

Original Application. No. 1038 of 2018, dated 13.12.2018

In the matter of

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Authored by Sanjay Kaw

Titled

“CPCB to rank industrial units on pollution levels”

ACTION PLAN

For

Parwanoo 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 finalize action plans for these 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 Tribunal in its order dated 13-12-2018 passed in OA no. 1038/2018 directed that all the State Pollution Control Boards should finalize a time bound action plan 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, Promotion and Mitigation (PPM) principles emphasizing on 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:

Date:

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 as **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.

Parwanoo Industrial Cluster

Chapter-1

Industries

1.Area Details

1.1 Brief history:

Parwanoo is a municipal council in Solan district of Himachal Pradesh. It is an industrial town. It has Himachal's biggest wholesale market. It borders Panchkula district of Haryana and is before the towns of Pinjore and Kalka on the Chandigarh Shimla Highway. In fact, it is separated by a river bed from the town of Kalka and Pinjore to Parwanoo is almost a continuous urban belt.

The Parwanoo Town is situated in lap of Kasauli range of the outer Himalaya. A newly constructed town in the year of 1972 has developed into an industrial and commercial centre. Name of the town is derived from "Parwanun" Hill in its vicinity. Present Parwanoo town comprises of small cluster of villages of Taksal, Kamali, Daangiar, Gumman, Ambota and Purla. Construction of town was taken up during 1970's for establishment of industries near to broad-gauge rail head of Kalka and Erstwhile Himachal Pradesh. Housing Board now HP Housing and Urban Development Authority (HIMUDA) was entrusted with the work of its development. Master plan for the town was got prepared by Housing Board

The town is divided into 6 different sectors spread randomly across the Shivalik Range in a radius of about 4 km. While sectors 1A, 4 and 6 of Parwanoo are totally residential the other sectors 1, 2, 3 & 5 are Industrial with only a few residential areas. Parwanoo is essentially an industrial town with almost 80% of the local population engaged with the industries in one way or other. It is home to the largest fruit processing unit of HPMC and the HP Agro Industries have a Cattle Feed Unit and a Pesticide Unit located here. It also has a Large ESI hospital. Prominent hotels are Shivalik View, Windsmoor, Park Inn and Shelly.

Very less of Parwanoo's history is known and that is because it was largely unnoticed for any kind of activity and development until 1973. During the pre-independence times, the British forces laid emphasis on developing different portions of the beautiful Himachal Pradesh but Parwanoo remained untouched by them for a long time.

However, after Himachal Pradesh formally came into existence on January 25, 1971, the first Chief Minister of Himachal, Shri Y S Parmar got attracted to the immense industrial potential of the town and hence initiated setting up of different industries here. With time since then, the town has become a major industrial town of Himachal Pradesh. There were also many incentives and benefits that were declared, which initiated the settlement of various small and large scale industries in this beautiful hill station. It is said that Parwanoo derives its name from a village called Ooncha Parwanoo.

1.2 Location:

Parwanoo is a hill station located in Solan district in Himachal Pradesh. This place lies at a distance of 35 kilometers from Chandigarh. It is situated at the border between Himachal Pradesh and Panchkula in Haryana. Situated at junction of National Highway - 22 and Parwanoo-Kasauli road is about 22 Kms away from Chandigarh. It has fascinating and variable scenery through the year. Although recently constructed,

Parwanoo has emerged as important industrial – cum commercial town. It has immense potential for future growth for establishing an export market for fruit; vegetable timber other producers of Himachal Pradesh. This hill station is known for its scenic natural beauty, beautiful orchards and greenery. Previously a small town, Parwanoo has now emerged as an industrial town today. Parwanoo serves to be a gateway to many well known hill stations in the state of Himachal Pradesh. Small garden town of Pinjore, Kasauli, Renuka lake, Subathu Cantonment, and Dagshai Cantonment of erstwhile British rule are some places of excursion near Parwanoo.

Parwanoo is a city is located at India with the GPS coordinates of 30° 50' 13.7904" N and 76° 57' 41.1336" E. The elevation of Parwanoo is 762 meters.

It houses 45 industrial sheds and 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 (Department of Industries)	37	37	0
	Industrial Shed (HPSIEC Ltd.)	8	8	
2.	Industrial Plot (ownership of HIMUDA)	283	283	0
	Industrial Plot (Department of Industries)	5	5	
3.	Housing Plot	0	0	0
4.	Commercial plots	0	0	0
5.	Housing Quarters	0	0	0
6.	Shops	9	9	0
7.	Go down	0	0	0

Source: H.P. Industries Department.

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

Table-2: Economy of the Cluster

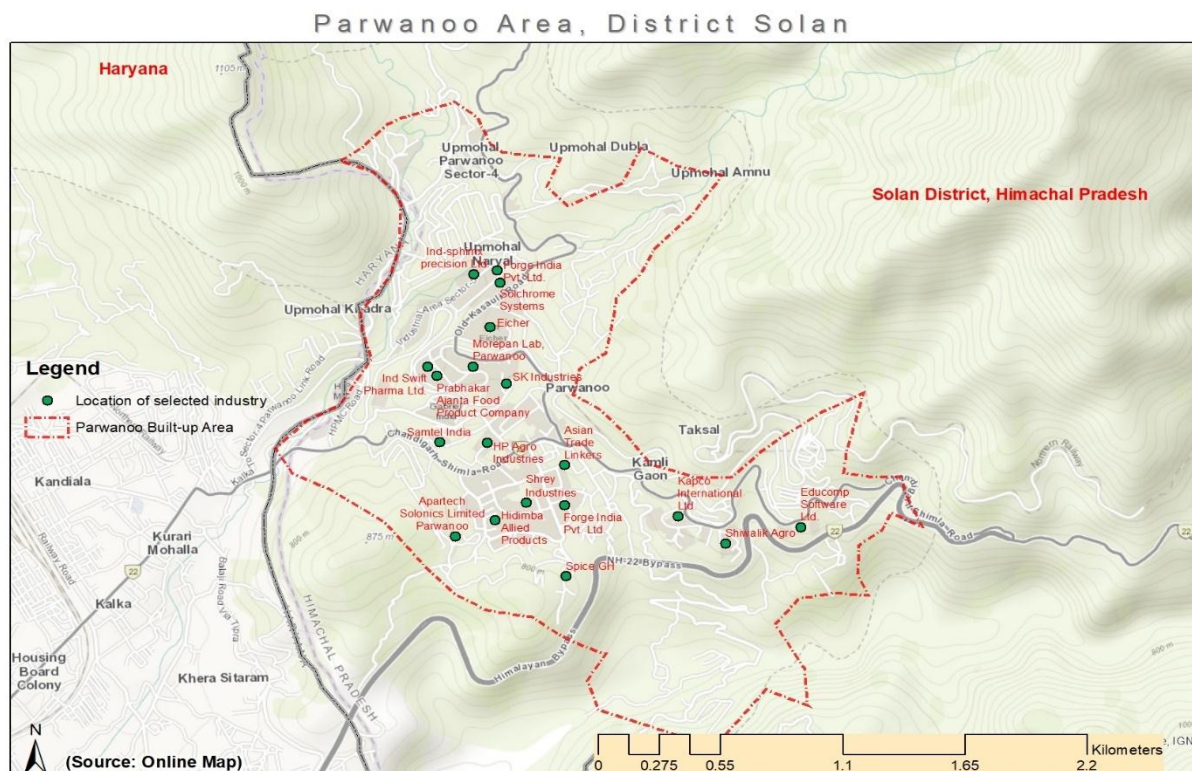
Sr. No.	Particulars	Present Status -2019
1.	Investment (Rs. In crore)	37092.94
2.	Employment Nos.	9670

Source: H.P. Industries Department.

As per Census 2011, current projected population of Parwanoo area is 8758 persons and the present population including the floating population for employment and non-permanent residents is around 20,000 persons.

1.3 Location Map:

The geographic coordinates of Parwanoo are 30° 50' 17.02" N (latitude) and 76° 57' 30.60" E (longitude). The town is situated at an average elevation of 762 metres. The map showing geographical location is as 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.

Parwanoo, is one of the severely polluted industrial clusters identified by CPCB and its CEPI Score is 63.83. This severely 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	3.00	5.00	15.00	3.00	3.00	3.00	9.00	3.00	3.00	5.00	14.00	15.00	53.00
	A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	Total
Water	3.00	5.00	15.00	2.00	3.00	4.50	9.50	1.50	2.00	5.00	8.00	15.00	47.50
	A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	Total

Land	3.00	5.00	15.00	3.00	3.00	3.00	9.00	1.50	3.00	5.00	9.50	15.00	48.50
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Source: CPCB report: EIAS/5/2009-10

- ☐ **Water Comprehensive Environment Pollution Index Score = 47.50**
- ☐ **Air Comprehensive Environment Pollution Index Score = 53.00**
- ☐ **Land Comprehensive Environment Pollution Index Score = 48.50**
- ☐ **Aggregate Comprehensive Environment Pollution Index Score= 63.83**

1.5 Eco-geological features

Total geographical area of Parwanoo (MC) municipal council is 9 km². Population density of the city is 980 persons per km². Situated at junction of National Highway-22 and Parwanoo-Kasauli road is about 22 Kms away from Chandigarh. It has a fascinating and variable scenery through the year. Although recently constructed, Parwanoo has emerged as important industrial – cum commercial town. It has immense potential for future growth for establishing an export market for fruit; vegetable timber other produces of Himachal Pradesh.

Nearest railway station is Takshal which is within the city. Kasauli is the sub district head quarter and the distance from the city is 37 km. District head quarter of the city is Solan which is 40 km away. Shimla is the state head quarter of the city and is 85 km far from here.

1.6 The Climate of the Region:

The climate is warm and temperate in Parwanoo. In winter, there is much less rainfall in Parwanoo than in summer. The winter season commences from November to February and ends in March; summer season extends from March to June, followed by the monsoon period extending from July to September. Maximum temperature here reaches up to 38°C and minimum temperature goes down to 12°C. The average annual temperature in Parwanoo is 21.6 °C. The average annual rainfall is 1445 mm.

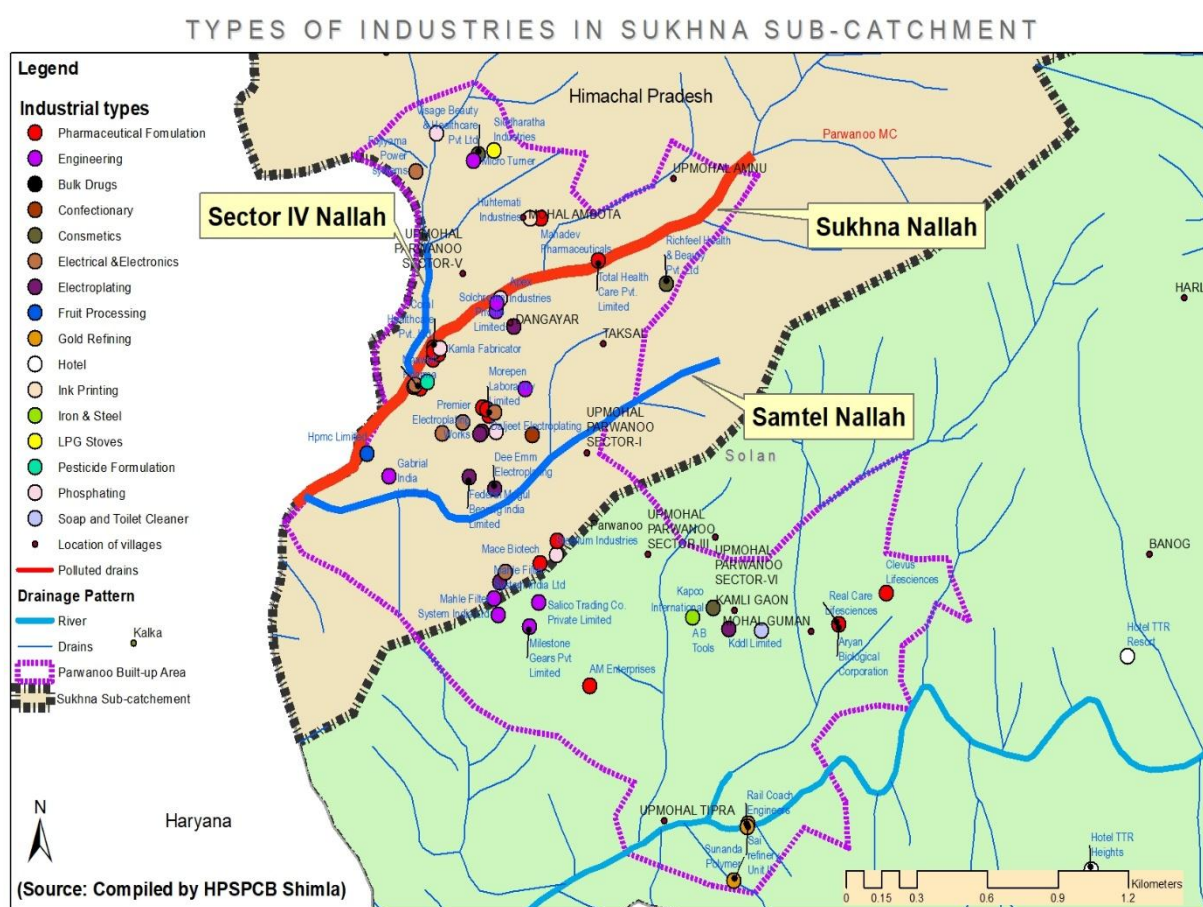
1.7 Geological Pattern:

The Parwanoo-Solan-Shimla section (zone A) along NH-22 is tectonically active, characterized by steep slopes, high relief, and very immature topography and weathered rocks. Landslide activity in this area is a result of weak structure and steep slopes. The increased frequency of landslides is attributed to shift in climatic pattern and escalating anthropogenic activity as evident from growing population, increased road length and alteration in land use.

The Shivalik Group, in general, is composed of sandstones, conglomerates, clays and siltstones.

1.8 Major water bodies

Sukhna Nallah is a tributary of the River Kaushalya and sub-tributary of River Ghagar. Sukhna Nallah originates in Kasauli hills and is a non-perennial intermittent Nallah which traverses through Parwanoo town. Parwanoo is a Municipal Council in Solan district in the Indian state of Himachal Pradesh. It is an industrial town. Parwanoo borders Panchkula district of Haryana, and is near to the towns of Pinjore and Kalka on the Chandigarh Shimla Highway. Sukhna Nallah forms a boundary between Kalka and Parwanoo. Sukhna Nallah traverses through Parwanoo, Kalka and Pinjore before meeting Ghaggar River in Panchkula. Sukhna Nallah traverses a stretch of about 2.4 km in the state of Himachal Pradesh before entering Haryana at Kalka town.



As per the court orders vide OA No. 673 of 2018, Sukhna falls under Priority –I of designated criteria depending upon the level of Bio-chemical Oxygen Demand.

Sr. No.	River Stretch	Priority - I	BOD (mg/L)
1.	Sukhna	Sukhna to Parwanoo	54.0

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

Due to wide variations in the altitude, soil depth and available moisture, the vegetation met within this region shows a great variation. Chil, Khair, Bamboos and other broad leaved species like Chhal, Simbal, Jhingan etc. are the most important species met within this area. Tropical Euphorbia scrub forest to ShivalikChil, pine and little Ban oak forests are found in this area. Vegetation changes due to water and slopes. Undergrowth consists of Phullakri, Karaunda, Ghandela and top storey consists of Kashmal, Katni, Kainth, Tirmira, Khair, Bel, Banarasi, Kangu, Malkora, Dub, Dhaula and lobb are the various types of grasses found in this District. The climbers that are generally found are Hedera Lelix, Smilex, Bauhniavehili, Smilaxspp, Gulab, Acacia Pinnata etc. There is a great variety of wild life met within this District. The main wild life animals found are; Leopard, Ghoral, Indian wild Bear, Kakar, Hyena, Wild bear, Porcupine, Hone, Squirrels. Leopard is found throughout the area up to an elevation of about 2,200mtrs. In scrub forests Ghoral is found above an elevation of 1200mtrs. In Mangal area various types of birds like Chukar, Black Petridge, Kaleshna and Jungle fowl are also found in the District. Besides the already mentioned birds, a number of other birds like Peacock, Parrot, Sparrow, Pigeon and Doves are also found.

1.10 Industry classification

Out of 514 functional 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, 1981 with authorization required under various Rules. There are 16 no. in the red category, 45 in orange category and 453 in the green category. Based on investment criteria, 450 small, 39 medium and 25 large scale units are located within the cluster. Details of these industries are given in table given below.

In the Parwanoo industrial area, the major red category of industries is comprising of Bulk Drug, Metal Finishing, electroplating, Phosphating and Pesticides Formulations.

Table-3: Bifurcation of industries based on pollution potential

Industries Detail	Red	Orange	Green	Total
Large	04	15	06	25
Medium	04	17	18	39
Small	08	13	429	450
Total	16	45	453	514

Table-4 :Highly Polluting industries of 17 categories

Sr. No.	Type of Industries	No. of Industries
1.	Bulk drug	01
Total		01

Name of the Industry:

1. Morepen Laboratory Ltd. ,Kasauli Road, Masoolkhana.

1.10.1 Red category industries:

There are total 16 nos. of units falling under red category. Sector wise distribution of the Red category units is at Table below:

Industry Type Name of sector	Red
Bulk drug	01
Pesticide formulation	01
Metal Finishing	02
Phosphating	02
Gold refining	03
Electroplating	07
Total	16

1.10.2 Orange and Green category industries

There are 45 units falling under orange category and 453 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 this region 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 installation like 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/ PM₁₀ and PM_{2.5}

All the air emitting industries have installed the adequate air pollution control devices such as dust collectors/ bag filters/cyclone/wet scrubbers/dry scrubbers /Electrostatic Precipitator/alkaline wet scrubber along with online continuous SO₂ meter/gravity settling chambers. Coal, pet coke, High Speed Diesel, wood, Furnace Oil, rice husk, diesel are the major fuels used in the utility installations like Boiler, Furnaces, Thermic Fluid Heater etc. which contribute to the Particulate Matter emission in the ambient air. Air pollutants like PM - represented as PM₁₀ PM_{2.5}, SO₂ and NO_x are likely to be emitted from the above and can be considered as the key indicator pollutants. PM₁₀ and PM_{2.5} can be considered as indicators for the air environment.

2.A.2 Critical locations for air quality monitoring

Presently following ambient air quality monitoring stations are in operation. Critical locations for air quality monitoring for special parameters and air toxics are identified at:

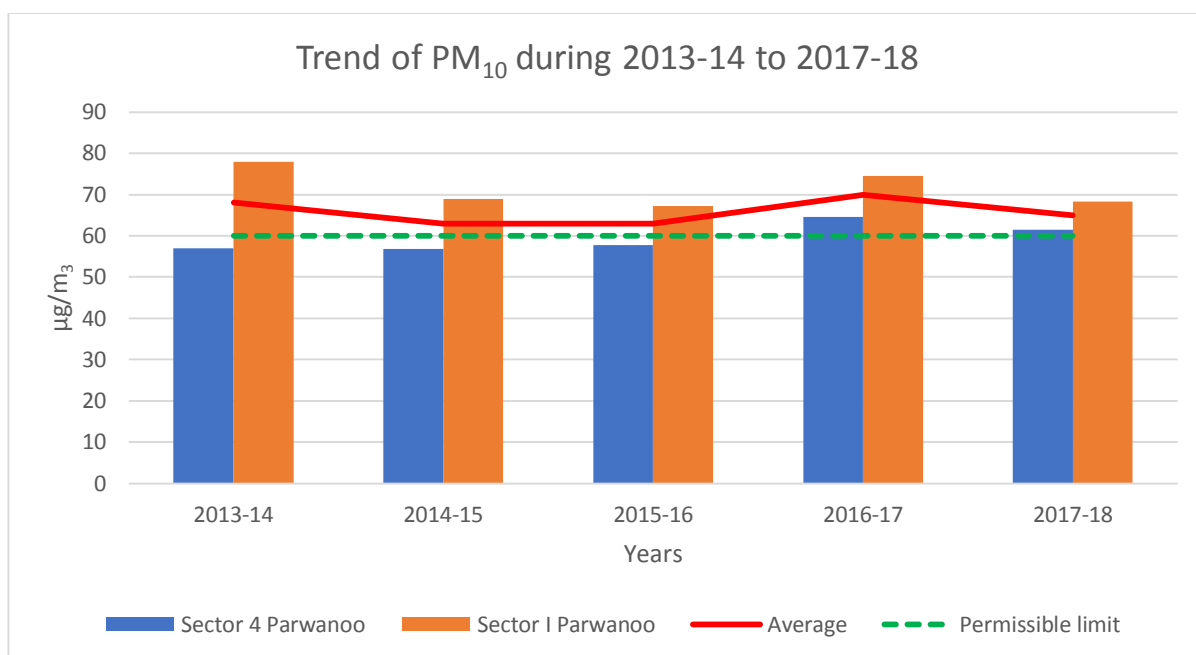
- A. Sector 4 Parwanoo, (Existing station)
- B. Sector I Parwanoo,(Existing station)

2.A.3 Ambient Air Quality Status of Parwanoo industrial cluster –

Ambient air quality is being monitored at above 2 locations under National Ambient Air Quality Monitoring Program (NAMP). The annual average values of SO₂ and NO_x at both the NAMP stations were observed well below the permissible limit. The annual average values of Respirable Suspended Particulate Matter (RSPM) (PM₁₀) at both the NAMP stations were observed slightly above the permissible limit for the last 5 years. 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/m³ from 2013-14 to 2017-18

Name of Station	2013-14	2014-15	2015-16	2016-17	2017-18
Sector 4 Parwanoo	57	56.8	57.8	64.6	61.5
Sector I Parwanoo	78	69	67.2	74.5	68.3
Average	68	63	63	70	65



In compliance to the directions of Hon'ble NGT passed in OA NO. 681/2018 dated 08.10.2018 for the control of Air Pollution in Non-attainment Cities of Himachal Pradesh, the action plan prepared by Air Quality Monitoring Committee (AQMC notified vide Notification no. STE-E (3)-22/2018 dated 17-11-2018, comprising of Director, Environment; Director, Industries; Director, Transport; Director, Urban Development; Director, Agriculture and Member Secretary, HP State Pollution Control Board) for Parwanoo 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 Parwanoo 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, Solan | Member |
| 3. Regional Transport Officer, Solan | Member |
| 4. Executive Engineer, HP PWD, Kasauli | Member |
| 5. Member Secretary, SWCA, Parwanoo | Member |
| 6. D.F.O, Forest Department, Solan | Member |
| 7. Deputy Director, Department of Agriculture | Member |
| 8. EO, Municipal Council, Parwanoo | Member |
| 9. President / Secretary (Nominee) Indl Association Parwanoo | Non-official Member |
| 10. Regional Officer, HPPCB Parwanoo | Member Secretary |

2.A.4 Predominant sources

The industries generating air pollution are mainly due to installation like 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 PM₁₀ and PM_{2.5}

The industries have installed the adequate air pollution control devices as mentioned in the Schedule-I of Environment Protection Act, 1986 and as per directions given by Central Pollution Control Board from time to time.

Vehicular exhaust, Road Dust, Construction activities, Biomass and garbage burning, constructional activities and domestic fuel also adds substantially towards air pollution due to bad roads and traffic congestion.

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

There is total no. of 17 air emitting industries in Parwanoo industrial cluster. Most of the industries use pet coke, coal, Furnace Oil, High Speed Diesel, Rice husk, wood, diesel as fuel. Bio-mass burning is also practiced around the city and amounts to large emissions.

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

Air polluting industries in Parwanoo are as below:

Name of the sector	No. of industries
Red	8
Orange	8
Green	1
Total	17

The major types of air polluting industries are Bulk Drug, metal finishing, steel/ferro alloy-based industries and electroplating industries. The list with names of the industries is enclosed as **Annexure-VI**

2.A.6 Impact of activities on nearby areas

This industrial cluster is surrounded by habitation comprising of commercial centres, schools, hospitals and educational institutions outside the jurisdiction of MC Parwanoo. The impact of Air pollution generated from Industrial emission vehicular emission etc. is also affecting natural habitation outside MC Parwanoo jurisdiction, results in air-borne diseases and consequently contributing to CEPI score of Parwanoo Industrial Area.

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

2.A.7.1 Existing infrastructure facilities – Ambient air quality monitoring Network

Air quality is monitored at 2 locations in the industrial cluster on a regular basis. These two stations are being funded through National Ambient Air Quality Monitoring Program.

The parameters monitored at these stations are Sulphur Dioxide (SO₂), Oxides of Nitrogen (NO_x), Ozone (O₃), Ammonia (NH₃), Suspended Particulate Matter (SPM) and Respirable Suspended Particulate Matter (RSPM). 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 report to the 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 to the stacks of 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.

All the industries in the industrial clusters have provided stacks of adequate height. All the industries have installed the adequate air pollution control devices such as dust collectors/bag filters/cyclone/wet scrubbers/dry scrubbers /ESP/multicyclone. The contribution to air emissions is mainly from the flue gas. Coal, pet coke, HSD, wood, FO, rice husk, diesel are the major fuels used in the utility installations like Boiler, TFH etc. contribute to the Particulate Matter emission in the ambient air. Air pollutants like PM - represented as PM₁₀/ PM_{2.5}, SO₂ and NO_x are likely to be emitted from the above and can be considered as the key indicator pollutants. PM₁₀ and PM_{2.5} can be considered as indicators for the air environment.

2.A.8 Technological Intervention

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

Bulk Drug, Metal finishing, alloy-based industries and electroplating industries 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. A lot of fugitive emissions occur during improper storage and handling of the chemicals. Improper storage and handling and transportation of hazardous waste generated by these industries is also a source of fugitive emissions.

Hazardous waste generated by the Industries is being sent to TSDF, Dabhota, Nalagarh, Solan which is approximately 65 kms driving distance from Parwanoo industrial area. This leads to delay in moving the waste thereby contributing to fugitive emissions.

2.A.8.2 Identification of technology for 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 APCDs as per the guidelines issued from time to time by the Central Pollution Control Board and as mentioned in Schedule-I of Environment Protection Rules, 1986.

Providing adequate dust collectors and water scrubbing system by the industries using coal / briquette/ bagasse / biomass as fuel, units ensures that the air emissions are complied with the standards as prescribed under Scheduled-I of Environment Protection Rules, 1986.

Providing online continuous emission monitoring system by all the Red-Large category industries of this cluster is being made mandatory.

2.A.9 Need of infrastructure Renovation

2.A.9.1 Development/Construction of Pucca Pavement along the Roads

Parwanoo an emerging town for industries as it hosts productions units for paper, metal, chemicals and textile units. This town is on the border of Haryana, hence half of the town falls in Haryana and the Industrial area is situated in Himachal only. Construction of pucca pavement along the roads to avoid road dust needs to be carried out by HPPWD and Municipal Council. Tree plantation along the roads shall also be helpful for decreasing the road dust.

Parwanoo is essentially an industrial town with almost 80% of the local population engaged with the industries in one way or other. It is home to the largest fruit processing unit of HPMC and the HP Agro Industries have a Cattle Feed Unit and a Pesticide Unit located here.

The major contribution towards the air pollution in the area is due to vehicular emissions, road dust and constructional activities. With regard to vehicular emissions regular checking of vehicular emissions and issuance of pollution under control certificate (PUC) may be checked by 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	-	June, 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. MC, Agriculture, Horticulture and BDOs.	-	March, 2019
7.	Providing air pollution control measures during demolition of old building and new constructions.	Short term and continuous	Local body (MC Parwanoo)	-	March, 2019
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	-	30 th June, 2019
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, Forest Department	909.03 lakhs	June, 2019
11.	Action plan to minimize forest fires.	Mid-term and continuous	Forest Department	-	March, 2019

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 PWD and MCs	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 and also take flue gas emission samples.

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 has 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 Urban Development, Rural Development, Transport Department, District Administrations, Local Administration, Department of Food and Civil Supplies, Public Works Department, Forest Department, Agriculture Department, HP State Pollution Control Board, Road traffic department, along with industries to follow-up for efficient implementation of the action plan.

2.A.13 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 there is only one 17 categories of highly polluting of industries in Parwanoo Industrial area which 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

Parwanoo is a Municipal Council in Solan district in the Indian State of Himachal Pradesh. It is an industrial town. Parwanoo borders Panchkula district of Haryana, and is near to the towns of Pinjore and Kalka on the Chandigarh Shimla Highway. Sukhna Nallah forms a boundary between Kalka and Parwanoo. Sukhna Nallah traverses through Parwanoo, Kalka and Pinjore before meeting River Ghaggar in Panchkula. Sukhna Nallah traverses a stretch of about 2.4 km in the state of Himachal Pradesh before entering Haryana at Kalka town.

The industrial Area of Parwanoo is a semi urban area where industries are located in Sector 01, 02, 03 and 05. Apart from these industries are also located in non MC and Panchayat areas around the industrial sectors. There is no common STP or CETP in the area till date.

In Parwanoo, wastewater is being generated mainly from industrial, commercial and domestic activities. For the treatment of industrial effluents, all the water polluting units have installed their respective ETPs. For the treatment of domestic sewage, septic tanks/soak pits have been provided by individual households but due to inadequate capacity/improper design of septic tank/soak pits, septage/sullage is flowing in the open drains at several places and thereby causing degrading the water quality of Sukhna Nallah. Water stagnation and decaying biodegradable waste is also one of the contributing factors of deteriorating water quality of Sukhna Nallah. Drains of Parwanoo area are not being cleaned regularly due to which water gets stagnated and

its quality deteriorates. Solid waste not disposed of properly gets washed away in rain, which finds its way into the drains depleting the water quality of the Nallah

There are total 61 water polluting industries in Parwanoo area. Out of these, 48 fall in the Sukhna Nallah catchment, 11 fall in the River Kaushalya catchment and 02 fall in isolated area. There are total 23 captive STPs in Parwanoo area out of which 18 falls in the catchment of Sukhna Nallah, 04 fall in the catchment of River Kaushalya and 01 falls in isolated area. The individual households have the septic tank followed by soak pit. The captive sewage treatment system installed comprises of activated sludge process followed by sand and activated carbon filters. The treated sewage is being used by most of the industries in gardening, flushing and wetting of internal roads etc. The sewage load from the sewer lines provided in industrial as well as residential sectors are treated in septic tanks provided by HIMUDA and now operated and maintained by MC Parwanoo.

M/s Morepen Laboratory, is the only industry in Parwanoo that falls under 17 categories of highly polluting industries and the said unit has installed real-time online continuous water quality monitoring station at the outlet of the ETP. The results of treated effluent are being displayed on the CPCB and State Pollution Control Board servers on real-time basis.

Table-7: Waste Water Generating Industries in Parwanoo Area

	Type of Unit	Number of the units
1.	Ink Printing	1
2.	Confectionary	1
3.	Pesticide Formulation	1
4.	LPG Stoves	1
5.	Iron & Steel	1
6.	Bulk Drug	1
7.	Soap and Detergents	1
8.	Fruit Processing	1
9.	Hotel	2
10.	Gold Refining	3
11.	Cosmetics	3
12.	Phosphating	5
13.	Electrical & Electronics	6
14.	Electroplating	7
15.	Engineering	9
16.	Pharmaceutical Formulation	18
Total		61

As per the information provided by the HIMUDA Parwanoo, the water supplied is about 2.27 MLD and the Sewage generation of Parwanoo comes around 1.3574 MLD. I&PH Solan has been entrusted the task of providing Sewage Treatment Plant for Parwanoo area. I&PH Deptt. has prepared a DPR for providing 02 Sewage Treatment Plants in Parwanoo area and submitted the DPR to a French agency for funding. The estimated Cost of the project is 50 Crore.

The matter regarding the installation of CETP for industrial wastewater treatment was discussed in the second meeting of the District Level Special Task Force constituted/notified by Government of HP on 04.12.2018 by and it was decided that considering the topography of the area, scattered geographical nature of the trade effluent generating units, it is more advisable to provide captive Wastewater Treatment plants in the respective units. The list of Water polluting industries is enclosed as **Annexure-VIII**.

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

As per the information available, major water body is Sukhna Nallah is a tributary of the River Kaushalya and sub-tributary of River Ghagar. Sukhna Nallah originates in Kasauli hills and is a non-perennial intermittent Nallah which traverses through Parwanoo town. Sukhna Nallah traverses a stretch of about 2.4 km in the state of Himachal Pradesh before entering Haryana at Kalka town. As per the information available, the major contributors of pollution in Sukhna Nallah are:-

- A. Inadequate infrastructure for domestic waste water treatment in the entire town.
- B. Industrial activities in Sukhna Nallah catchment.
- C. Inadequate waste water treatment facilities in the adjoining Panchayat areas.
- D. Very little or even no dilution available at times to the treated waste waters.

The main source of pollution in Sukhna Nallah includes inadequate infrastructure for domestic waste water treatment in the entire town and particularly the under capacity septic tanks maintained by MC Parwanoo. The septic tanks, 16 in number are under capacity, never emptied till date and have been rendered ineffective due to enhanced load over a period of time. Municipal and Industrial waste from floating workforce and industrial activity are also a major factor contributing to generation of waste water and in the absence of adequate treatment facility, add to the deterioration in the surface water quality of the entire area. The water quality of Sukhna Nallah upstream of Parwanoo town near Shivloti temple is meeting the water quality parameters of class A

Table-8: Flow and Pollution Load of Drains, Parwanoo Area

Sr.No.	Drain/Catchment	Flow in KLD	Avg. BOD(mg/l)	BOD load Kg/day
1.	Sukhna Nallah	2592	12.4	32.14
2.	Sector 4 Nallah	86.4	20	1.72
3.	Samtel Nallah	86.4	15	1.3

The matter regarding the installation of CETP for industrial wastewater treatment was discussed in the second meeting of the District Level Special Task Force constituted/notified by

Government of HP on 04.12.2018 in NGT OA No. 138 & 139/2016 and it was decided that considering the topography of the area, scattered geographical nature of the trade effluent generating units, it is more advisable to provide captive Wastewater Treatment plants in the respective units.

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

Sukhna Nallah in context of their utility as it is non-perennial nallah. The ultimate goal for beneficial use of river will determine the level of actions to be taken for maintaining the water quality. Under the present circumstances, it appears that Sukhna Nallah may serve the purpose of outdoor bathing (organized) and for this objective; generated domestic sewage should be treated to meet the outdoor bathing standards. Also, the industrial effluents generated from various industries in the catchment of Sukhna Nallah, which are ultimately joining and contributing to the pollution load of the nallah, which need to be treated to meet the effluent discharge standards stipulated under Schedule-VI of the Environment (Protection) Rules, 1986.

As per the court orders vide OA No. 673 of 2018, Sukhna falls under Priority –I of designated criteria depending upon the level of Bio-chemical Oxygen Demand.

Sr. No.	River Stretch	Priority - I	BOD (mg/L)
1.	Sukhna	Sukhna to Parwanoo	54.0

Table-9: Results of Sukhna Nallah at Shivloti Temple at Village Ambota upstream of Parwanoo 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	7.72	9.0	0.8	<1.8	6.0	C complying
Apri,2018	7.7	8.5	0.2	8.3	<1.8	complying
July,2018	7.4	8.6	1.8	<1.8	4	complying
Dec,2018	7.74	8.0	1.0	5.8	25.0	complying
Jan,2019	7.8	8.0	1.2	2.0	32.0	complying
Feb,2019	8.24	6.5	0.6	1.8	6.0	complying

Table-10: Water Quality of Sukhna Nallah at Kalka Barrier, downstream of Parwanoo

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	7.59	3.5	10	21	94	Non-Complying
Feb,2018	7.50	4.0	12	46	540	Non-Complying
Mar,2018	7.43	3.5	12	70	350	Non-Complying
Apr,2018	7.52	3.9	8.0	350	32	Non-Complying
May,2018	7.45	3.2	18.0	70	920	Non-Complying

Jun,2018	7.05	3.0	18	>1600	>1600	Non-Complying
July,2018	6.64	3.2	12	49	350	Non-Complying
Aug,2018						
Sep,2018	8.06	2.5	8.4	46	170	Non-Complying
Oct,2018	7.86	3.2	10	33	110	Non-Complying
Nov,2018	7.15	3.5	12	23	110	Non-Complying
Dec,2018	8.23	3.8	28.0	47	920	Non-Complying
Jan,2019	8.16	4.0	52.0	14.0	32	Non-Complying
Feb,2019	7.74	6.3	12.0	26	140	Non-Complying

2.B.4 Predominant sources contributing to various pollutants

Sources of water pollution

2.B.4.1 Industrial

There are total 61 water polluting industries in Parwanoo area. Out of these 48 fall in the Sukhna Nallah catchment, 11 fall in the River Kaushalya catchment and 02 fall in isolated area. There are total 23 captive STPs in Parwanoo area out of which 18 falls in the catchment of Sukhna Nallah, 04 fall in the catchment of River Kaushalya and 01 falls in isolated area. All the industries have provided individual ETP cum STP for the final disposal and treatment of effluent.

2.B.4.2 Domestic

As per the information provided by the HIMUDA Parwanoo, the water supplied is about 2.27 MLD and the Sewage generation of Parwanoo comes around 1.3574 MLD. I&PH Solan has been entrusted the task of providing Sewage Treatment Plant for Parwanoo area. I&PH Deptt. has prepared a DPR for providing 02 Sewage Treatment Plants in Parwanoo area and submitted the DPR to a French agency for funding. The estimated Cost of the project is 50 Crore.

2.B.4.3 Ground water:

I&PH have collected 28 nos. of Ground Water Samples from different bore-wells and ground-water sources. The results are attached as **Annexure -IX**. The results are complying with norms for Indian Standards for Drinking Water Supply (IS 10500: 2014). The HPPCB has also carried out ground water sampling along with the IPH department and the results are within the limit.

2.B.4.4 Surface water:

The major effluent generating industries in this industrial area are 61 with total effluent generated is 659.8 KLD for which of ETP cum STP of 1973.2 KLD capacities are provided by

the individual units (domestic and trade effluent). As per the information provided by HIMUDA, Parwanoo the water supplied is about 2.27 MLD and the sewage generation of Parwanoo is around 1.3574 MLD. I&PH Solan has been entrusted the task of providing STP in Parwanoo area and has submitted the DPR to a French agency for funding. The estimated cost of the project is 50 crore.

2.B.5 Impact of surrounding area (outside the CEPI Area) on the water courses/drainage system of the area

I&PH Sub Division Solan has completed the sampling at 28 locations of Drinking Water Supply Schemes and Bore wells in Parwanoo Area. Joint sampling at 11 locations of Bore-wells/ Tube-wells is also being carried out by HPSPCB and I&PH. 07 samples have also been collected from the Borewells of different industries (detail is annexed as **Annexure- IX**)

Table-11: Groundwater Quality of Borewells and Hand Pumps at the stretch of Sukhna Nallah

Sr. No.	Point of Collection	Coordinates		pH	BOD mg/l	TC MPN/100 ml
		N	E			
1	Hand pump at Kamli (Near Primary School)	30°50'0''	76°57'49''	8.4	0.4	<1.1
2	Hand Pump near M/s Total HealthCare, Ambota	30°50'56''	76°57'22''	8.38	1.2	<1.1
3	Borewell at M/s Sunrise Packaging, Khadeen	30°49'59''	76°57'51''	8.68	2.8	<1.1
4	Hand pump sector -4, Village Ambota	30°51'5''	76°57'51''	8.03	0.4	<1.1
5	Hand pump near Shiv Mandir Ambota	30°50'59''	76°57'51''	8.65	1	<1.1
6	Hand pump Tikkri (Sector -4)	30°51'5''	76°57'12''	8.12	1.2	<1.1
7	Hand pump at GMSS Taksal	30°50'58''	76°57'44''	8.07	0.6	<1.1
8	Bore well at Sector -3	30°50'18''	76°57'51''	8.05	0.4	<1.1
9	Borewell at Village Naryal (Near M/s Micro Turner)	30°51'6''	76°57'20''	7.59	0.8	<1.1
10	Hand pump near Shivalik café	30°50'25''	76°56'57''	8.65	1	<1.1
11	Bore well at HPMC	30°50'25''	76°56'58''	8.06	0.4	<1.1

*As per the analysis of parameters available till date no contamination of ground water is observed.

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

There are 61 water polluting industries with **total effluent generated is 659.8 KLD** for which of individual **ETP cum STP of 1973.2 KLD capacities** are provided by the individual units(**Domestic and Trade Effluent**). Further 03 number of Electroplating units have switched to Zero Liquid Discharge by installing Evaporator. 06 number of units have closed operations as on date or have stopped the operations processes producing trade effluent. Out of these 06 units closed units are 04 in number and 02 units have stopped the phosphating operations which produces trade effluent. Rest of the industrial units have been inspected and samples collected and the results are awaited.

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 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.

2.B.8 Quantification of wastewater pollution load

The major source of wastewater pollution is untreated sewage and industrial effluent. There are 61 water polluting industries with total effluent generated is 659.8 KLD for which of individual ETP cum STP of 1973.2 KLD capacities are provided by the individual units. (Domestic and Trade Effluent). The major source of waste water generating units are bulk drug, Pharmaceutical formulation, breweries, distilleries and electroplating Industry. The treatment technology provided ranges from primary treatment system i.e. chemical treatment, precipitation/settling followed by dual media carbon filters, Activated sludge process followed by dual media carbon filters, the chemical recovery system has also been installed in a paper mill, few industries have also provided RO systems. The treated effluent is being used in the process of gardening, flushing.

Further 03 number of Electroplating units have switched to Zero Liquid Discharge by installing Evaporator. 06 number of units have closed operations as on date or have stopped the operations processes producing trade effluent. Out of these 06 units closed units are 04 in number and 02 units have stopped the phosphating operations which produces trade effluent. Rest of the industrial units have been inspected and samples collected and the results are awaited.

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 Sukhna at Parwanoo has already been recommended/approved by the Central Pollution Control Board vide their letter dated 25.02.2019.

2.B.9 Managerial and financial aspects -Cost and time estimates

Short Term and Long Term Action Plan

Sr. No.	Description of Action Point	Implementation Period (short/mid/long term)	Implementation Agency	Cost
1	Inventorization of Water polluting industries in the industrial area.	Short term and continuous	HPSPCB	-
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	-
3	Providing Online Continuous Effluent Monitoring System in all Red-Large industries.	Long term	HPSPCB and individual Industries	-
4	Action against the industries	Short term and	HPSPCB	-

	operating without valid consent and authorisation of the State Board.	continuous		
5	Installation of Continuous Water Quality Monitoring Station	Long term	I & PH Department	30 Lakh
6	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas	Mid term	I & PH, HPGWA	-
7.	Sampling of Tubewells, Bore wells, Hand Pumps in Parwanoo	Short term and continuous	I& PH, HPSPCB	-
8	Sealing of contaminated Hand pumps and found to be unfit for drinking purpose by the Public.	Short term	I & PH, HPGWA	-
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	Executive Officer,MCParwanoo and HPSPCB	
12.	Sludge Management from Industrial Effluent Treatment	Short term and continuous	HPSPCB	
13.	Sewage/septage management for rural areas with low cost treatment technologies	Long term	Rural Development/Block Development Office,	
14.	Industries should be directed to obtain NOC from HPGWA/CGWA and action against the units for non-compliance.	Short term and continuous	I&PH	
15.	Regular monitoring and sampling of water quality of River Sukhna and various drains on monthly bases.	Short term and continuous	HPSPCB	
16.	Impact of water pollution on health of the public by organising health camps.	Short term and continuous	State Health Department	
17.	Study on trends of diseases.	Mid-term and continuous	State Health Department	
18	Setting up of interim project for SolidWaste Recovery and reprocessing facility with kiosk for domestic Hazardous waste	Short term	Executive Officer, MCParwanoo	PPP mode-25 lakhs, 3 lakhs
19.	Area wise estimation of total population, water requirement and sewage generation.	Long term	HIMUDA, IPH, Urban Development, Rural Development Department	
20	Proper design, execution of Common STP at Parwanoo Area with full utilization capacity.	Long term	I&PH	49.82 Crore
21	Cleaning and overhauling of existing septic tanks and setting up of STP	Short term	HIMUDA Parwanoo	75 Lakhs
22	Measurement of Depth and flow at river body along downstream of industrial town Parwanoo	Short term	IPH	6.5 Lakhs
23	For collection, transportation and processing, disposal of Fresh Waste at Baddi Cluster	Mid Term	BBNDA and MC Parwanoo	2.00 Crore

24	Plantation along river Body in flood plain zones and setting up of Bio-diversity park or any suitable plantation intervention.	Long term		
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2.B.10 Government support for efficient implementation

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

2.B.11 Self monitoring system in industries (ETPs etc.)

In first phase, Red Large industries to provide online emission/effluent monitoring systems to carry out analysis of the effluent on real time basis.

2.B.12 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:

As per the statistics received from MC Parwanoo, estimated solid waste volume is to the tune 7-8 tonnes per day in sector 5 of Parwanoo, which is adjoining to Sukhna Nallah and has further informed that waste currently being haphazardly managed shall be disposed of as detailed below:

- Out of the non-biodegradable waste following materials will be recovered and will be recycled: -
 - Polythene or low graded Plastic: Tiles or bricks to be given free of cost to MC Parwanoo and rest at subsidized rates on no profit no loss basis.
 - Wrappers (Chips, Shampoo etc) will be sent to plastic industries for material recovery.
 - Clothes: will be sent to Panipat for recycling by cloth industry.
 - Metal will be sold to the scrap dealers for recycling.
 - Shoes etc will be sent to the agencies involved in recycling.

- Pet bottles will be shredded and will be used in manufacturing of tiles or re-carpeting of roads or making eco walls.
- Glass bottles will be used for making decorative items or can be sold out to the glass recyclers.

The project at Parwanoo site will be setup and sustained under PPP mode that is Public Private Partnership mode whereby MC Parwanoo will be providing the necessary space to develop it into Integrated Solid Waste management Site along with provision of electricity connection and necessary water connection.

2.C.2 Hazardous Waste Generation and Management

There are around 104 industrial units in Parwanoo generating hazardous waste which have been 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 list of industries covered under HW authorisation 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.	ETP Sludge/APCD dust and Buffing waste	422.642 MT
2.	Lubrication oil	5841 litres
3.	Contaminated drums	8255 nos.

2.C.3 Biomedical Waste Management:-

There is one major medical Health care facility in Parwanoo. This facility has been covered under Bio Medical Waste Management Rules, 2016. The bio medical waste generated is being disposed off to one of 3 Common Bio Medical Waste Treatment Facility (CBWTF) provided in the State, named M/s Enviro Engineers, a Common Bio Medical Waste Disposal Facility located at Solan, H.P.

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.

2.C.4 Solid Waste and Septage Management in Rural Areas :-

Director-cum- Spl. 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 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 will be completed by 20th February, 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 of the approval of the plan.

In addition to this, a Helpline shall be developed by Rural Development in Rural Area and Urban Development in urban area for regular cleaning of Septic Tanks of Individual Households through extraction device for Faecal Sludge and Septage through Tankers equipped with GPS facility.

As per the direction of EMC constituted in compliance to Hon'ble NGT order 13-12-2018 n OA no. 1038/2018, the Rural Department H.P. have submitted a detailed standard operating procedure for SLWM in Gram panchayats which is as below:

Step 1: The Up-Gram Sabha/ Gram Sabha may first discuss the prevailing system of Solid and Liquid Waste Management (SLWM) in their Village /Panchayat and then identify the sources which generate the Solid/ Liquid waste.

- I. **The Sources could be :**
 - Household
 - Market/Bazar
 - Commercial establishments e.g. Hotel, Restaurant etc
 - Institutions e.g School Hospital, Government Offices, Temple etc.
 - Tourist visiting the tourist spots
 - Industries
 - any other source
- II. **House may further discuss the type of waste generated which could be :**
 - Bio-degradable / Non bio-degradable
 - Wet e.g. food item
 - Dry –Plate , paper etc
 - Hazardous material e.g.
 - Bio Medical Waste
 - E-Waste
 - Liquid Waste
- III. House may assess the **quantum** of waste generated so as to enable them to make plan for their disposal.

Step 2: House may discuss the present mode of collection, segregation and disposal of waste generated in their village /Panchayat and may opt for one of the following mode of collection and segregation suitable to their Gram Panchayat:

I. Mode of Collection

- Door to Door collection
- Collection at common point installing dustbins
- Construction of temporary Shed for collection of garbage.

II. Segregation – Segregation of waste is very important aspect. The waste could be segregated into dry/wet, bio-degradable/non degradable, hazardous, e-waste, bio-medical waste etc. If the waste is segregated it will help in effective disposal of the same. Segregation could be done at-

- At Source
- Segregation at common point

Step 3: Household may discuss what is the present mode of disposal of waste in their village /Panchayat and may prepare plan for the disposal of waste. Some of the options are:

I. Disposal of Bio-Degradable:

- Vermin Composting/ Composting
- Bio-Gas

II. Disposal of Non-Bio-gradable:

- Reuse
- Recycle
- Selling waste to agency e.g. kabadiwala
- Dumping –Land fill
- Control burning
- Incineration
- EPR (Extended Producer Responsibility)-As per section 9 of the plastic waste management Rule, 2016 it is the primary responsibility of producer, importer or brand owner who introduce the product in the market to establish a system for collecting bag the plastic waste generated due to their products.

III. Liquid Waste: House may discuss what is the present mode of treatment of liquid waste in their village / Panchayat and may prepare plan for the treatment of waste. Some of the options are :

- Construction of Individual Households treatment chamber.
- Soak pits / common treatment chamber and common soak pit for four to five households
- Construction of drains and community soak pits etc

Step: 4 ODF Sustainability Measures- The state of H.P. has been declared ODF in October, 2016. House should discuss whether there is any gap in ODF status of their village/Panchayat. In case of any gap noticed, SLWM plan should include the measures which need to be taken up to bridge this gap and develop a plan for ODF sustainability-

- Identifying the whether there are migrant labourer in their Village/GPs.
- whether migrant labourer have excess to toilets, if not, provision should be made to make it mandatory for contractor/those who engage labourer to provide toilet facility to them.
- Promoting twin pit technology instead of single pit/septic tanks in their GPs.
- Provision of bio-digester especially in construction of CSCs.
- Develop a plan by tying up with IPH Department for insuring piped water supplied for each household.

Step:5 Natural Water Resource Management-Provision should be made in SLWM plan for effective management of natural water resources-

- Identifying the number of natural water resources in GPs.
- Plan should clearly specify at what time in the year these natural water resources will be cleaned.
- Regular testing of water and putting up of sign board indicating whether water is fit for drinking or not.

Step:6 Setting up of institutional frame work-SLWM plan can be implemented successfully if the role and responsibility of every individual/ institution is clearly defined in the plan.

- The role and responsibility of Panchayat Pradhan/Up-Pradhan/Panch should be clearly specified.
- VWSC, Mahila Mandal, Yuvak Mandal and local NGOs, if any, should be made integral part of SLWM plan and their role and responsibility clearly stated in the plan.
- There should be mechanism for supervise of works.
- The success of plan will depend upon how effectively it is implemented. Therefore review of implementation of plan needs to be carried out from day one.
- In case of any gap noticed, there should be clear provision in the plan as to who will take initiative to set the things right.
- The plan should also contain the provision for penal action against the violators.

Step:7 Financial Provision-The plan can be effectively implemented only if sufficient funds to carried out different activities proposed is available with the GPs. House should identify the potential sources of fund available in their GP e.g.-

- The funds available under 14th finance commission can be utilized for development of infrastructure required under SLWM plan
- MP/MLA local area development fund could be rope in.
- Certain activities can be carried out in convergence with other schemes under RDD e.g. twin pit toilet can be constructed in convergence MGNREGA.
- Raising of funds by imposing Sawchhta Cess.
- Funds under decentralized planning.

The Government of India has notified the plastic waste management Rules, 2016 to regulate the management of plastic waste generated in the country. As per the provision of para-7 of the said Rule it is the duty of the Gram Panchayats to regulate the management of plastic waste and ensure that no damage is caused to the environment. GPs will also ensure that no open burning of plastic waste take place in their jurisdiction. They will also create awareness among all the stakeholders about their responsibility. Therefore, it becomes imperative that every Gram Panchayat has SLWM plan in place.

2.C.5 Electronic Waste

At present there is no industry which falls under the provisions of e-Waste Rules, 2016. Further, w.r.t. the consumer/bulk consumers, State Pollution Control Board is still doing inventorization which shall be completed by 30-06-2019.

2.C.6 Co-processing of Waste:

All the major cement plants of the State are using RDF in the main cement kiln to substitute 0.1 % of existing fuel by Biomass and Combustible Solid Waste (RDF and Plastic Waste).

2(D) Action Plan for Plantation by Forest Department

1. Plantation and Maintenance Works:- Site specific plan along with 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	Solan	Parwanoo	Parwanoo	Parwanoo and Tiron	Shivloti Temple Ambota to Parwanoo Barrier (This includes Nallah and road side plantation)	3.15	500	1630	815000	I/c cost of steel tree guards and fixing with cement.
					Total -			509		815011	
	Maintenance										
1.	2020-21	Solan	Parwanoo	Parwanoo	Parwanoo and Tiron	Shivloti Temple Ambota to Parwanoo Barrier (This includes Nallah and road side plantation)	3.15	100	250	25000	
2.	2021-22	Solan	Parwanoo	Parwanoo	Parwanoo and Tiron	Shivloti Temple Ambota to Parwanoo Barrier (This includes Nallah and road side plantation)	3.15	80	150	12000	
					Total					37000	

	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	
						Grand Total				1352011	

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.	<i>Ficus religiosa</i>	Peepal
2.	<i>Terminalia arjuna</i>	Arjun
3.	<i>Terminalia bellerica</i>	Bhera
4.	<i>Syzygiumcumuni</i>	Jamun
5.	<i>Albizia lebbek</i>	Siris
6.	<i>Azadirachta indica</i>	Neem
7.	<i>Cinnamomumcamphora</i>	Muski Kapoor
8.	<i>Melia azedarach</i>	Mahaneem
9.	<i>Pongamia pinnata</i>	Karanj
10.	<i>Aegle marmelos</i>	Bael
11.	<i>Bauhinia variegata</i>	Kachnar
12.	<i>Cassia fistula</i>	Amaltas
13.	<i>Emblica officinalis</i>	Amla
14.	<i>Thevetia nerifolia</i>	Pit kaner

Regulation:-

- (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 CWPI 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:

Parwanoo is an emerging town for industries as it hosts production units for paper, metal, chemicals, etc; untreated and partially treated effluent from industrial units located at Parwanoo in Himachal Pradesh. The details of at least 5 years is as below:

INFORMATION ON HEALTH STATISTICS

1. Name of the Polluted Industrial Area (PIA) : Parwanoo
2. Name of the major health centre/organization : ESI Hospital Parwanoo

Health status data received from the Hospital

Sr. No.	Water Borne Diseases	2014-2015	2015-2016	2016-2017	2017-2018
1.	Dysentery& Diarrhoea	7100	6470	8250	7175
2.	Typhoid	490	390	510	419
3.	HAV	3	0	3	0
4.	HEV	5	2	2	3
5.	Jaundice	16	20	32	23
6.	Dengue	460	246	320	1085
7.	Malaria	79	63	38	8

Details of the Air-borne diseases during the year 2018 are tabulated as below :

MONTH	URC	TUBERCULOSIS	BRONCHITIS	ASTHAMA
January	661	15	89	50
February	715	16	89	52
March	746	24	66	19
April	461	15	93	35
May	741	12	43	16
June	411	20	55	21
July	441	15	102	32
August	619	8	96	32
September	443	15	105	40
October	709	6	116	43
November	918	11	85	35
December	727	11	75	28
TOTAL	7592	168	925	353

3.2 Details of multi-speciality camps/IEC activities

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 the study. 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
Kamli	Dharampur	Third week of 1,3,5,7,9,11 month
Taksal	Dharampur	Third week of 2,4,6,8,10,12 month
Salogra	Dharampur	Fourth week of 1,7 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 Parwanoo 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**.

02 numbers of industrial units have been recommended for disconnection as they have failed to apply for up to date consent of the State Board.

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

Power Disconnection of 11 number of units not complying with provisions of Water Act, 1974 have been done. Modification in STPs of 14 existing units has done.

INFORMATION ON POLLUTION SOURCES STATUS IN PIA

3. Name of the Polluted Industrial Area : Parwanoo
4. Demarcated area of the PIA in sq. Km. : Approx. 2 Km radius
5. Number of 17 categories of industries covered under the area : 1
6. Number of Red category industries covered under the area : 16
7. Total human population : 8758 (as per census 2011)
Number of workers – 11490
(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	25	25	All the Red-Large industries shall provide online continuous emission/effluent monitoring system.
2.	Medium & Small Scale industries	489	489	-
3.	CETPs	0	0	CETP for industrial wastewater treatment was discussed in the second meeting of the District Level Special Task Force and it was decided that considering the topography of the area,

				scattered geographical nature of the trade effluent generating units, it is more advisable to provide captive Wastewater Treatment plants in the respective units.
4.	TSDF	0	0	-
5.	STPs	0	0	2nos. of common STPs with approx. capacity 02MLD each are proposed in the area and the preliminary proposal of the same has been sent to Agence Franchise-de-Development an international Agency (French) and the same is proposed to be put in place within 03years. The estimated Cost of the project is 50 Crore.
6.	CBMWMF	1	1	-
7.	MSW management facilities	Total solid waste (40 tonne/day) generated is being disposed off at solid waste dumping site of Municipal Council, Nahan.	0	MOU assigned by Executive Officer MC, Parwanoo, for PPP Mode Project as interim proposal for treating waste of Parwanoo and Baddi till the final commissioning of Solid Waste facility of Baddi.

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, also along inlet of ETP before collection tank	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. Record of production along with total waste water treatment must be submitted by industries.	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 nonpermitted 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	Identification of source of water i.e. tanker, bore well etc. for its authenticity.	HPGWA, Industries Department, IPH and HPSPCB	October,2019

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
		unit to restrict water consumption as per the quantity mentioned in CCA application and to also to direct Industries Department 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.	<p>Concern authority will be asked to identify unauthorized outlet.</p> <p>All industrial units will be asked to submit notarized undertaking to HPSPCB with a copy to respective association stating that there is no unauthorized outlet.</p>	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	<p>Inventorization of the permanently closed and non operative industrial units.</p> <p>Drainage connection to be disconnected of permanently closed & on operative industrial units and certified by industries Department and checked by HPSPCB.</p>	HPSPCB, DIC	June, 2019

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
			All zero discharge units will be asked to submit notarized undertaking to HPPCB with a copy to respective association stating that there is no unauthorized outlet and observing zero discharge.		
5	Identification of unauthorized connection to drainage line or discharge to water body	Intensive monitoring shall be carried out of the units, which are located on the bank / adjacent to water body	Unauthorized connection in drainage line to be checked and disconnected by competent authority and verified by HPSPCB. Third party monitoring is to be carried out	HPSPCB, DIC, BBND and Industries Association	May ,2019
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	Discharging of Effluent (Trade or Domestic) during night hours	Surprise inspection to be conducted by a team of SPCB	Drive shall be initiated immediately	HPSPCB	March, 2019 and continuous process
8	Effluent being discharged meets the prescribed norms.	To provide online continuous effluent monitoring device on all Red-Large industries.	Device to be installed	HPSPCB and industries.	July, 2019.
9.	Study on the impact on health	Probable health risk.	To carry out survey by reputed agency to know the impact	Health Department	May, 2019
AIR					

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
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	January, 2021
4.	Control of fugitive emissions.	Fuel handling, chemical storage are the major source of	Good practices like cleaner production and	HPSPCB and Individual industries with	March, 2019 and continuous.

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
		fugitive emission. Hence the industrial units should adopt good housekeeping practices.	cleaner technology to be adopted in fuel handling, process control in closed system and to have better house keeping	Industrial associations	
5.	Strengthening of ambient Air Quality Monitoring	Concerned agency shall be asked to operate the existing AAQMS regularly and also to increase the no of stations	Existing AAQMS to be strengthened to monitor AAQ as per new notification	CPCB and HPSPCB	October, 2019
6.	Study on the impact on health	Probable health risk.	To carry out survey by reputed agency to know the impact	Health Department	May, 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

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 not properly observed.	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.
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	Inventorisation of the solid/ Liquid Hazardous generated from the waste industries Creation of waste		June, 2019

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
		cement kiln.	exchange centre		
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	Plastic waste management	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, <ul style="list-style-type: none"> • Metering and control of quantities of active ingredients to minimize waste. • Reuse of byproducts from the process as raw materials or as raw material substitutes in other 	HPSPCB, UD, I& PH, RD , MC , Local Bodies and Industries	With regard to the proposals submitted

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
			<ul style="list-style-type: none"> 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 Sukhna Nallah and various drains on monthly basis.			HPSPCB (Continuous process)	
2	Involvement of Civil Society			<p>Two Cleanliness Drives–“Clean Sukhna” were organized by HPSPCB on 19th December, 2018 and 11th January, 2019 at Parwanoo by involving various Stake holders, Institutions, Industrial Units of Parwanoo, and agencies comprising of various teams Constituting more than 500 Volunteers.</p> <p>Cleanliness Drive in Khadeen Industrial Area on 26.12.2018 organized. Total 07 industrial units participated in the drive and waste is disposed through MC Parwanoo.</p>	

Sr. No.	Issue	Activity	Action	Implementing Agency	Time Limit
3.	Surprise inspection and sampling of the units during night hours.			HPSPCB (continuous process)	
4	Interlocking of all the Pollution Control devices with the manufacturing process.			HPSPCB (continuous process)	


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 Paved road and Plantation	Construction of paved road and maintaining Ambient Air Quality during construction phase are the major source of fugitive emission.	Forest Department, PWD	Ongoing task till completion of the work
2.	Improvement of the Water quality	Installation of continuous Water Quality monitoring station	I&PH	31 July, 2019


Financial implications on various Departments/agencies


Sr. No.	Name of the Department	Work proposed	Estimated cost	Timeline for completion
1.	IPH	Laying of sewerage network and setting up of sewerage treatment plant.	49.82 crore	31 st January, 2022
		Installation of continuous of water quality monitoring station on kaushlaya river.	30 Lakhs	31 st July, 2019

2.	Urban Development Department	Waste recovery and Reprocessing of existing Dumped Waste	PPP mode project	Operational
		Kiosk for domestic Hazardous Waste	3.00 Lakh	31 st March, 2019
3.	HIMUDA & Municipal Council Parwanoo	Cleaning and overhauling of existing septic tanks and setting up of sewerage treatment plant.	75 lakhs (Funds provided by HPSPCB)	30 April, 2019
4.	Forest Department	Plantation and maintenance	10.09 Lakh and 8.52 Lakh	31 st March, 2023
		Fire fighting equipments	5 Lakh	December, 2020
5.	Transport Department	Regular checking of vehicular emission and issue of PUCs	10 Lakh	January, 2019
6.	PWD and Municipal Council Baddi	Construction of pucca pavement along the roads	280.00 Lakh	June, 2019
7.	PWD and Forest Department	Tree plantation along the roads	10 Lakh	June, 2019
8.	HPSPCB, BBND and MC parwanoo	For collection, transportation, processing and disposal of fresh waste t Baddi cluster	2.0 crore	31 st July, 2019
9.	HPSPCB	Public Awareness	3.5 Lakh	January, 2019


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

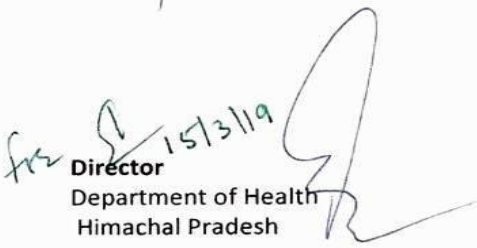

Director
 Department of Rural Development
 Himachal Pradesh


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


Director
 Department of Health
 Himachal Pradesh


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