

**Original Application. No. 673/2018 dated 20<sup>th</sup> September, 2018 19<sup>th</sup>  
December, 2018 and 08<sup>th</sup> April, 2019**

**in the matter of  
News Item published in “THE HINDU” titled  
“More river stretches are now critically polluted: CPCB”**

**Report  
on  
Prevention and Control of Pollution in Sukhna:**

**Revised Action Plan  
for Rejuvenation of Sukhna, District- Solan, HP**

*(Submitted in compliance to the Hon’ble National Green Tribunal (NGT) order  
dated 8<sup>th</sup> April 2018)*



**HP State Pollution Control Board**

Him Parivesh, Phase – III, New Shimla - 171009

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# Comprehensive Report

on

## Report on Prevention and Control of Pollution in Sukhna Nallah: (An Action Plan for Rejuvenation of Sukhna Nallah at Parwanoo District Solan, HP)

**1.0 BACKGROUND:-**Hon'ble National Green Tribunal passed the following orders in OA No. 673/2018 in the matter of News Item published in "THE HINDU" titled "**More river stretches are now critically polluted: CPCB**".

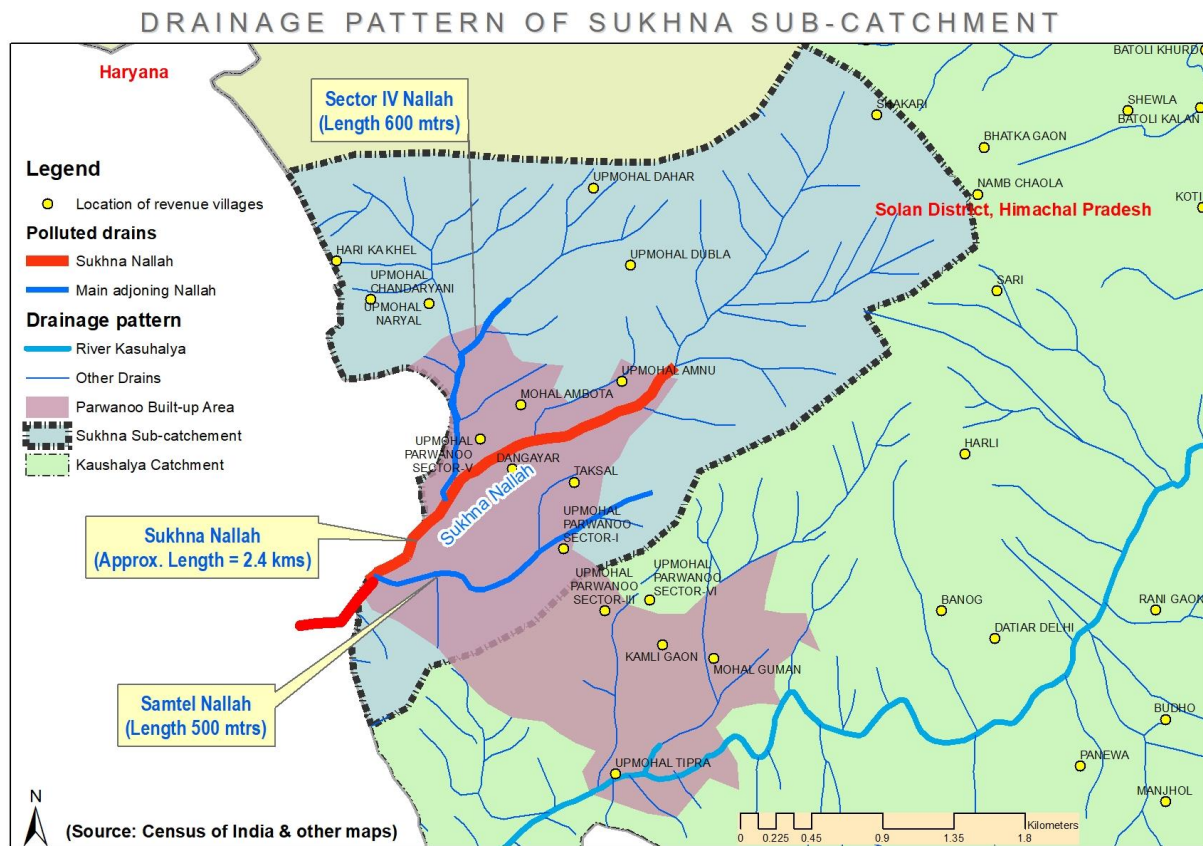
*"This application has been registered on the basis of a news item dated 17.09.2019 in "The Hindu" under the heading "More river stretches are now critically polluted: CPCB". According to the news item, 351 polluted river stretches have been noted by the Central Pollution Control Board (CPCB). 117 such stretches are in the state of Assam, Gujarat, and Maharashtra. The CPCB has apprised the concerned States of the extent of the pollution in the rivers. According to the news item, most polluted stretches are from Powai and Dharavi – with Biochemical Oxygen Demand (BOD) 250 mg/L; the Godavari – from Someshwar to Rahed –with BOD from 4.0-147 mg/L; and the Hindon-Saharanpur to Ghazibad-with a BOD of 48-120 mg/L. The CPCB has programme to monitor the quality of rivers by measuring BOD. BOD greater than or equal to 30mg/L is termed as 'Priority I' while that between 3.1-6 mg/L is 'Priority V'. The CPCB considers a BOD less than 3mg/L an indicator of a healthy river. In its 2015 Report, the CPCB had identified 302 polluted stretches on 275 rivers, spanning 28 States and six Union Territories. The number of such stretches has now been found to be 351.*

*All States and Union Territories are directed to prepare action plans within two months for bringing all the polluted river stretches to be fit at least for bathing purposes (i.e BOD < 3 mg/L and FC <500 MPN/100 ml) within six months from the date of finalization of the action plans.*

*The action plans may be prepared by four-member committee comprising Director Environment, Director Urban Development, Director Industries, Member Secretary, State Pollution Control Board of concerned State. This committee will also be the Monitoring Committee for execution of the action plan. The Committee may be called "River Rejuvenation Committee" (RRC). The RRC will function under the overall supervision and coordination of Principal Secretary, Environment of the concerned State/Union Territory..."*

### **2.0 About Sukhna Nallah and its tributaries in the State of Himachal Pradesh:**

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.



**Figure 1: GIS-based Map showing Catchment Area of Sukhna Nallah along with River Kaushalya**

**2.1 Drains Contributing the Sukhna Nallah :**

- Sector IV Nallah (around 600m) which comes from Residential Colonies of Sector IV of Parwanoo Town.
- Samtel Nallah (around 500m) which originates from Sector –I of Parwanoo Town.
- Sukhna Nallah covers a distance of 2.4 Kilometers in the built-up area of Parwanoo where Industrial area, Commercial area and Residential, area of Parwanoo exists.

**3.0 Achievable Water Quality with quoted timelines as per the existing provisions or guidelines/ specifications of Central Pollution Control Board (CPCB)**

It is an important aspect for revival of 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 - II	BOD (mg/L)
1.	Sukhna	Sukhna to Parwanoo	54.0

The requirement of river water quality for outdoor bathing (organized) also requires more stringent conditions and river water quality has to maintain adequate Dissolved Oxygen (DO) content. Suggested criteria for outdoor bathing (organized) in Sukhna nallah are given in the following *As per Hon'ble NGT Directions, following quality to be achieved within 02 Years w.e.f 01<sup>st</sup> April, 2019.*

**Table 1: Designated Water Quality Criteria for Outdoor Bathing of CPCB**

Sr. No.	Parameters	Class 'B' Water Quality Criteria –for Outdoor Bathing (Organized)
1	pH	6.5 to 8.5
2	Dissolved Oxygen (DO)	5mg/l or more
3	Biochemical Oxygen Demand 5 days 20C	3mg/l or less
4	Faecal Coliforms Organism	MPN/100ml shall be 500 or less

#### **4.0. Aspects in compliance of Hon'ble NGT Order 20<sup>th</sup> September 2018, 19<sup>th</sup> December 2018 and 08th April, 2019 :**

##### **4.1. Rain Water Harvesting/ Ground Water Recharge aspects:**

Two sites have been identified by IPH Department for construction of rain water harvesting structures upstream of confluence point of Kausalya Khad with Sukhna Nallah. These sites have been included in the project proposal of doubling farmers Income through water conservation and were posed to Government of India for funding. Government of India has further recommended the proposal to ADB for funding. However, detailed geological investigation has not been done so far to ascertain the suitability of sites for water harvesting structures. Actual cost can only be made after preparing the detailed project report. At present no funds are available for inviting technical consultancy for site investigation and preparation of DPR. All the industrial units have provided Rain Water Harvesting system in their premises.

##### **4.2. Maintaining E-Flows:**

Sukhna Nallah carries very minimal flow during lean season and many times becomes completely dry or carries sewage discharge only. There is proposal for 2 no's of STPs (01 MLD each) to be commissioned to treat the sewage generated from Parwanoo Town, channelizing all sort of sewage and wastewater currently flowing as untreated or partially treated in Sukhna Nallah. During lean season, average flow is around 0.3 m<sup>3</sup>/hr available in Sukhna Nallah. Once the Sewerage proposal is completed the discharge as per the proposal shall be evaluated against the flow available in Sukhna Nallah to assess the sustainability of Environmental Flow to be maintained. The Sewage Treatment Plant has been designed with tertiary treatment provision and expected to discharge Treated sewage

with BOD < 10 Mg/L, with available dilution it is expected to achieve the E-flow which can maintain the River Water Quality upto BOD < 03 Mg/L.

#### **4.3. Water Shed Management:**

At present there is no proposal by Forest Department of Water shed management on the catchment of Sukhna Nallah.

#### **4.4. Use of Treated Sewage: Sewerage Scheme Parwanoo :-**

Present system of septic tanks at Parwanoo is maintained by MC Parwanoo and HIMUDA and proposal to reuse the effluent can be prepared by the concerned agencies.

As regards utilizing the treated effluent from proposed 2 STPs for Parwanoo town, the DPR of sewerage Scheme Parwanoo has been prepared amounting to Rs.49.82 Cr. There is a provision to install 2 STP of 1.00 MLD capacity each and MBBR technology followed by Tertiary treatment is proposed to bring the parameters of treated effluent with permissible limits of disposal. Due to non-availability of agriculture land in the adjoining area at suitable elevation, utilizing the treated effluent for irrigation is not viable.

#### **4.5. Good Irrigation Practice:-**

Good irrigation practice encompass maximum water use of the irrigation water by way of its optimum utilization and minimizing waste on farm development activities and extension services are as important as assured water availability to meet the crop water requirement. Department of Agriculture, Horticulture have a vital role to play for meaningful adaptation of “Good Irrigation Practices”.

However, I&PH Department being responsible for providing water at the field level has recognized the need to adopt Good Irrigation Practices and initiated the following measures to achieve this objective:

- In place of open channel system for conveyance of irrigation water, closed conduit system has been introduced as far as possible resulting in reduction of various transportation loses.
- Micro irrigation system is also being introduced in the new system being planed and executed. With the introduction of this system, per hectare water requirement reduces and more area can be covered with the available water.
- The State of HP has introduced command area development schemes exclusively funded from its resources to increase water use efficiency and ensure water availability at the tail end.
- Water User Association have been constituted for effective management of irrigation schemes. These agencies are being encouraged to take over the schemes for operation and management of the system. At present, there is no irrigation scheme based on

Sukhna Nallah in Parwanoo area. Parwanoo Town being predominantly industrial Town, much land is not available for irrigation purposes. In the adjoining Rural areas agriculture land is generally located at higher elevation and irrigation schemes are financially not viable. However, provision for adopting measures to ensure good irrigation practices shall be made, when new schemes are planned in future.

#### **4.6. Development of Bio-diversity parks**

Due to non-availability of Forest Land in the catchment of Sukhna Nallah, no Bio-diversity park is proposed by Forest Department.

#### **5.0 Budget Estimate from Pooling the Recourses from State Budget, Local Bodies, SPCBs and Central Schemes, if any for all Action Plans :**

Total Cost implication for the implementation of above Action Plan is Rs. 53.32 Crore. For installation of Real time online monitoring System HP State Pollution Control Board has given 62.5 Lakhs to IPH Department. The Chief Secretary has reviewed the proposal during meeting on 08<sup>th</sup> April, 2019 and directed the concerned department to complete the proposal from state government budget wherever applicable. The mass awareness, Cleanliness drive is done from funds available with SPCBs. Utilization of Environmental Compensation as levied by RRC will be used rejuvenation of Rivers. Budget for Management of Solid Waste along the stretch of Sukhna Nallah will be done from local bodies or Urban Development Department. The details are elaborated in point no. 07.

#### **6.0 Executive Summary:**

The Action Plan mainly comprising of Sewage Treatment Proposal, Solid Waste Management, Plantation Proposal, Overhauling and maintenance of existing Septic tanks, STPs monitoring of river water quality. As per the directions of Hon'ble NGT, Action Plan implementation shall be done within 02 years as directed by Hon'ble NGT vide order dated 08th April, 2019. In addition to this, Cleanliness drive has been launched by HP State Pollution Control Board of all the drains on dated 21<sup>st</sup> June, 2019 wherein approximately 30 MT of Waste along the drains have been collected and handed over to MC for further disposal as per the provisions of Solid Waste Management Rules, 2016. A plantation drive has also been done 25<sup>th</sup> May, 2019 wherein 1000 plant sapling have been planted along the stretch of Sukhna Nallah.

**07. Revised Action Plan (Short, Medium and Long term plans) with time lines including the organization/ agency responsible for its implementation along with Budget Estimate for Rejuvenation of Sukhna Nallah, Parwanoo, District- Solan**

Sr. No.	Action Plan for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
<b>I Industrial Effluent Management</b>					
(a)	Inventorization of the water polluting industries in the catchment of Sukhna Nallah covering assessment on aspects relating to status of Consents under Water & Air Acts and Authorization, Effluent Generation, ETP Capacities and final mode of effluent discharge.	HPSPCB	15 th February, 2019.	Own Budget	Completed.
(b)	Action against the identified industries in operation without Consent under Water & Air Act/Authorization under Hazardous and Other Wastes Management and Transboundary Movement) Rules, 2016.	HPSPCB	28 <sup>th</sup> February, 2019.	Own Budget	Completed and continuous process.
(c)	Action against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	Within 15 days and regular inspections shall be a continuous feature.	Own Budget	Completed and continuous process.


Sr. No.	Action Plan for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
(d)	Prohibition of Burning of any kind of waste including agro-residue.	Executive Officer, MC Parwanoo and HPSPCB	28 <sup>th</sup> February, 2019.	Department own Budget	To issue advisory and to take action by involving Industries Association Parwanoo (PIA) in this regard for non-compliance of the provisions of SWM Rules 2016 as per HP Non-Biodegradable Garbage Control Act.
(e)	Estimation of industrial effluent generation and commissioning of CETP.	State Govt., Deptt. of Industries, District Administration	-	Not applicable	Not Viable as only Sewage Load in Sukhna Nallah.
(f)	Recovery of Waste at existing Dump Site at Parwanoo and Setting of Domestic Hazardous Waste Kiosk	Executive Officer, MC Parwanoo and HPSPCB	31 <sup>st</sup> March, 2019.	28 Lakhs	PPP Mode.
(g)	For collection, Transportation, Processing and disposal of fresh waste at Baddi Cluster	BBNDA, MC Parwanoo & HPSPCB	31 <sup>st</sup> July, 2019.	Rs. 02 Crore as VGF by HPSPCB	The operation is on PPP Mode.
<b>II Domestic Sewage Management</b>					
(a)	Area wise estimation of total population, water requirement and sewage generation.	HIMUDA, IPH, Urban Development, Rural Development Department	28 <sup>th</sup> February, 2019.	Department own Budget	

Sr. No.	Action Plan for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
(b)	To undertake channelization and providing system for measurement of flow of all the drains presently contributing pollution load in Sukhna Nallah.	I & PH and HIMUDA	31 <sup>st</sup> July, 2019.	Rs. 6.50 Lakhs IPH departments' own Budget.	Proposal for Radar system for depth Measurement can be installed at Border near old barrier Parwanoo or nearby for depth measurement.
(c)	Installation of continuous Real Time Water Quality Monitoring Station.	I & PH	31 <sup>st</sup> July, 2019.	The cost of Continuous Real Time Monitoring System is 30.0 Lakhs by HPSPCB.	-
(d)	Proper design, execution of Common STP at Parwanoo Area with full utilization capacity.	I&PH	31 <sup>st</sup> January, 2022.	The cost is Rs. 49.82 Crore.	State Government Budget.
(e)	Cleaning and Overhauling of Existing Septic Tanks and setting up of Sewage treatment Plant	HIMUDA, Municipal Council, Parwanoo	06 th May, 2019.	The cost is 75.37 Lakh By HPSPCB.	Amount Already released
<b>III</b>	<b>Ground Water Quality</b>				
(a)	Sampling of Tube wells, Bore wells, Hand Pumps.	I&PH and HPSPCB	15 February, 2019.	Department own Budget	Continuous process.
(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Parwanoo area.	HIMUDA	15 February, 2019.	Department own Budget	Continuous process.


Sr. No.	Action Plan for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
(C)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	I&PH and HP GWA	31 <sup>st</sup> March, 2019.	Department own Budget	Continuous process.
(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	I&PH and HP GWA	31 <sup>st</sup> March, 2019.	Department own Budget	Continuous process.
(e)	To conduct periodic surprise inspection of the industries to rule out any forceful injection of industrial effluents into ground water sources	HPSPCB & I&PH	15 February, 2019.	Department own Budget	Continuous process.
(f)	All the industries should be directed to obtain NOC from HPGWA/CGWA and action against the units in operation without obtaining NOC from HPGWA/CGWA.	I&PH HPGWA	15 February, 2019.	Department own Budget	Continuous process.
<b>IV</b>	<b>Miscellaneous</b>				
(a)	Regular monitoring and sampling of water quality of Sukhna Nallah and various drains on monthly basis.	HPSPCB	Every 01 Month.	Department own Budget	Continuous process
(b)	Impact of water pollution on health of public by organizing Health camp	State Health Deptt.	Every 06 Month	Department own Budget	Continuous process
(c)	Plantation in Flood Plain Zone, Setting up of Bio-diversity Parks or any suitable plantation intervention.	Forest Department	31 <sup>st</sup> March 2023	Rs. 10.09692 Lakhs (Department own Budget)	Department own Budget
	Feasibility study for establishment of Biodiversity Park				
	Detection and removal of encroachments on forest lands				
	<b>Plantation Works:- Site specific plan along-with cost estimate to carry out plantation activities for this stretch is as under:-</b>				


Sr. No.	Action Plan for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
(d)	Checking Encroachment in FPZ of Sukhna Nallah & Tributaries	District Local Administration	31 <sup>st</sup> July, 2019.	Department own Budget	
(e)	Prohibition of disposal of Municipal Plastic and Bio-medical Waste particularly in drains.	District Local Administration on MC Parwanoo.	31 <sup>st</sup> March, 2019.	Department own Budget	
<b>V</b>	<b>Other Aspects as per Hon'ble NGT Order dated 20.09.2018, 19.12.2018 and 08.04.2019.</b>				
(a)	Rain Water Harvesting/ Ground Water Recharge aspects	I & PH	-	Central Government Budget	Two Sites identified, DPR preparation is under process.
(b)	Maintaining E-Flows	I & PH	31 <sup>st</sup> January, 2022	Non-perennial during lean season	E-flow will be assessed after completion of STP's and evaluation the discharge during lean. <b>Season. Till that time Nallah will carry only sewage flows during lean season.</b>
(c)	Water Shed Management	Forest Department	-	-	No Scheme exist.


Sr. No.	Action Plan for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
(d)	Use of Treated Sewage	I & PH	31 <sup>st</sup> January, 2022 (upto - tertiary treatment).	State Government Budget	Tertiary Treatment Proposed on 02 STPs but no agricultural land available. Hence not viable.
(e)	Good Irrigation Practice	I & PH	Operational	State Government budget.	Future provision of adopting good measures shall also be adopted.
(f)	Development of Bio-diversity parks	Forest Department	-	Not viable	No Forest land available hence not viable.

  
Director, Urban  
Development

**RRC Member**

  
Director, Environment  
Science and  
Technology  
**RRC Member**

  
Member Secretary, HP  
State Pollution Control  
Board  
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Director, Industry  
Department

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