prohibition of disposal and open burning of any kind of waste (Municipal Solid Waste, Bio Medical Waste, Plastic Waste and Hazardous Waste)	Short term and continuous	BBNDA, Municipal Council Baddi, Municipal Council Nalagarh and Distt. Administration.		March, 2019 and continuous process
12.	Detection of the leakage in conveyance pipelines of CETP, Baddi.	Short term and continuous	HPSPCB, Baddi Infrastructure		Every two months
13.	Identification of the	Short term and	HPSPCB		March, 2019

	industries falling in the catchment zone of CETP Baddi and not connected with CETP Baddi. Action to be taken there after	continuous			and continuous process
14.	Industries should be directed to obtain NOC from IPH/HPGWA/CGWA and action against the units for non compliance by sealing of such connection.	Short term and continuous	I&PH		March, 2019 and continuous process
15.	Regular monitoring and sampling of water quality of river Sirsa and various drains on monthly basis	Short term and continuous	HPSPCB		March, 2019 and monthly basis
16.	Impact of water pollution on health of the public by organising health camps.	Short term and continuous	State Health Department		Every month
17.	Study on trends of diseases.	Mid-term and continuous	State Health Department		As per plan submitted.
18.	Sewage management for industrial area of Baddi, Jharmajri, Lodhimajra, Davni, Thana	Short term	HPSIDC and DIC	32.5 lakhs	March, 2019

2.B.13 Government Support for efficient implementation

Vision 2020 is being formulated. Major concerns like sewage collection and treatment facility, municipal waste collection and treatment facilitywill be stressed upon. HPSPCB Board along with theindustrial associations, Department viz. Urban Development, Rural Development, Industries Department, BBNDAandBBNIA associations along withall local bodies will work in co-ordination for efficientimplementation of the action plan.

2.B.14 Self monitoring system in industries (ETPs etc.)

In the first phase, all the Red Large industries shall provide online effluent monitoring system to carry out analysis of the effluent on real time basis.

2.B.15 Data linkages to SPCB/CPCB (of monitoring devices)

The State Pollution Control Board was already having a facility for online data maintenance related to industrial records and monitoring records vide their online Him-XGN

facility, which have now shifted to Online Consent Management and Monitoring System (OCMMS). The same shall be provided in the same.

At present all the 17 categories of highly polluting of industries have provided continuous online monitoring systems which are already linked with the servers of HPSPCB and CPCB.In future the continuous Water Quality monitoring systems that will be set up will be linked to servers of SPCB and CPCB.

The continuous effluent monitoring systems that will be set up will be linked to SPCB and CPCB websites.

2 (C) Waste Classification and Quantification

2.C.1 Solid Waste Generation and Management:

The solid waste of around 25-30 MT/day is being collected from Baddi-Nalagarh Area under the jurisdiction of Municipal Council, Baddi and Nalagarh, BaddiBarotiwalaNalagarh Development Authority (BBNDA). The waste is presently collected, transported and dumped at the approved designated dumping site at Kenduwal at Baddi. The site has Environmental Clearance from Competent authority. The (BBNDA), Executive Officer, Municipal Council, Baddi, Block Development Officer, Nalagarh and Executive Engineer, HP State Pollution Control Board, have finalized the agency for setting up of an integrated Solid Waste Management Project for Collection, Transportation, Processing and disposal in Baddi Cluster in the State of Himachal Pradesh through PUBLIC PRIVATE PARTNERSHIP (PPP) basis". Following are the development to process the solid waste as per the provisions of Solid Waste Rules, 2016.

- The work has been awarded to M/s JBR Technologies, Ludhiana for collection and transportation of the Municipal Solid Waste. The collected MSW shall be disposed-off to designated dump/ Sanitary Landfill site, at Kenduwal Baddi. The Capacity of the project is 40 MT/day.

- It is submitted that at present BBNDA is looking after the work of sanitation in five zones comprised in eight Gram Panchayats in Baddi- Nalagarh area named as (Bhatolikalan, Barotiwala, Sandholi, Bhud (Malpur), Manjhauli, Saini Majra, Khera and New Nalagarh) and 50 metres on either side of the National Highway-105 from Baddi to Nalagarh.

- For collecting the garbage & transporting it to the dumping site at Kenduwal, BBNDA has placed 109 dumpers, Twelve Garbage collection Tanks/*Houdis*, provided three dumper placers (Vehicles for carrying dumpers), five Tractors trolleys and 60 Labourers. The aforesaid work of sanitation in eight Gram Panchayats and along the National Highway-105 has been awarded by the BBNDA to five contractors.

- The State Level Executive Committee of BBNDA has approved the work of sanitation in Zone-6 comprised in Gram Panchayats Lehi and Gullarwala. The order to supply the 21 garbage containers has been placed to H.P Agro Industries, Nalagarh. The H.P Agro Industries will supply and place the dumpers by 10.01.2019. The Municipal Solid waste collected from these panchayats will be transported to the designated site at Kenduwal through the five sanitation contractors already engaged by the BBNDA.

- The plant will be installed by the Project Proponent at Kenduwal for processing the Municipal Solid Waste of Baddi cluster. The Baddi cluster comprises of BBNDA area comprised in 41 Gram Panchayats, MC Baddi, MC Nalagarh& MC Parwanoo.

- After segregation at door to door/on the secondary collection points, the quantity of Municipal Solid Waste reaching at the designated site Kenduwal for processing will be around 40 MT/day.

- However as on date, app. 17 MT un-segregated Municipal Solid Waste is being collected from M.C area Baddi and approx. 10 MT/day of un-segregated Municipal Solid Waste is being collected in BBNDA area which is showing increase in the quantum of waste over a period of last two months. On the basis of information provided by the Municipal Council Baddi, out of 27 MT, presently 10 MT/day Municipal Solid Waste is being sent to M/s Mars Envirotech Ltd., Lalru and MC Baddi has further started sending one additional truck of Municipal Solid Waste weighing app. 10 MT/day of Municipal Solid Waste to M/s Mars Envirotech Ltd. Lalru (Waste to energy plant) w.e.f. 08.12.2018, for which M/s Mars Envirotech Ltd. Lalru has agreed to take one additional truck.

- As per MOU signed in between BBNDA & MC Baddi, the Executive Officer, Municipal Council Baddi informed that Municipal Council Baddi has placed order for the supply of five waste to compost machines and will start converting about 3 MT Municipal Solid Waste to compost within threemonths. This compost will be used within the limits of Municipal Council Baddi, in the surrounding Industries, Govt. Department parks etc. for gardening. The Executive Officer Municipal Council, Baddi further informed that order has been placed for the supply of one shredder of 500 kg capacity at Kenduwal.

- The Executive Officer, M.C. Baddi stated that he has discussed the matter with M/s Envirotech Ltd. Lalru& they are ready to take one additional truck of Municipal Solid Waste weighing approx. 10 MT per day and he has started sending it to M/s Mars Envirotech Ltd. Lalruw.e.f. 08.12.2018.

- The Mars Envirotech has informed that the Capacity of their plant is 300 MT per day and they are already receiving approximately 270-280 MT garbage per day from the urban local bodies of Punjab and requested that they will not take more than 20 MT Municipal solid waste per day from MC Baddi.The Executive Officer, M.C. Baddi further stated that he will also make arrangements for lifting of any additional quantity of Municipal Solid Waste from Kenduwal to M/s Mars Envirotech, Lalru or anywhere for which BBNDA will make payment to MC Baddi as per the MOU already signed.

- The Plant shall start its commissioning by February 2020.However, process of collection and segregation

2. C.2. Hazardous Waste Management: -

There are around 702 Nos. of Hazardous Waste generating units falling in the BBN area. The type of hazardous waste generated includes APCD dust, Used oil and waste oil. All the above units are covered under Hazardous & Other Waste (Management & Trans-Boundary) Rules, 2016.

The Hazardous Waste generated by various industries is being disposed off to Common disposal facility at scientific landfill site at Dhabota, Nalagarh, District – Solan (H.P).The common treatment, storage, disposal facility (TSDF) at village Majra, Tehsil Nalagarh District Solan with total capacity of 10 lakh metric tonnes is operational since June, 2008 and is being used for scientific disposal of land fillable hazardous waste generated by the industries. A total of 162947 MT of land fillable hazardous waste has been disposed off in TSDF by various land fillable hazardous waste generating industries in the State up to January, 2019 and 18219 MT of land fillable hazardous waste has been disposed off in TSDF during the year 2018-19. The list of industries falling under Baddi area covered under HW Rules 2016 is enclosed as **Annexure-X**

Details of the Hazardous Waste during the year 2017-18:

Sr. No.	Name of the Waste	Quantity of the Waste per annum
1.	APCD dust	26306 MT
2.	Used oil	72882KL
3.	Waste Oil	67641KL

2.C.3 Bio-medical Waste Management: -

There are two major medical Health Care Facilities in Baddi. All the facilities have been covered under Bio-Medical Waste Management Rules, 2016. The bio-medical waste generated is being disposed-off to M/s Enviro Engineers, a Common Bio Medical Waste Disposal Facility located at Arki, Solan, (H.P.). Total Bio-Medical Waste generated in the state is 3027kg per day.

The State board has taken an initiative for making of provisions of GPS in the vehicles used by the CBWTF operators. For the monitoring of Dioxin, Furans and mercury and its compounds on annual basis, directions have been issued to all the CBWTFs. To have a vigil over pilferage of bio medical waste during collection and transportation, adoption of Bar code system is being initiated

For the management of domestic biomedical waste, the State board has asked the operators to create waste deposition facility and such facilities has been created at MC Nalagarh

2.C.4 Sewage and Septage Management for Rural Areas outside the jurisdiction of Municipal Council Baddi and Nalagarh:

Gram Panchayats KheraSuned, Kripalpur, Kishanpura, Lodhimajra, Dhella, District-Solan are in the catchment of River Sirsa.Director-cum- Special Secretary (RD) to the Govt. of H.P. vide letter no. SMG-19/2010-RDD- (SBM-G) - Review- dated 24th December, 2018 has informed that the Himachal Pradesh has achieved ODF status on 28th October, 2016. All the toilets in the state are Geo-tagged. No dysfunctional toilet reported so far. Presently, focus is to address the issues of Solid Liquid Waste Management (SLWM) in all Gram Panchayats falling in the catchment area of River Sirsa having special focus on labour colonies, construction sites and peri-urban areas and to sustain ODF status. Further, it has been reported that waste audit along-with mapping of shit-flow diagram (SFD) of all the Gram Panchayats falling in the catchment of River Sirsa will be completed by 31st March, 2019. The Panchayats will prepare Action Plan on the basis of waste audit report. The Action Plan will be approved by District Swachh Bharat Mission Gramin and will be completed within six months from the approval of the plan.

In addition to this BBNDA Baddi-BarotiwalaNalagarhhaveproposedto construct 08-10 toilets in abovementioned Panchyats and a Helpline shall be developed by Rural Development in Rural Area and Urban Development in Baddi and Nalagarh Town for regular cleaning of Septic Tanks of IndividualHouseholdsthrough extraction device for Faecal Sludge and Septage through Tankers equipped with GPS facility. The Faecal Sludge and Septage shall be treated in Proposed Sewage Treatment Facility at Baddi and Nalagarh.

In addition to this, Block DevelopmentOfficer,Nalagarh has submitted the proposal for regular cleaning of Soakpits, Septic tanks and Pipe Lines with estimate of approx. 20 Lacs per Panchayat.

2.C.5 Electronic waste

During the year 2017-18, 14 units have been covered under the provisions of E-Waste Rules,2016. In addition to above, it is informed that one dismantling unit is also in operation. Further it is submitted that w.r.t annual returns to be filed by consumer /bulk consumer,

2.C.6 Plastic waste

During the year 2017-18, 14 units have been covered under the provision of Plastic Waste Management Rules, 2016.

2.C.7 Co-processing of Waste:

All the major cement plants of the State are using RDF as fuel in the main cement kiln. As per the directions of State Government, it is mandatory to substitute 0.1 % of existing fuel being used by Cement plants by Biomass and Combustible Solid Waste (RDF and Plastic Waste). At present two cement plant of Baddi industrial area namely Ambuja Cement Limited Nalagarh and Ultratech Cement Limited Solan are using RDF @ 7.5 tonnes per day and 1.27 tonnes per day as fuel in the main cement kiln respectively.

2 (D) Action Plan for Plantation by Forest Department

1. **Plantation and Maintenance Works**:- Site specific plan alongwith cost estimate to carry out plantation activities for this stretch is as under:-

Plantations: -

1	2	3	4	5	6	7	8	9	10	11	12
Sr. No.	**Year**	**Name of Division**	**Name of Range**	**Name of Block**	**Name of Beat**	**Name of Road**	**Length of Road (km)**	**No. of plants proposed for planting**	**Rate**	**Amount required for planting (Rs)**	**Remarks**
	2019-20	Nalagarh	Baddi	Sai	Majru	Theda to jamun-da-dohra		1000	1630	1630000	I/c cost of tree guard etc.
				Sai/Dharampur	Majru/Nandpur	Loddhimajra to Dodwal		1000	1630	1630000	
				Dharampur	Nandpur	Gurumajra-Dhella-Kasla		1300	1630	2119000	
					Total -			**3300**		**5379011**	
	Maintenance										
1.	2020-21					Theda to jamun-da-dohra		100	250	25000	
						Loddhimajra to Dodwal		100	250	25000	
						Gurumajra-Dhella-Kasla		130	250	32500	
2.	2021-22					Theda to jamun-da-dohra		50	250	12500	
						Loddhimajra to Dodwal		50	250	12500	
						Gurumajra-Dhella-Kasla		65	250	16250	
					Total -					**123750**	

	Firefighting equipment's										
1.	2019-20	Nalagarh				Control burning	Ha	500	650	325000	
						Fire fighting equipment (rakers, fire broom, fire heaters, polaski, power sprayers etc.)		L/S	L/S	100000	
						Water tank, pumps and pipe to be deployed during peak season in fire sensitive forest division		L/S	L/S	75000	
						Total				500000	

2. <u>Establishment of Biodiversity Parks</u>: - Establishment of biodiversity park requires detailed study to find out feasibility to determine availability of the area in terms of extent and suitability for this purpose and also requires advance planning to determine the lay out design and technical aspects like choice of species to be grown and presences of right kind of edaphic and micro-climate condition.In view of the above, the Forest Department have submitted a proposalamounting to Rs. 57 lakhs.

S.No.	Year	Name of the divison	Name of Range	Name of Block	Name of Beat	Development of Samiti Van-cum-nature park	Area (HA)	Works	Amount required for	Remarks	
1.	2019-20	Nalagarh	Nalagarh	Nalagarh	Nalagarh	**RakhNalagarh DPF**	4.5	Lantana removal	200000		
								Boundary wall	800000		
								Land scaping	700000		
2.	2020-21	Nalagarh	Nalagarh	Nalagarh	Nalagarh	**RakhNalagarh DPF**	4.5	Water Pond	600000		
								walking trail 3. Km	500000		
								Acqua Pressure path	200000		
								Planting (Herbal/ornamental/biofence, climber etc.)	100000		
3.	2021-22	Nalagarh	Nalagarh	Nalagarh	Nalagarh	**RakhNalagarh DPF**	4.5	Open area Zim-benches sitting arrangement etc.	200000		
								Toilet (2 Nos.)	300000		
								Mali hut cum tools store	300000		
								Bore well (01 No)	500000		
								Gate (2Nos)	100000		
								Garbage bin	200000		
								Misc. exp (water supply/electricity supply/ sprinklers)	1000000		
								Recurring Exp. One Mali & One Chowkidar to be provided by the concerned urban authorities.	0		
						Total			57000000		
						Grand Total			11702761		

So far as the information on the species to be planted in this area, the list provided by HP State Pollution Control Board under Pollution Abating Plantation Abhiyan (PAPA) and species being raised in the nurseries of the Department are proposed as under.

Sr. No.	Botanical/Scientific Name	Common Names
1.	*Ficusreligiosa*	Peepal
2.	*Terminalia arjuna*	Arjun
3.	*Terminalia bellerica*	Bhera
4.	*Syzgiumcumuni*	Jamun
5.	*Albizzialebbek*	Siris
6.	*Azadirachtaindica*	Neem
7.	*Cinnamonumcamphora*	Muski Kapoor
8.	*Melia azedarach*	Mahaneem
9.	*Pongamiapinnata*	Karanj
10.	*Aegle marmelos*	Bael
11.	*Bauhinia variegata*	Kachnar
12.	*Cassia fistula*	Amaltas
13.	*Emblica officinalis*	Amla
14.	*Thevetianerifolia*	Pit kaner

3. <u>Regulation</u>:-

(a) Detection and removal of encroachments on forest lands is a regular activity of the Forest Department. Progress of removal of encroachments is also being monitored on continuous basis by the Hon'ble High Court of Himachal Pradesh in CWPIL No. 17 of 2014 and connected matters. The concerned field officers of the Forest Department, in whose jurisdiction this stretch falls, have been instructed to detect and remove encroachments on forest land in this stretch on priority.

(b) The concerned field officers of the Forest Department have been instructed to ensure that there is no illegal dumping of muck in to the forest land falling in this stretch.

Chapter-3

Health Statistics

3.1 Health Statistics:

There are two major health centre/organisation in Baddi. As per the data received from the Department of Health &Family Welfare most of the cases received in Baddi area during last five years were of Acute Respiratory infection, Renal diseases and Bronchitis.

(A)

INFORMATION ON HEALTH STATISTICS

1. Name of the Polluted Industrial Area (PIA) : Baddi
2. Name of the major health centre/organization : ESICMH Baddi
3. Address : ESIC, model hospital
   Village-

   Katha, Post Office Baddi.

Health status data received from the Hospital

Sr. No.	Air Borne Diseases	No. of patients reported for the years				
		2013-14	2014-15	2015-16	2016-17	2017-18
1.	Asthma	795	236	132	193	52
2.	Acute Respiratory Infection	3128	10941	5299	4580	1514
3.	Bronchitis	3369	299	264	230	106
4.	Cancer	764	571	302	155	191
	Water Borne Diseases					
1.	Gastroenteritis	1879	257	166	250	104
2.	Diarrhoea	3122	1910	1198	803	572
3.	Renal Diseases	4762	4038	2067	2572	1871
4.	Cancer	124	27	16	8	15

(B)

INFORMATION ON HEALTH STATISTICS

1. Name of the Polluted Industrial Area (PIA) : Baddi
2. Name of the major health centre/organization : Community Health Centre Nalagarh

Health status data received from the Hospital

Sr. No.	Air Borne Diseases	No. of patients reported for the years				
		2012-13	2013-14	2014-15	2015-16	2016-17
1.	Asthma	794	6700	6661	5352	4375
2.	Acute Respiratory Infection	30980	5583	27970	10063	24304
3.	Bronchitis	3049	2693	10865	2509	1795
4.	Cancer	--	--	--	--	--
	Water Borne					

	Diseases					
5.	Gastroenteritis	5389	4863	3290	5620	5362
6.	Diarrhoea	10389	5668	6094	1945	5143
7.	Renal Diseases	3972	25	11	28	88
8.	Cancer	--	--	--	--	--

3.2 Multi Specialities Camps/IEC activities carried out

As per the information received from Health and Family Welfare Department a plan to conduct a study for the entire Solan District w.r.t. air borne diseases shall be completed shortly. Further, it was informed that an action plan for monthly health check-up cum IEC camps in the river front areas of District Solan have also been prepared. The report of each camp shall be submitted within 15 days after conducting the camps.

Methodology

Study design: A cross sectional, community-based study.

Study population: The survey area covers selected inhabitants adjoining the banks of rivers and its tributaries passing through the entire district Solan area of jurisdiction. The areas in particular include the hamlets and jhuggis residing alongside or River Ghaggar along with its tributaries and River Sirsa passing through the BBN area of Nalagarh Block and Parwanoo area of Dharampur block in Solan district.

Study period:2 months period days w.e.f. 1st March to 30th April, 2019

Inclusion criteria: Residents who give consent for study.

Study tools and technique:A pre-designed semi-structured questionnaire will be used in thestudy. The data collection technique will be a personal interview by health workers of the study subjects.

Sample size: Approximate 250 houses to be covered. The sample is further increased by 10% to account for non-response or recording error. Thus, the required minimum sample size will be 275.

Analysis: The information obtained will be analysed using Epi-info software. After seeking and collecting the information using statistical methods and from the results thus obtained will conclude the study survey to further make recommendation based on results and to finally develop the plan of action and its execution to prevent any such water borne diseases to happen in future.

ACTION PLAN FOR CONDUCTING HEALTH CHECK-UP -cum- IEC CAMPS ON THE RIVER FRONT AREA OF DISTRICT SOLAN

Health check-up camps including IEC activities to be undertaken during and after the survey is as per schedule given below :

AREA	BLOCK	HEALTH CHECK-UP CAMP-cum-IEC ACTIVITY
Nannowal (Nalagarh)	Nalagarh	Third week of 1,3,5,7,9,11 month
Sheetalpur (Baddi)	Nalagarh	Third week of 2,4,6,8,10,12 month

Chapter- 4

Compliance of the Industries

4.1 Status of Consents under Water (Prevention & Control of Pollution) Act, 1974 /Air (Prevention & Control of Pollution) Act, 1981

All the industries in Baddi area are operating with the consent of the State Board as required under (Water Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981. The list of industries is enclosed. If and when the unit is found violating the provisions of Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981 necessary actions in form of directions and show-cause notices are issued against the unit and compliance got done from them. List of the industries attached as **Annexure-XI.**

List of Industries complying/non-complying with the Effluent Discharge Standards:

HPSPCB Regional Office, Baddi has collected 54 samples from different water polluting units of Baddi area during October to December, 2018. Out of 54 samples, parameters of 06 samples have been found above the prescribed limit for which re-sampling has been conducted. Other than this, Power supply disconnection recommendations of 05 defaulting units are issued. Power supply disconnection / closure of another 8 Nos. of units either for non-functioning of ETPs/STPs or by passing untreated effluent and power was restored after insurance of compliance.

INFORMATION ON POLLUTION SOURCES STATUS IN PIA

1. Name of the Polluted Industrial Area : Baddi
2. Demarcated area of the PIA in sq. Km. : Approx. 350 Sq. Km
3. Number of 17 categories of industries covered under the area : 7
4. Number of Red category industries covered under the area : 98
5. Total human population :10,708 (as per census 2011)
   Number of workers – 1,63,069
   (source : Department of Labour and Employment, Himachal Pradesh)

Sr. No.	Category of Industries	Total number of units	Number of units with adequate facilities	Remarks, if any
1.	Large scale industries	183	183	All the Red-Large industries shall provide online continuous emission/effluent monitoring system.
2.	Medium &Small Scale industries	2078	2078	-
3.	CETPs	1	-	A Common Effluent Treatment Plant of 25 MLD capacity is provided
4.	TSDF	1	-	-
5.	STPs	-	-	Sewage Treatment Plants have

				been provided by the individual industries. Irrigation and Public Health Department has proposed a sewerage scheme for BaddiTown comprising of laying the Sewerage Lines and installation and commissioning of Sewage Treatment Plant (STP) within the premise of CETP, Baddi at Kenduwal, H.P.
6.	CBMWMF	0	0	-
7.	MSW management facilities	Total solid waste (20-30 tonne/day)generated is being disposed offat solid waste dumping site of Lalru Punjab.	0	Work has been awarded to M/s JBR Technologies, Ludhiana for collection and transportation of the Municipal Solid Waste. The collected MSW shall be disposed-off to designated dump/ Sanitary Landfill site, at KenduwalBaddi. The Capacity of the project is 40 MT/day.

Summary of Proposed action points

Summary of proposed action points

Short Term Action Points (up to 1 year, including continuous Activities)

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
			Water		
1.	Standard flow meter at final outlet of ETP	To control overflowing of drainage pipeline, it is necessary to control the discharge of excessive quantity of w/w from the industrial units (i.e. the w/w discharge should be as per CCA condition). To check the quantity of w/w being discharged flow meter at the final outlet.	Identification of units Industrial Association will issue the circular to their members to provide the standard flow meter. HPSPCB will also issue notice to such units. Standard flow meter required to install at final outlet of ETP Magnetic flow meter	HPSPCB, Industries Department and Industries Associations	June,2019
2.	Water consumption from non-permitted sources (e.g. borewell, tanker etc.) or more than permitted quantity is to be identified	It is observed that many industrial units have no proper control over water consumption which not only increase the overall w/w generation but also tends to w/w disposal mismanagement. Therefore, it is necessary to direct unit to restrict water consumption as per the quantity mentioned in CCA application and to also to direct HPSIDC, DIC and other industrial area	Identification of source of water i.e. tanker, bore well etc. for its authenticity.	HPGWA, Industries Department and HPSPCB	October,2019

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
		of Baddi to seal the non-permitted bore wells.	Issue direction to stop unauthorized use of water by the industries.		
3.	Sealing of unauthorized discharge other than regular discharge of effluent.	All industrial units shall be directed to operate only one outlet through flow meter for effluent disposal so that unauthorized discharge can be checked. The concerned authority shall disconnect / seal such unauthorized discharge.	Concern authority will be sked to identify unauthorized outlet.	Industries Department, Industries associations, HPSPCB	August, 2019
4.	Drainage connection required to be discontinued to permanently closed & non operative industrial units	Drainage connection to be disconnected to permanently closed & non operative industrial units and certified by DIC and checked by HPSPCB. Careful monitoring of such units required to undertake by HPSPCB	Inventorization of the permanently closed and non-operative industrial units.	HPSPCB, DIC	June,2019
			Drainage connection to be disconnected of permanently closed & on operative industrial units and certified by industries Department and checked by HPSPCB.		
			All zero discharge units will be asked to submit notarized undertaking to HPSPCB with a copy to respective association stating that there is no unauthorized outlet and		

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
			observing zero discharge.		
5.	Collection and conveyance of effluent into an environmentally safe manner	All industrial units shall be directed to operate only one outlet through flow meter	Will be ensured while releasing connections for effluent disposal	Industries Department, Industries Association and concerned Industry	March, 2019 and continuous process
6.	Sampling point should be easily approachable for drawing of sample of discharge effluent	All industries are required to provide appropriate sampling point in the frontal premises of the industry.	Better environment monitoring system in place.	Individual industry, Industries Association and HPSPCB	March, 2019 and continuous process
7.	Completion of effluent conveyance, treatment and disposal system in timeframe	Upgradation of existing CETP for sewage treatment,provision of electrical energy meter to measure power consumption and addition of conveyance pipeline for collection of effluent from industries.	Existing infrastructure to be upgraded for better compliance.	Industries Department, I&PH	July, 2019
8.	Actual flow measurement	Real time online continuous flow monitoring system and fish pond to be provided at actual discharge point of CETP	CETP to change the location of the online continuous monitoring system accordingly	CETP Baddi	September, 2019
9.	Discharging of Effluent(Trade or domestic)during night hours	Surprise inspection to be conducted by team of SPCB	Drive shall be initiated immediately	HPSPCB	March, 2019 and continuous process
10.	Effluent being discharged meet the prescribed norms.	To provide online continuous effluent monitoring device on all Red-Large industries.	Device to be installed.	HPSPCB and industries	July, 2019
11.	Study on the	Probable health	To carry out	Health	May, 2019

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
	Impact on health	risk.	survey by reputed agency to know the impact	Department	
			AIR		
1.	Time to time routine inspections of all air emitting units.	Monthly	Industrial units consuming solid fuel like coal, agro waste, etc. required to upgrade air pollution control system by installing bag filters /multi cyclone separator so that ambient air in the nearby area meet with the revised norms of PM2.5. To check air pollution control system attached to with respect to adequacy and if needed upgrade the same.	HPSPCB and Industries Associations and Individual Industries.	Monthly
2.	Inventorization of the air emitting industries which needs upgradation of their inferior fuel for switching to Cleaner Fuel	Studies need to be conducted		HPSPCB, Industries, Industries Department Authorized agency	May,2019
3.	Plantation in the industrial estate	Concerned authority shall be asked to provide adequate green belt in the periphery as well as wherever possible within the estate.	Considering the present plantation as baseline datum, five years plan for plantation of industrial estate to be submitted by the DIC/ Association in consultation with Forest department. To allot unused plots, road side areas and other areas reserved for green belt within DIC.	Forest Department	March, 2022

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
4.	Control of fugitive emissions.	Fuel handling, chemical storage are the major source of fugitive emission. Hence the industrial units should adopt good housekeeping practices.	Good practices like cleaner production and cleaner technology to be adopted in fuel handling, process control in closed system and to have better house keeping	HPSPCB and Individual industries with Industrial associations	March, 2019 and continuous process
5.	Strengthening of ambient Air Quality Monitoring	Concerned agency shall be asked to operate the existing AAQMS regularly.	Existing AAQMS to be strengthened to monitor AAQ as per new notification	CPCB and HPSPCB	October, 2019
6	Air emission meets the prescribed norms.	To provide online continuous emission monitoring device on all Red-Large industries.	Device to be installed.	HPSPCB and industries	September, 2019.
7	Improvement in the air quality	Mild steel industry (Large Scale) shall provide secondary fume extraction system.	Pollution control device to be installed	Industries	December, 2019
8	Study on the Impact on health	Probable health risk.	To carry out survey by reputed agency to know the impact	Health Department	May, 2019
HAZARDOUS WASTE					
1.	Checking of illegal transportation and dumping of Hazardous waste	TSDF operators/Industries Association shall be asked to keep vigil on their member units regarding timely and regular disposal of HAZ wastes	Vigil required to be kept on illegal transportation and dumping of hazardous waste.	HPSPCB	March, 2019 This is continuous process and shall be updated every month.
2.	CPCB guidelines for TSDF are to be strictly followed.	TSDF guidelines for waste quantity at site, sheds for different waste, firefighting facility, working of incinerator etc. are	TSDF operator will comply with requirement as per CPCB guidelines.	HPSPCB and TSDF	March, 2019 This is continuous process and shall be updated every month.

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
		not properly observed.			
3.	Adoption of 3 R's (Reduce, Reuse, Recycle)	It is required to adopt 3-R"s for better management of Hazardous waste and co-incineration of incinerable hazardous waste in cement kiln.	Inventorisation of the solid/ Liquid Hazardous generated from the waste industries Creation of waste exchange center	Industries alongwith industries association	June, 2019
4.	Inventorization of the industries with Captive facility for destruction of incinerable waste and upgradation of existing facilities.	Industrial units having own incinerator (liquid and solid) required to upgrade/ install adequate incineration system as per guidelines of CPCB.	Up gradation of captive incineration system.	Industries	September, 2019
5.	Transportation of Hazardous waste	Hazardous waste shall be transported through only dedicated & well covered vehicles.	Vigil checking on transportation of hazardous waste.	HPSPCB and Industries	March, 2019 This is continuous process and shall be updated every month.
6.	Proper disposal of plastic waste	Proper management for disposal of plastic waste.	Development of co-incineration system. All the major cement plants are using RDF in the kiln as fuel. State Board has made it mandatory to substituted 0.1% of the existing fuel by Bio mass and RDF (combustible solid waste including plastic).	HPSPCB, Urban Development Deptt., Forest Deptt.	March, 2019. This is continuous process and shall be updated every month.
7.	Waste Minimization Measures	To reduce the quantity of waste material.	Industries shall install, Metering and control of quantities of active ingredients to minimize waste. Reuse of byproducts from the process as raw	HPSPCB and Industries	With regard to the proposals submitted

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
			materials or as raw material substitutes in other processes. • Use of automated filling to minimize spillage. • Use of Close Feed system into batch reactors. • Venting equipment through vapour recovery system and APCM. • Use of high pressure hoses for equipment clearing to reduce waste water generation.		
Miscellaneous					
1	Regular monitoring and sampling of water quality of Sirsa River and various drains on monthly basis.			HPSPCB (Continuous process)	
2	Surprise inspection and sampling of the units during night hours.			HPSPCB (continuous process)	
3	Provide GPS device over the vehicles carrying the effluent from the industries to CETP Baddi for final disposal and treatment.			CETP, Baddi	
4	Interlocking of all the Pollution Control devices with the manufacturing process.			HPSPCB	
5.	Setting up &operation of a Solid Waste Management facility at Kenduwal, Baddi			State Govt., Deptt. of Industries, District Administration, BBNDA and Deptt. of Urban Development	

Long Term Action Points (More than 1 year)

Sr. No.	Issue	Action	Implementing agency	Time limit
1.	Monitoring the area in addition to the progress of conveyance system followed by Paved road and Plantation	Construction of paved road and maintaining Ambient Air Quality during construction phase are the major source of fugitive emission.	BBNDA, BBNIA, Industries Department, Forest Department, PWD	Ongoing task till completion of the work
2.	Improvement of the Air Quality.	Proposal of installation of continuous Ambient Air Quality Monitoring station.	CPCB and HPSPCB	-
3.	Leakage issue of the conveyance pipelines.	Intensive monitoring	Industries Department, Industries Association, HPSPCB, BBNDA	Ongoing task

Financial implications on various agencies

(Implementation of Proposal is subject to availability of funds and subject to Local issues)

Sr. No.	Name of the Department	Work proposed	Estimated cost	Timeline for completion
1.	IPH	Proper design, execution of sewerage lines to be incorporated in proposed at Baddi.	33.34 crore	31st July, 2019
		Execution of project proposal for sewerage management by laying of pipeline and installation and commissioning of STP at Nalagarh	16.36 crore	31st July, 2020
2.	Industries and BBNDA	Laying of additional pipeline for the collection effluent from the industries	2.78 crore	31st July, 2020
3.	Forest Department	Plantation and maintenance	10.17 Lakh and 55.03 Lakh (65.20 Lakh)	31st March, 2022
		Fire fighting equipments	5 Lakh	December, 2020
		Bio-diversity park	57 Lakh	31st March, 2022
4.	Transport Department	Regular checking of vehicular emission and issue of PUCs	10 Lakh	January, 2019

5.	PWD and Municipal Council Baddi	Construction of pucca pavement along the roads	707.03 Lakh	June, 2019
6.	PWD and Forest Department	Tree plantation along the roads	10 Lakh	June, 2019
7.	HPSPCB	Public Awareness	3.5 Lakh	January, 2019

Pr. Chief Conservator of Forest (HoFF)
Forest Department, Himachal Pradesh

Director
Department of Rural Development
Himachal Pradesh

Director
Industries Department
Himachal Pradesh

Director
Transport Department
Himachal Pradesh

Director
Department of Urban Development
Himachal Pradesh

Director
Department of Environment, S & T
Himachal Pradesh

15/3/19

Director
Department of Health
Himachal Pradesh

15/3/19

Engineer-in-Chief
Department of Irrigation and Public Health
Himachal Pradesh