

BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

Original Application No. 735/2023

In re:

News item appearing in News Himachal dated 04.12.2023 titled "*Ashwani Khad: The Most Polluted River in Himachal Pradesh*"

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Shimla-171002

Place: Shimla

Dated: 22.02.2024



Sat Pal Dhiman
Additional Secretary (EST & CC)
State of Himachal Pradesh

Addl. Secretary
(Env., Science & Technology)
to the Government of HP
Shimla-171002

Through



(DIVYANSHU KUMAR SRIVASTAVA)

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BEFORE THE NATIONAL GREEN TRIBUNAL**PRINCIPAL BENCH, NEW DELHI****Original Application No. 735/2023****In re:**

News item appearing in News Himachal dated 04.12.2023 titled "*Ashwani Khad: The Most Polluted River in Himachal Pradesh*"

AFFIDAVIT ON BEHALF OF CHIEF SECRETARY TO THE GOVERNMENT OF HIMACHAL PRADESH IN COMPLIANCE TO ORDER DATED 02-01-2024.

May it please your lordships:-

1. That the aforementioned Original Application, registered *suo moto* on the basis of news item published in 'News Himachal' dated 4-12-2023 is pending adjudication before this Hon'ble Tribunal which was listed on 02-01-2024 wherein following directions have been passed:-

"...2. The news item reveals that the rivers and streams of Himachal Pradesh are grappling with surge in pollution and Ashwani Khad in Shimla has been found to be the most polluted river in the state. The water quality assessed by the Central Pollution Control Board at 136 locations across 37 rivers in the region reveals disturbing trends. The Biological Oxygen Demand (BOD) parameters at 19 locations in 9 rivers and streams witness failure and Ashwani Khad, Bald of Baddi, Giri of Sirmaur, Markanda of


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Rampur, Pabbar of Rohru, Ratta of Nalagarh, Shikari Khad of Rohru, Sarsa of Nalagarh and Sukhna Khad of Parwanoo exceeded prescribed pollution standards.

3. The news item reveals that the pollution in Ashwani Khad primarily stems from the discharge of effluents from sewage treatment plants. The BOD level in Ashwani Khad escalated from 70 mg per liter in 2022 to an alarming 80 mg per liter in the current assessment.

4. As per the news item contamination of rivers in the state can be attributed to unregulated disposal of industrial effluents, untreated sewage and agricultural runoff. As a result of the river water pollution in Himachal Pradesh, public health, agriculture and biodiversity is adversely affected and waterborne diseases are rising, posing a serious threat to residents.

6. Learned counsel appearing for the Himachal Pradesh Pollution Control Board on advance notice, has informed that action plan for rejuvenation of all the 9 rivers in the state has already been prepared and the consultations are in progress in respect of implementation of the action plans. She submits that the entire process is being reviewed by the Chief Secretary of the State.

7. Hence in the circumstances of the case, we direct the Chief Secretary, State of Himachal Pradesh to file an affidavit within four weeks indicating the timeline for implementation of the action plan.....”.

2. That in reference to afore-cited directions passed in OA No. 735/2023 qua action plans for rejuvenation of rivers in HP, it is submitted that the Hon'ble NGT has also taken *suo-moto* cognizance of this issue involved in this

Ujjain
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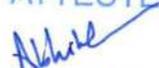
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Ashu
Executive Magistrate
H.P. Sectt., Shimla

petition in OA No. 673/2018 on the News item published in "The Hindu" authored by Shri Jacob Koshy titled "More river stretches are now critically polluted: CPCB. According to news-item, 351 polluted river stretches have been identified by the CPCB in the country. The seven river stretches of such rivers (including Ashwani Khad mentioned in the news item in the present case) fall in the State of HP.

3. In relation to the seven river stretches of such rivers, the CPCB published its 2018 Report in September, 2018 and the river stretches were classified as detailed below: -

Sr. No.	River Name	River Stretch	Criteria for categorization	CPCB, Results (mg/l) report 2015	Priority
1.	Sukhna	Sukhna to Parwanoo District – Solan	BOD \geq 30 (all points)	54.0	I
2.	Markanda	Kala Amb to Narayanpur District - Sirmour	BOD = (20-30) (all points)	3.2 - 24	II
3.	Sirsa	Nalagarh to Solan District – Solan (Baddi-Nalagarh)	BOD = (10-20) (all points)	8 - 16	III
4.	Ashwani	Along Yashwant Nagar District – Shimla / Sirmour	BOD = (03-06) (all points)	3.2	V


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5.	Beas	Kullu to Dehragopipur District- Kullu, Mandi, Hamirpur, Kangra	BOD = (03-06) (all points)	6.0	V
6.	Giri	Along Sainj , District- Shimla	BOD = (03-06) (all points)	4.4-6	V
7.	Pabbar	Along Rohru, District- Shimla	BOD = (03-06) (all points)	3.6-4	V

4. That the Hon'ble NGT in OA no. 673/2018 vide order dated 20-9-2018 passed the directions to the concerned states to prepare action plans for rejuvenation of the polluted rivers stretches and also constitute the River Rejuvenation Committee ("RRC") to monitor the execution of action plan. Copy of order dated 20-9-2018 is annexed as **Annexure R-1**
5. That in compliance to the said directions of Hon'ble NGT it is submitted that the Government of HP has notified the River Rejuvenation Committee comprising of Director (Environment, S&T), Director (Urban Development), Director (Industries), Member Secretary, HP State Pollution Control Board vide notification dated 17-11-2018. Thereafter District Level Special Task Forces (DLSF) were also notified by the State Government vide notification dated 4-12-2018. Copies the notifications are annexed as **Annexure R-2** and **Annexure R-3** respectively.
6. That the River Rejuvenation Committee conducted its 06 meetings under the Chairmanship of Additional Chief Secretary (EST), Government of HP and based on recommendation of RRC, the Action Plans (Priority-I to Priority-


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V) for 7 Polluted River Stretches of Himachal Pradesh were prepared and submitted to CPCB and which were approved by CPCB. Copies of Initial Action Plans are annexed as **Annexure R-4 to Annexure R-10**.

7. That the review of the implementation of the Action Plans is taken by the deponent alongwith Principal Secretary (Urban Development) to GoHP on regular basis. The detail of the meetings conducted is as below: -
- Year 2021: 12.01.2021, 19.06.2021, 26.10.2021.
 - Year 2022: 29.03.2022, 27.05.2022, 27.10.2022, 15.11.22, 18.11.22, 30.12.22.
 - Year 2023: 16.02.2023, 25.03.2023, 1.11.2023.
8. As per the CPCB report published in September 2018, Ashwani Khad (along Yashwant Nagar District – Shimla / Sirmour) was categorized as Polluted River Stretch, Priority V level. Accordingly, action plan for the rejuvenation of Ashwani Khad was formulated in 2019. The implementation is being carried out and many action points have been completed. A true copy of CPCB report dated published in September 2018 is annexed herewith as **Annexure R-11**.

Later, based on the surface water quality results of 2019 and 2021, CPCB published a report in November, 2022 titled as “*Polluted River Stretches for Restoration of Water Quality, 2022*”, wherein with Max BOD reaching 80mg/lit and the Ashwani river was erroneously categorised in Priority I. A true copy of CPCB report published in November, 2022 is annexed herewith as **Annexure R-12**

This was apparently the abnormal value reported, probably due to analysis error. The State Pollution Control Board (SPCB) represented to Central Pollution Control Board (CPCB) stating that there was only one sampling location of ‘River Ashwani’ i.e. at **‘River Ashwani before confluence to Lift**


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Nallah, where the value of BOD has exceeded 30 mg/l i.e 80 mg/l and it appeared that there was an analysis or sampling error as BOD has changed drastically from 80 mg/L from **River Ashwani before confluence to Lift Nallah** to 5.2 mg/L **downstream Lift Nallah** in the span of just 500 mtrs.

In this regard, other than representation made to CPCB by SPCB for correction for analysis error and wrong categorisation of Ashwani River, the State Govt. also submitted before Ministry of Jal Shakti on 10.01.2023. A true copy of the Minutes of Meeting dated 10.01.2023 is annexed herewith as **Annexure R-13**

9. That further, based on the surface water quality results of 2019 and 2021, CPCB published a report on November, 2022 and titled as "*Polluted River Stretches for Restoration of Water Quality, 2022*", vide which following rivers has been categorized as polluted river stretches in the State of Himachal Pradesh: -

S NO.	RIVER	POLLUTED RIVER STRETCH/ LOCATION	MAX BOD OBSERVED 2019 & 2021	PRIORITY CLASS
1	Ashwini Khad	Matholi To Bhog	80	I
2	Bald	Along Baddi	40	I
3	Sirsa	Along Nalagarh	40	I
4	Sukhana	Along Parwanoo	72	I
5	Ratta	Along Nalagarh	8	IV
6	Markanda	Salani To Rampur Jattan	4	V
7	Pabbar	Along Swarakuddu	4.6	V


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8	Giri	Along Yashwant Nagar And Along Dadahu	4.8	V
9	Shikari Khad	Along Rohru	4.6	V

10. That it is pertinent to mention here that, river Beas which was earlier categorized as Priority-V has been removed from the Polluted River Stretch by the CPCB, upon implementation of Action Plan and subsequent improvement in water quality. Similarly, river Markanda's water quality has been improved. Now the river Markanda falls in less polluted category i.e. Priority-V instead of Priority-II.

11. That in the meeting of Central Monitoring Committee constituted by Hon'ble NGT in OA No. 673 of 2018 vide order dated 8th April, 2019 held under the Chairmanship of Secretary, Department of Water Resources, River Development and Ganga Rejuvenation (DoWR, RD&GR), Ministry of Jal Shakti on **12th May, 2023**, wherein it was directed that "*State should submit detailed action plan with timelines for the polluted river stretches, especially those under Priority I*". A true copy of the Minutes of Meeting dated 12.05.2023 is annexed herewith as **Annexure R-14**

In compliance of the said directions, a Statelevel meeting under the Chairmanship of Chief Secretary to Govt. of HP was conducted on 1st Nov, 2023 wherein the Revised Action Plans for Priority-I stretches (i.e. Ashwani Khad, Bald, Sirsa and Sukhana) was finalized and the same has been submitted by the State Government to Department of Water Resources, RD & GR, Ministry of Jal Shakti and Central Pollution Control Board vide letter dated 7th December, 2023. A copy of Minutes of meeting dated 01.11.2023 is annexed herewith as **Annexure R-15**. A copy of letter dated 07.12.2023 is


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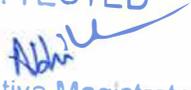
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annexed as **Annexure-R-16**. Copies of Revised Action Plans for Priority-I stretches (i.e. Ashwani Khad, Bald, Sirsa and Sukhana) is annexed herewith as **Annexure R-17-20**

12. That it is pertinent to mention here that implementation of the Action Plan for River Ashwani, Sukhana, Sirsa, Markanda, Pabbar and Giri are under progress and action components of river Shikari Khad and river Ratta are already part of action plans of river Pabbar and Sirsa. [Note – It is submitted that River Shikari Khad is a tributary of River Pabbar and river Ratta is a tributary of Sirsa River]
13. That the status of the Action Plans of the rivers, as per the information collected by the State Pollution Control Board from the stakeholders Departments is appended as **Annexure-R-21 to R-27** respectively.
14. That the surface water quality reports of the points identified as polluted by CPCB in its report “*Polluted River Stretches for Restoration of Water Quality, 2022*” are based on water quality for the year 2019-2021. However water quality results for the year 2023 is appended as **Annexure-R-28**. It is pertinent to mention here that the identified points for River Giri, River Markanda, ShikriKhad and River Pabbar are satisfactory with Biochemical Oxygen Demand (BOD) remaining below 3mg/lit in 2023 except one instance for River Giri.
15. Further, the comparative surface water results of BOD value of the entry and exit point of River Ashwani identified as polluted by CPCB in its report “*Polluted River Stretches for Restoration of Water Quality, 2022*” for year 2019, 2021 and latest results of Year 2023 is tabulated as below: -


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Month/Year	ASHWANI KHAD U/S OF WEIR SITE OF WTP NEAR ASHWANI BRIDGE (4228)			Month/Year	D/S OF ASHWANI KHAD (AFTER CONFLUENCE OF LIFT NALLAH) (4229)		
	2019	2021	2023		2019	2021	2023
January		2.6	1.4	January	-	6.2	1.9
February	-	1.4	1.2		-	6.2	1.3
March	-	12	1	March	-	14	1.2
April	2.4	80	1.5	April	3.6	5.2	BDL
May	0.3	7.2	BDL	May	3	5.4	2
June	0.4	5.6	2.8	June	4	8.8	4.2
July	2.8	8.2	0.4	July	4	8.5	1.1
August	1	2.2	BDL	August	2.2	2.6	1.3
September	1.2	1.8	2.8	September	2.8	2.4	1.4
October	1.2	3	BDL	October	2.4	2	BDL
November	2.2	2.4	3.1	November	2.4	3.2	6.6
December	2.8	BDL	1.8	December	3.8	2.4	6.8

* BDL- Below Detectable Limits.

16. From the above stated comparative results of BOD, it can be observed that there has been a considerable improvement in the water quality of Ashwani Khad due to completion of following action components :-

a) Up-gradation of existing Sewage Treatment Plants (STPs) i.e. STP

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Malyana & STP Dhalli.

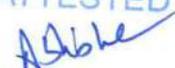
- b) Setting up of Faecal Sludge Treatment Plant (FSTP).
 - c) Commencement of Waste to Energy Plant.
 - d) Plantation Activities in the catchment of Ashwani Khad.
 - e) Despite this, the revised action plan has been prepared and along-with timelines has been submitted to Water Resources, RD & GR, Ministry of Jal Shakti and Central Pollution Control Board vide letter dated 7th December, 2023.
17. It is submitted that the Action Plans for rejuvenation of rivers mentioned in the news item are under progress and are being monitored by the Deponent. 80% work on the points of Action Plans have been completed and remaining will be completed, tentatively by May, 2025. Post which, the additional points of work of the revised Action Plans will be executed and implemented as per the plan. The Actions Plans once completed, would help in preventing the water pollution in the rivers mentioned above and the State of HP is committed to a clean and pristine environment.
18. The present Reply is being filed with full *bonafides* and in good faith, in compliance of the order dated 02.01.2024 of this Hon'ble Tribunal.

Place: Shimla

Dated: 22.02.2024



Sat Pal Dhiman
Additional Secretary (EST & CC)
State of Himachal Pradesh

ATTESTED

Executive Magistrate
H.P. Sectt., Shimla

Addl. Secretary
(Env., Science & Technology)
to the Government of HP
Shimla-171002

Through

Divyanshu

(DIVYANSHU KUMAR SRIVASTAVA)

Advocate for State of H.P.

48, Lawyer's Chamber, Supreme Court of India

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Wim

Addl. Secretary
(Env., Science & Technology)
to the Government of HP
Shimla-171002

**BEFORE THE NATIONAL GREEN TRIBUNAL
(PRINCIPAL BENCH), NEW DELHI
ORIGINAL APPLICATION NO.735/2023**

IN THE MATTER OF:

**In re: News item appearing in News Himachal dated 04.12.2023 titled
"Ashwani Khad: The Most Polluted River in Himachal Pradesh"**

AFFIDAVIT

I, Sat Pal Dhiman, S/o Late Sh. Nand Lal aged about 52 years, presently posted as Additional Secretary (EST & CC) to the Government of Himachal Pradesh, do hereby solemnly affirm and state as under: -

1. That I am the Additional Secretary (EST & CC) to the Government of Himachal Pradesh and authorised on behalf of Chief Secretary to the Government of Himachal Pradesh in the present matter. I am fully conversant with the facts and circumstances of the case and I have been duly authorized and am, therefore, competent to affirm this affidavit.
2. I state that I have read the contents of the Reply from paras 1 to 18 and pages 1 to 14. I state that the facts contained therein are true to the best of my knowledge and belief as derived from the record.
3. I state that the legal argument in the Reply is based on the legal advice given to me by my Counsel and factual statements are based on documents/records relied upon.

ATTESTED

Shale
Executive Magistrate
H.P. Sectt., Shimla


DEPONENT

Addl. Secretary
(Env., Science & Technology)
to the Government of HP
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VERIFICATION

I, Sat Pal Dhiman, the Deponent abovenamed, do hereby verify that the contents of paragraph no. 1 to 3 of the above affidavit are true and correct to the best of my knowledge and belief, no part of it is false and nothing material has been concealed therefrom.

Verified at Shimla on this 22 day of February 2024.

Sat Pal Dhiman

DEPONENT

**Add. Secretary
(Env., Science & Technology)
to the Government of HP
Shimla-171002**

ATTESTED

Abhishek
Executive Magistrate
H.P. Sectt., Shimla

No 84
Declared before me on 22 day of Feb
2023 on oath (Solemnly Affixation)
by Shri Sat Pal Dhiman
Who is personally known to the or who
has been identified by Sh. A.S. CEST & CC
Who is personally known to me.

Abhishek
**Executive Magistrate
H.P. Sectt., Shimla**

- 9 - 20

ANNEXURE R-1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 673/2018

IN THE MATTER OF:

NEWS ITEM PUBLISHED IN 'THE HINDU' AUTHORED BY SHRI. JACOB KOSHY

Titled

"More river stretches are now critically polluted: CPCB"

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER**

DATED: 20TH SEPTEMBER, 2018.

ORDER

1. This application has been registered on the basis of a news item dated 17.09.2018 in "The Hindu" under the heading "More river stretches are now critically polluted: CPCB"¹.
2. 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 States of Assam, Gujarat, and Maharashtra. The CPCB has apprised the concerned States of the extent of pollution in the rivers. According to the news item, most polluted stretches are from Powai to Dharavi - with Biochemical Oxygen Demand (BOD) 250 mg/L; the Godavari - from Someshwar to Rahed - with BOD of 5.0-80 mg/L; the Sabarmati - Kheroj to Vautha - with BOD from 4.0-147 mg/L; and the Hindon - Saharanpur to Ghaziabad - with a BOD of 48-120 mg/L. The CPCB has a 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 Report², 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.

¹ <https://www.thehindu.com/news/national/more-river-stretches-critically-polluted-cpcb/article24962440.ece>

² <http://cpch.nic.in/cpchold/RESTORATION-OF-POLLUTED-RIVER-STRETCHES.pdf>

3. The question for consideration is whether any direction is necessary by this Tribunal, if river stretches are polluted as per the report of CPCB, which is a statutory body under the Water (Prevention and Control of Pollution) Act, 1974, (the Water Act).
4. The matter has been considered by the **Hon'ble Supreme Court and this Tribunal** in several cases to which reference will be made at appropriate place in the order. The matter was recently reviewed in a Chamber Meeting held on 10.09.2018 amongst all the Members of the Tribunal and the representatives of the CPCB, the Department of Water Resources, the Ministry of Environment, Forest & Climate Change, the Niti Ayog, the National Mission for Clean Ganga, Ministry of Housing and Urban Affairs, the representatives of the States of Maharashtra, Gujarat, Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Bihar, Punjab, Uttar Pradesh, NCT of Delhi and the Union Territory of Daman & Diu. The object of the meeting was to discuss as to how the level of fitness for bathing in all the rivers must be achieved at the earliest. The Tribunal was open to consider the matter on judicial side. Accordingly, we proceed to consider the same in the light of inputs available in public domain.
5. There is no dispute with the proposition that the water is the lifeline for existence. Shortage of clean water is a matter of serious concern. Checking of pollution in the rivers is integrally linked not only to the availability of clean potable water but also to the protection of environment.
6. Article 48A of the Constitution casts a duty on the State to protect and improve the environment. Article 51A imposes a fundamental duty on every citizen to protect and improve the environment. The Stockholm Declaration (1972) recommended **prevention of pollution by adopting the 'Precautionary Principle', the 'Polluter Pays Principle' and the principle of 'Sustainable Development'**.
7. The Water Act was enacted to provide for prevention and control of water pollution. The Central and State Boards have been established under the said Act. The Act

prohibits use of any stream or well for disposal of polluting matter. Standards to be maintained can be laid down. The Parliament has passed the Environment (Protection) Act, 1986 to protect and improve the quality of environment. The Central Government is authorized to issue appropriate directions for protection of environment to the concerned authorities.

8. Considering the issue of pollution in River Ganga by the leather industry at Kanpur, **the Hon'ble Supreme Court of India in *M.C. Mehta Vs. Union of India & Ors.***³, held that the discharge of the pollutants in Ganga could not be permitted directly or indirectly.

9. Again, in *M.C. Mehta Vs. Union of India & Ors.*⁴, directions to enforce the statutory provisions by the municipal bodies and the industries by stopping discharge of untreated sewage and effluents in River Ganga were issued. It was noted that the water pollution caused serious diseases, including Cholera and Typhoid. Water pollution could not be ignored and adequate measures for prevention and control are necessary. It was also observed that the educational institutions must teach atleast for one hour in a week lessons relating to protection and improvement of environment. Awareness should be created by organizing suitable awareness programs. In the same matter, the issue of Calcutta tanneries was considered in *M.C. Mehta Vs. Union of India And Ors.*⁵, (*Calcutta Tanneries' Matter*). The tanneries were directed to be shifted by adopting the 'Precautionary Principle' so as to prevent discharge of effluents in the River Ganga.

10. Dealing with the control of pollution in river Pallar in Tamil Nadu, the Hon'ble Supreme Court in *Vellore Citizen' Welfare Forum Vs. Union of India*, (1996) 5 SSC 647 observed:

"13. The Precautionary Principle and the Polluter Pays Principle have been accepted as part of the law of the land. Article 21 of the Constitution of India guarantees protection of life and personal liberty. Articles 47, 48-A and 51-A(g) of the Constitution are as under:

³ (1987) 4 SCC 463 ¶14

⁴ (1988) 1 SCC 471

⁵ (1997) 2 SSC 411

"47. Duty of the State to raise the level of nutrition and the standard of living and to improve public health.—The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health.

48-A. Protection and improvement of environment and safeguarding of forests and wildlife.—The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.

51-A. (g) to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures."

Apart from the constitutional mandate to protect and improve the environment there are plenty of post-independence legislations on the subject but more relevant enactments for our purpose are: the Water (Prevention and Control of Pollution) Act, 1974 (the Water Act), the Air (Prevention and Control of Pollution) Act, 1981 (the Air Act) and the Environment (Protection) Act, 1986 (the Environment Act). The Water Act provides for the constitution of the Central Pollution Control Board by the Central Government and the constitution of the State Pollution Control Boards by various State Governments in the country. The Boards function under the control of the Governments concerned. The Water Act prohibits the use of streams and wells for disposal of polluting matters. It also provides for restrictions on outlets and discharge of effluents without obtaining consent from the Board. Prosecution and penalties have been provided which include sentence of imprisonment. The Air Act provides that the Central Pollution Control Board and the State Pollution Control Boards constituted under the Water Act shall also perform the powers and functions under the Air Act. The main function of the Boards, under the Air Act, is to improve the quality of the air and to prevent, control and abate air pollution in the country. We shall deal with the Environment Act in the latter part of this judgment.

16. The constitutional and statutory provisions protect a person's right to fresh air, clean water and pollution-free environment, but the source of the right is the inalienable common law right of clean environment. It would be useful to quote a paragraph from **Blackstone's commentaries on the Laws of England** (Commentaries on the Laws of England of Sir William Blackstone) Vol. III, fourth edition published in 1876. Chapter XIII, "Of Nuisance" depicts the law on the subject in the following words:

"Also, if a person keeps his hogs, or other noisome animals, or allows filth to accumulate on his premises, so near the house of another, that the stench incommodes him and makes the air unwholesome, this is an injurious nuisance, as it tends to deprive him of the use and benefit of his house. A like injury is, if one's neighbour sets up and exercises any offensive trade; as a tanner's, a tallow-chandler's, or the like; for though these are lawful and necessary trades, yet they should be exercised in remote places; for the rule is, 'sic uteretur, ut alienum non leadas'; this therefore is an actionable nuisance. And on a similar principle a constant ringing of bells in one's immediate neighbourhood may be a nuisance.

... With regard to other corporeal hereditaments; it is a nuisance to stop or divert water that used to run to another's meadow or mill; to corrupt or poison a watercourse, by erecting a dye-house or a lime-pit, for the use of trade, in the upper part of the stream; to pollute a pond, from which another is entitled to water his cattle; to obstruct a drain; or in short to do any act in common property, that in its consequences must necessarily tend to the prejudice of one's neighbour. So closely does the law of England enforce that excellent rule of gospel-morality, of 'doing to others, as we would they should do unto ourselves'."

11. The Central Government was directed to constitute an Authority under section 3 (3) of the Environment Act which can take measures to reverse the damage and recover the cost from the individuals responsible.
12. In *S. Jagannath Vs. Union of India & Ors.*⁶, effluents discharged by commercial shrimp culture farms were directed to be controlled. An authority was directed to be constituted headed by former Judge of the High Court to protect fragile coastal areas.
13. In the news item published in Hindustan Times titled "And Quiet Flows The Maily Yamuna"⁷, steps were directed to be taken to check pollution in river Yamuna.
14. In *Tirupur Dyeing Factory Owners Association Vs. Noyyal River Ayacutdars Protection Association & Ors.*⁸, directions were issued to check pollution in river Noyyal in the State of Tamil Nadu. A Committee headed by a former Judge of the High Court was appointed to assess the extent of damage and to identify the victims and based on the said report direction to cover damages and to stop pollution were issued by the High Court. Upholding the said directions, it was observed that if the pollution is not checked, the industrial activity has to be closed; cost for restoration has to be covered from those responsible for the pollution.
15. In spite of directions in several Judgments, discharge of untreated sewage and industrial effluents in rivers and water bodies is continuing at a large scale. Sewage treatment capacity is disproportionate to the sewage generated. Reports have

⁶ (1997) 2 SCC 87

⁷ (2009) 17 SSC 720

⁸ (2009) 9 SSC 737

found high level of Coliform in water bodies. According to some estimates, 75 to 80 % water is polluted in India. Number of polluted river stretches is on the increase. It is patent that statutory framework is inadequate or those who man the statutory authorities are not able to perform the duties assigned to them. This aspect has to be reviewed by the concerned Governments.

16. We may also refer to some of orders of this Tribunal on the subject.

17. In *Manoj Mishra Vs. Union of India*⁹, the Tribunal dealt with the pollution of river

Yamuna in the light of directions of the Hon'ble Supreme Court. The Tribunal noted that right to clean and healthy environment was a Fundamental Right of the inhabitants. In violation of the said Right, the debris and solid waste were being dumped on the river bed. Encroachments have taken place, resulting in damage to the environment. Storm water drains which were polluted, were meeting the river at several points without being cleaned. The failure to manage extraction of ground water and diverting the river water for irrigation and other purposes beyond reasonable norms was resulting in obstructing the flow of the river. Dumping of untreated sewerage and industrial effluents was a major source of pollution.

18. An Expert Committee was appointed which suggested setting up of STPs to tackle this problem. It was seen that on account of pollution, vegetables grown in the area, irrigated by the polluted water were a health hazard and caused diseases like cancer. The Committee appointed by the Tribunal recommended that solid waste dump should be removed from the flood plains and construction activities on the flood plains should be stopped. All Settlements on the flood plains should be relocated. Construction of new barrages and roads, railways and metro bridges, and embankments and bunds should not be permitted. In exceptional cases, if it is permitted, a critical assessment of their potential impact should be assessed. Environmental clearance should be made necessary. High level of lead was found in 23% of the children as a result of pollution adversely affecting their health. The food crops were contaminated. The ground water was contaminated. Mercury

⁹ O.A. No. 6/2012, 2015 ALL(I) NGT REPORTER (1) (DELHI) 139

concentration was 200 times the standards on account of location of thermal power plant. The Faecal Coliform- bacteria were 30 times the standards. There was presence of high level of pesticides, heavy metals and other harmful matters in the vegetables/vegetation grown on the river bank.

19. Accordingly, the Tribunal issued several directions for cleaning the river and protecting the flood plains. The implementation of above directions was monitored from time to time in the last three years.

20. On 26.07.2018, the Tribunal recorded that there was a failure of the Administration in complying with the directions, even after more than three years, which made it necessary for the Tribunal to exercise power as an Executing Court under Section 25 of the National Green Tribunal Act, 2010. The Tribunal directed constitution of a two-member Monitoring Committee, comprising a former Chief Secretary of Delhi and a former Expert Member of the Tribunal so that the said Committee could prepare a time bound action plan and closely oversee the execution of the order of this Tribunal on a regular basis.

21. The Tribunal also dealt with the problem of level of pollution in river Ganga which is 2025 km. The two main sources of pollution, which were noted, are the industrial pollution and the municipal sewage. Apart from this, diversion of water and extraction of groundwater reduced the flow of the river which adversely affected its eco-system and vitality. The serious industrial pollution was caused by the leather industries at Jajmau, Kanpur and Unnao. The Tribunal considered the initiatives taken by the Central Government by way of Ganga Action Plan-I and Ganga Action Plan-II. It was also noted that the said initiatives had failed to bring about the desired results. The Tribunal disposed of the matter on 10.12.2015 with regard to Phase-I, Segment-A i.e. from Gaumukh to Haridwar. The rest of the matter was dealt with by subsequent Judgement dated 13.07.2017 in *M.C. Mehta Vs. Union of India*¹⁰.

¹⁰O.A No. 200 of 2014, 2017 NGTR (3) PB 1

The directions issued by the Tribunal included regulation of dumping of municipal solid waste and other wastes, prevention and control of sewage and industrial effluents, encroachments of floodplains, regulation of diversion of water and extraction of groundwater, cleaning of the drains meeting the river Ganga, maintaining environmental flow of the river, checking constructions on floodplains, setting up of regulating or stopping industrial activity of polluting nature, checking mining activities and disposal of bio-medical and other wastes, etc.

22. The implementation of the above directions was taken up from time to time. It was found that inspite of huge expenditure already incurred and efforts of the Committees monitoring the directions of this Tribunal as well as initiatives of the Government authorities, the requisite result has not been achieved. The water did not meet the requisite standards. The Tribunal had to appoint a Committee headed by a former High Court Judge vide order dated 06.08.2018.

23. On an earlier date on 27.07.2018, the Tribunal directed that the results of tests of water samples at various locations should be displayed on the website of Central Pollution Control Board (CPCB). It was noted that water from Haridwar to Kanpur was unfit for drinking and with few exceptions, even unfit for bathing. There was dumping of Chromium at and around Jajmau and Kanpur. There was violation of provisions of the Water Act, 1974 requiring closing of industries and prosecution. The Tribunal hoped that at one point of time the red sign in the map which was displayed on the website of the CPCB will be converted to green with the improvement in water quality. Till then, the progress could not be held to be satisfactory.

24. On 13.07.2018, in *Mahendra Pandey Vs. Union of India & Ors.*¹¹, pollution in river Ramganga was considered. River Ramganga is a tributary of River Ganga. It was found that in surface water samples, there was presence of heavy metals like Iron (Fe), Zinc (Zn), Copper (Cu) and Mercury (Hg). The level of Mercury was found above the screening levels (i.e. Indian Drinking Water standard). The stand of the

¹¹O.A. No. 58/2017

Uttar Pradesh Pollution Control Board was that there was difficulty in locating the site for construction of secured landfill. The Tribunal noted that the hazardous waste was required to be disposed of in a scientific manner. Illegal dumping of e-waste was required to be stopped. It was noted that pollution was being caused by electronic waste processing which was generating Milled Black Powder. This resulted in contamination of water with heavy metals.

25. On 24.07.2018 in *Sobha Singh &Ors. Vs. State of Punjab &Ors.*¹², the Tribunal considered the issue of pollution of River Sutlej and River Beas. The pollution resulted in toxicity and accumulation of Chromium, Nickel, Zinc and pesticides. The polluted drains were found meeting River Sutlej. The untreated industrial waste as well as the domestic waste was being dumped without any adequate action being taken by the Pollution Control Boards. Failure to check pollution was established by various inspections. In spite of steps taken in four years, with almost fifty adjournments and the directions of the Tribunal, the situation did not improve as expected. Accordingly, the Tribunal constituted an Independent Monitoring Committee which included a social activist to oversee the execution of directions of the Tribunal.

26. On 31.07.2018 in *Nityanand Mishra Vs. State of M.P. &Ors.*¹³, pollution of Son river was considered. Illegal sand mining activity was found to be resulting in affecting the flow of the river. Construction of barrage and operation of industries were affecting the habitat and breeding of *Gharials*. The Tribunal issued directions to stop illegal pollution for protection of the river and the wildlife near the Bansagar Dam and constituted a Committee to oversee the compliance of the directions of the Tribunal.

27. As already noted, on 06.08.2018, after reviewing the progress in the matter of River Ganga and finding that the progress did not meet the expectations of the Tribunal, the Tribunal exercised its jurisdiction under Section 25 of the National Green Tribunal Act, 2010 and constituted a Monitoring Committee headed by a former

¹²O.A.No. 101/2014

¹³O.A. No. 456/2018

Judge of the High Court to execute the directions already issued in a time bound manner. It was also observed that public education and public involvement were required to be considered.

28. On 07.08.2018 in "Stench Grips Mansa's Sacred Ghaggar River (Suo-Moto Case)¹⁴", this Tribunal considered pollution of river Ghaggar and failure of the authorities to check the same. The report of the Joint Inspection Committee showed that the pollution in the river was beyond the prescribed standards. There was failure on the part of the Pollution Boards in checking the pollution. In spite of several directions in the last four years by the Tribunal, the situation has not improved. The Tribunal directed that a Special Task Force (STF) must be constituted in every District and in every State. In a District, the STFs should comprise of District Magistrate, Superintendent of Police, Regional Officer of the State Pollution Control Boards in concerned District and one person to be nominated by the District Judge in every District in his capacity as Head of the District Legal Services Authority. At the State level, it was to comprise of the Chief Secretary, the Environment Secretary, the Secretary of Urban Development and Secretary of Local Bodies. The STFs were required to publish reports on the website. The Tribunal also constituted a Committee headed by a former Judge to oversee the compliance of the directions.

29. On 08.08.2018, in *Doaba Paryavaran Samiti Vs. State of U.P. & Ors.*¹⁵, pollution in river Hindon was the subject matter of consideration. The matter was taken up on the allegation that 71 persons in Baghpat district died and more than 1000 persons were affected by diseases on account of pollution. The Tribunal noted that there was contamination of groundwater on account of pollution caused by sugar, paper, distilleries and tannery industries. An inspection team, appointed by the Tribunal, found that 124 industries were causing pollution. It was noted that no punitive action has been initiated. The pollution caused included discharge of Mercury. The Tribunal observed that sources of contaminated water are required to be closed. The victims of diseases are required to be rehabilitated. A statement that there are

¹⁴O.A. No. 138/2016 (T_{NHRC})

¹⁵ O.A. No. 231/2014

302 river stretches in the country was noted and the CPCB was directed to identify atleast 10 most critical stretches and prepare an action plan, in similar format as that of river Hindon.¹⁶ The directions issued by the Tribunal include making functionaries of the statutory authorities accountable for their failure, making potable water available, sources of contamination being closed, action plans being prepared at District, State and National levels for restoration of water quality and reversing the damage. The Committee headed by a former Judge of High Court was also constituted to oversee the execution of the directions.

30. On 17.08.2018, in *Arvind Pundalik Mhatre Vs. Ministry of Environment, Forest and Climate Change & Ors.*¹⁷, the matter of pollution of River Kasardi was considered and directions were issued to remedy the situation and the Tribunal appointed a Committee headed by a former Judge of the High Court to oversee the compliance of the directions.

31. On 23.08.2018 in *Meera Shukla Vs. Municipal Corporation, Gorakhpur & Ors.*¹⁸, pollution of Ramgarh Lake, Ami River, Rapti River and Rohani River in and around District Gorakhpur on account of discharge of untreated sewage and industrial effluents was considered. It was noted that there was no proper management of solid waste disposal, leading to vector borne diseases and health problems. The pollution was caused, inter-alia, by sugar industries and other factories. The underground water was contaminated with arsenic. In the year 2012, 557 persons died with encephalitis deaths. In the last 30 years, 50,000 people had died. A financial package of Rs. 4,000 crore was given by the Central Government to fight the said diseases but there is no proper utilization of the amount. Apart from the 557 death in Gorakhpur District, more deaths had taken place in the area as stated in the news report dated 16.07.2013. The total deaths reported were 1256 in the year 2012. The Tribunal accordingly directed necessary steps to be taken to remedy

¹⁶ Hindon action plan prepared by CPCB is explained in para 46

¹⁷ O.A. No. 125/2018,

¹⁸ O.A. No. 116/2014,

the situation and also appointed a Committee headed by a former Judge of the High Court to oversee the compliance of directions of the Tribunal.

32. On 24.08.2018, in *Amresh Singh Vs. Union of India &Ors.*¹⁹, the matter of pollution of the Chenab and Tawi Rivers was considered and directions were issued to remedy the situation which was to be overseen by a Committee headed by a former High Court Judge.
33. Similarly, in respect of river *Subarnarekha in Sudarsan Das Vs. State of West Bengal &Ors.*²⁰, this Tribunal considered the matter and also appointed a Committee headed by a former Judge of the High Court to oversee the compliance of the directions.
34. There are instances of many other cases involving pollution of rivers which have come up for consideration before this Tribunal. It is not necessary to refer to all the cases.
35. We are of the view that the situation is far from satisfactory and action is required to be taken on war footing. Once statutory framework in the form of Water Act and the Environment Act is in place and the standards have been laid down by the Central Pollution Control Board, the matter cannot rest at ascertaining and identification of polluted stretches. There has to be meaningful further action to restore the minimum prescribed standards for all the rivers of the country. The polluter has to pay the cost of restoring the damage.
36. Without casting any aspersions on the statutory bodies, it is an acknowledged fact that the Pollution Control Boards have not been able to take adequate steps for keeping the standards of water within the prescribed limits. They have not been able to stop dumping of wastes, discharge of municipal or industrial effluents in rivers and water bodies. One of the reasons which has been frequently highlighted is the unsatisfactory manning of the Pollution Control Boards. This aspect was

¹⁹ Execution Application No. 32/2016 in O.A. No. 295/2016,

²⁰O.A.No. 173 of 2018

considered by the Hon'ble Supreme Court in *TechiTagi Tara Vs. Rajendra Singh*

*Bhandari & Ors.*²¹ as follows:

"33. Unfortunately, notwithstanding all these suggestions, recommendations and guidelines the SPCBs continue to be manned by persons who do not necessarily have the necessary expertise or professional experience to address the issues for which the SPCBs were established by law. The Tata Institute of Social Sciences in a Report published quite recently in 2013 titled "Environmental Regulatory Authorities in India: An Assessment of State Pollution Control Boards" had this to say about some of the appointments to the SPCBs: "An analysis of data collected from State Pollution Control Boards, however, gives a contrasting picture. It has been observed that time and again across state governments have not been able to choose a qualified, impartial, and politically neutral person of high standing to this crucial regulatory post. The recent appointments of chairpersons of various State Pollution Control Boards like Karnataka (A a senior BJP leader), Himachal Pradesh (B a Congress party leader and former MLA), Uttar Pradesh (C appointed on the recommendation of SP leader X), Arunachal Pradesh (D a sitting NCP party MLA), Manipur Pollution Control Board (E a sitting MLA), Maharashtra Pollution Control Board (F a former bureaucrat) are in blatant violation of the apex court guidelines. The apex court has recommended that the appointees should be qualified in the field of environment or should have special knowledge of the subject. It is unfortunate that in a democratic set up, key enterprises and boards are headed by bureaucrats for over a decade. In this connection, it is very important for State Governments to understand that filling a key regulatory post with the primary intention to reward an ex-official through his or her appointment upon retirement, to a position 9 Item Nos. 07-08 July 20, 2018 dv for which he or she may not possess the essential overall qualifications, does not do justice to the people of their own states and also staffs working in the State Pollution Control Boards. The primary lacuna with this kind of appointment was that it did not evoke any trust in the people that decisions taken by an ex-official of the State or a former political leader, appointed to this regulatory post through what appeared to be a totally non-transparent unilateral decision. Many senior environmental scientists and other officers of various State Pollution Control Boards have expressed their concern for appointing bureaucrats and political leader as Chairpersons who they feel not able to create a favourable atmosphere and an effective work culture in the functioning of the board. It has also been argued by various environmental groups that if the government is unable to find a competent person, then it should advertise the post, as has been done recently by states like Odisha. However, State Governments have been defending their decision to appoint bureaucrats to the post of Chairperson as they believe that the vast experience of IAS officers in handling responsibilities would be easy. Another major challenge has been appointing people without having any knowledge in this field. For example, the appointment of G with maximum qualification of Class X as Chairperson of State Pollution Control Board of Sikkim was clear violation of **Water Pollution and Prevention Act, 1974."**

34. The concern really is not one of a lack of professional expertise – there is plenty of it available in the country – but the lack of dedication and willingness to take advantage of the resources available and instead **benefit someone close to the powers that be. With this couldn't care-less attitude, the environment and public trust are the immediate casualties. It is unlikely that with such an attitude, any substantive effort can be made to**

²¹ (2018) 11 SCC 734

tackle the issues of environment degradation and issues of pollution. Since the NGT was faced with this situation, we can appreciate its frustration at the scant regard for the law by some State Governments, but it is still necessary in such situations to exercise restraint as cautioned in *State of U.P. v. Jeet S. Bisht*.

35. Keeping the above in mind, we are of the view that it would be appropriate, while setting aside the judgment and order of the NGT, to direct the Executive in all the States to frame appropriate guidelines or recruitment rules within six months, considering the institutional requirements of the SPCBs and the law laid down by statute, by this Court and as per the reports of various committees and authorities and ensure that suitable professionals and experts are appointed to the SPCBs. Any damage to the environment could be permanent and irreversible or at least long-lasting. Unless (2007) 6 SCC 586 corrective measures are taken at the earliest, the State Governments should not be surprised if petitions are filed against the State for the issuance of a writ of quo warranto in respect of the appointment of the Chairperson and members of the SPCBs. We make it clear that it is left open to public spirited individuals to move the appropriate High Court for the issuance of a writ of quo warranto if any person who does not meet the statutory or constitutional requirements is appointed as a Chairperson or a member of any SPCB or is presently continuing as such."

37. This Tribunal also considered this matter in order dated 20.07.2018, in the case of *Satish Kumar vs. U.O.I & Ors.*,²² and observed as follows:

"Accordingly, we suggest that the Central Government as well as State Governments may appoint persons with judicial background to deal with the issues which may require the knowledge of legal and judicial system in the Pollution Control Boards and the local authorities. Such persons can also advise such bodies on manner of compliance of law so that such bodies can be saved from unnecessary litigation and charges of failure to comply with law.

24. Presence of a person with judicial background will help the Pollution Control Boards as well as local bodies to effectively discharge their administrative and judicial functions in an efficient manner. We are informed that in some of the Pollution Control Boards and Local Bodies, Judicial officers are already being engaged.

25. We thus call upon the Central Government and all the State Governments to take a call on this issue consistent with the observation of the Hon'ble Supreme Court in *Techi Tagi Tara (Supra)*"

38. In order to do so, an officer of Superior Judicial Services may have to be taken on deputation by requesting the concerned High Court on the pattern of Law Secretaries of States.

39. As already noted, well known causes of pollution of rivers are dumping of untreated sewage and industrial waste, garbage, plastic waste, e-waste, bio-medical waste, municipal solid waste, diversion of river waters, encroachments of catchment areas and floodplains, over drawl of groundwater, river bank erosion on account of illegal sand mining. In spite of directions to install Effluent Treatment Plants (ETPs),

Common Effluent Treatment Plants (CETPs), Sewage Treatment Plants (STPs), and adopting other anti-pollution measures, satisfactory situation has not been achieved. Tough governance is the need of the hour. If pollution does not stop, the industry has to be stopped. If sewage dumping does not stop, locals have to be made accountable and their heads are to be prosecuted. Steps have to be taken for awareness and public involvement.

40. River Water is considered to be fit for bathing when it meets the criteria of having Bio-chemical Oxygen Demand (BOD) less than 3.0 mg/L, Dissolved Oxygen more than 5.0 mg/L and Faecal Coliform bacteria to be less than 500 MPN/100 ml.

41. According to the "Restoration of Polluted River Stretches- Concept & Plan" published by CPCB in January, 2018, 30,042 million litres per day (MLD) of domestic sewage is generated from urban areas along the polluted river stretches. The installed sewage treatment capacity is about 16,846 MLD, leaving a gap of about 13,196 MLD (43.9%). There is a large gap in sewage treatment capacity and generation of sewage in urban areas.

42. As already noted, according to latest assessment by the CPCB, there are 351 polluted river stretches in India i.e. where the BOD content is more than 3mg/L. The plan of CPCB is to target enhancement of river flow. The plan for restoration of polluted river stretches is proposed to be executed through two-fold concepts. One concept is to target enhancement of river flow through interventions on the water sheds/catchment areas for conservation and recharge of rain water for subsequent releases during lean flow period in a year. This concept will work on dilution of pollutants in the rivers and streams to reduce concentration to meet desired level of water quality. Other concept is of regulation and enforcement of standards in conjunction with the available flow in rivers /streams and allocation of discharges with stipulated norms.

43. The water quality assessment of aquatic resources by CPCB, on long term basis, has provided information on the segments of rivers that are not meeting water quality

criteria and have been identified as polluted. Assessment studies carried out on the sources of Restoration of Polluted River Stretches pollution in the rivers has highlighted the need for creation of infrastructure facilities (STPs /CETPs/ETPs) for management of wastewater in line with low flow or no flow of fresh water in the rivers and streams. In order to have a practical solution to augment non-monsoon availability of water, CPCB has suggested four phases for full scale water shed management in the upper reaches of catchment of the rivers and streams. The suggested phases for water shed management may be (a) Recognition phase (b) Restoration phase (c) Protection phase (d) Improvement phase.

(a) Recognition Phase is identification and recognition of the problem, analysis of the cause of the problem and its effect and development of alternative solutions of problem.

(b) Restoration Phase includes two main steps viz. selection of best solution to problems identified and application of the solution to the problems of the land.

(c) Protection Phase takes care of the general health of the watershed and ensures normal functioning. The protection is against all factors, which may cause determined in watershed condition.

(d) Improvement Phase deals with overall improvement in the watershed and all land is covered.

44. Attention is paid to agriculture and forest management and production, forage production and pasture management, socio-economic conditions to achieve the objectives of watershed management.

45. The river action plans are designed for control of pollution and to restore the water quality of the rivers. The infrastructure development for treatment of sewage always remains short of the waste water generation. The ever growing population and increasing water use in the urban centres has outpaced the plan for creation of infrastructure. The river action plans although have not improved the quality of the

water resources, however in absence of such plans, the quality of aquatic resources would have been further deteriorated.

46. River Hindon has been taken up as a model for preparation of action plan for restoration of water quality.²³ Salient features of the Action Plan are:

- i. Execution of field surveys to assess pollution load generated by industries and sewage generated in a city or town discharging sewage and trade effluent into river Hindon and its tributaries.
- ii. Collating water quality monitoring data of Hindon and its tributaries and assigning the class as per primary water quality criteria.
- iii. Water quality assessment of river in context of sewage/industrial drain outfalls with dilution and distance factors.
- iv. Laying time-limes for regulating industrial pollution control by ensuring consent compliance and closing the defaulting industries till they comply with the norms stipulated to them.
- v. Setting up of STPs in towns located in the river catchment and emphasis on utilization of treated sewage.
- vi. Adopting water conservation practices, ground water regulation, flood plain zone management and maintaining environmental flow.

47. The polluted river stretches have been divided in five priority categories i.e., I, II, III, IV, V depending upon the level of BOD. Following are the parameters for assessing the criteria:

I. Criteria for Priority I

- (a) Monitoring locations exceeding BOD concentration 30 mg/L has been considered as it is the standard of sewage treatment plant and in river it appears without dilution.(River locations having water quality exceeding discharge standards for BOD to fresh water sources)
- (b) All monitoring locations exceeding BOD concentration 6 mg/L on all occasions.
- (c) Monitoring locations exceeding 3 mg/L BOD are not meeting desired water quality criteria but does not affect to Dissolved

²³ <http://cpcb.nic.in/NGT/CPCB-Reply-Affidavit-Report-on-Hindon-Action-Plan.pdf>

Oxygen level in water bodies. If BOD exceeds 6mg/L in water body, the Dissolved Oxygen is reduced below desired levels.

- (d) The raw water having BOD levels upto 5 mg/L are does not form complex chemicals on chlorination for municipal water supplies. Hence the water bodies having BOD more than 6 mg/L are considered as polluted and identified for remedial action.

II. Criteria for Priority II

- (a) Monitoring locations having BOD between 20-30 mg/L.
 (b) All monitoring locations exceeding BOD concentration 6 mg/L on all occasions.

III. Criteria for Priority III

- (a) Monitoring locations having BOD between 10-20 mg/L.
 (b) All monitoring locations exceeding BOD concentration 6 mg/L on all occasions.

IV. Criteria for Priority IV

- (a) Monitoring locations having BOD between 6-10 mg/L.

V. Criteria for Priority V

- (a) Monitoring locations having BOD between 3-6 mg/l.
 (b) The locations exceeding desired water quality of 3mg/l BOD.

Polluted River Stretches- State wise-Priority wise						
STATE	I	II	III	IV	V	Grand Total
ANDHRA PRADESH				2	3	5
ASSAM	3	1	4	3	33	44
BIHAR			1		5	6
CHHATTISGARH				4	1	5
DAMAN, DIU AND DADRA NAGAR HAVELI	1					1
DELHI	1					1
GOA			1	2	8	11
GUJARAT	5	1	2	6	6	20
HARYANA	2					2
HIMACHAL PRADESH	1	1	1		4	7
JAMMU & KASHMIR		1	2	2	4	9
JHARKHAND				3	4	7
KARNATAKA			4	7	6	17
KERALA	1			5	15	21
MADHYA PRADESH	3	1	1	3	14	22
MAHARASHTRA	9	6	14	10	14	53
MANIPUR		1			8	9
MEGHALAYA	2			3	2	7
MIZORAM			1	3	5	9
NAGALAND	1		1	2	2	6
ODISHA	1		3	2	13	19
PUDUCHERRY				1	1	2

PUNJAB	2			1	1	4
RAJASTHAN			1		1	2
SIKKIM					4	4
TAMIL NADU	4			1	1	6
TELANGANA	1	2	2	2	1	8
TRIPURA					6	6
UTTAR PRADESH	4		1	2	5	12
UTTARAKHAND	3	1	1	4		9
WEST BENGAL	1	1	3	4	8	17
Grand Total	45	16	43	72	175	351

Polluted River Stretches- Priority I & Priority II				
STATE	RIVER NAME	RIVER STRETCH	BOD RANGE/ MAX VALUE (mg/L)	PRIORITY
ASSAM	BHARALU	GUWAHATI TO CHILARAI NAGAR	52.0	I
	BORSOLA	ALONG SARABBHATTI, GUWAHATI	34.0	I
	SILSAKO	ALONG CHACHAL, GUWAHATI	34.0	I
	SORUSOLA	ALONG PALTAN BAZAR, GUWAHATI	30.0	II
DAMAN, DIU AND DADRA NAGAR HAVELI	DAMANGANGA	SILVASSA TO DAMAN JETTY, MOTI DAMAN	10 - 80	I
DELHI	YAMUNA	WAZIRABAD TO ASGARPUR	9 - 80	I
GUJARAT	AMLAKHADI	PUNGUM TO BHARUCH	40 - 45	I
	BHADAR	JETPUR VILLAGE TO SARAN VILLAGE	426.0	I
	BHOGAVO	SURENDRANAGAR TO NANA KERALA	67.0	I
	KHARI	LALI VILLAGE TO KASHIPURA	235.0	I
	SABARMATI	KHEROJ TO VAUTHA	4 - 147	I
	VISHWAMITRI	VADODARA TO ASOD	6 - 21	II
HARYANA	GHAGGAR	RORKI TO SIRSA	6 - 482	I
	YAMUNA	PANIPAT TO SONEPAT	4 - 55	I
HIMACHAL PRADESH	SUKHANA	SUKHNA TO PARWANOO	54.0	I
	MARKANDA	KALA AMB TO NARAYANPUR	3.2 - 24	II
JAMMU & KASHMIR	DEVIKA	GURU RAVIDAS TEMPLE TO NAINSU	3.4-22	II
KERALA	KARAMANA	MALEKKDU TO THIRUVALLAM	56.0	I
MADHYA PRADESH	CHAMBAL	NAGDA TO RAMPURA	12 - 80	I
	KHAN	KABIT KHEDI TO KHAJRANA	30.8 - 80	I
	KSHIPRA	SIDDHAWAT TO TRIVENISANGAM	4 - 38	I
	BETWA	MANDIDEEP TO VIDISHA	3.3 - 20.2	II
MAHARASHTRA	GODAVARI	SOMESHWAR TEMPLE TO RAHED	5.0-88	I
	KALU	ALONG ATALE VILLAGE	75.0	I
	KUNDALIKA	SALAV TO ROHA	3.8-65	I
	MITHI	POWAI TO	250.0	I

		DHARAVI		
	MORNA	AKOLA TO TAKALIJALAM	52.8	I
	MULA	BOPODI TO AUNDH GAON	33-35	I
	MUTHA	SHIVAJI NAGAR TO KHADAKWASLA DAM	5.0-42.5	I
	NIRA	SANGAVI TO SHINDEWADI	12.5-35	I
	VEL	NHAVARE TO SHIKARPUR	30.2	I
	BHIMA	VITHALWADI TO TAKLI	8.0-22.0	II
	INDRAYANI	MOSHIGAON TO ALANDIGAON	12.5-22	II
	MULA-MUTHA	THEUR TO MUNDHWA BRIDGE	14-22	II
	PAWANA	DAPODI TO RAVET	15.5-24	II
	WAINGANGA	TUMSA TO ASHTI	10.4-22.4	II
	WARDHA	GHUGHUS TO RAJURA	7.0-22.0	II
MANIPUR	NAMBUL	SINGDA DAM TO BISHNUPUR	3.6-23.7	II
MEGHALAYA	UMKHAH	MAWLAI TO SHILLONG	30-90.2	I
	UMSHYRPI	UMSHYRPI BRIDGE TO DHANKETI	38.5-95.0	I
NAGALAND	DHANSIRI	CHECK GATE TO DIPHU BDG	7.0-50.0	I
ODISHA	GANGUA	D/S BHUWANESHWAR	14-39	I
PUNJAB	GHAGGAR	SARDULGARH TO MUBARAKPUR	9.0-380	I
	SATLUJ	RUPNAGAR TO HARIKA BRIDGE	3.8-108	I
TAMIL NADU	CAUVERY	METTUR TO MAYILADUTHURAI	3.3-32	I
	SARABANGA	THATHAYAMPATTI TO T.KONAGAPADI	78.0	I
	THIRUMANIMUTHAR	SALEM TO PAPPARAPATTI	190.0	I
	VASISTA	MANIVILUNDHAN TO THIYAGANUR	675.0	I
TELANGANA	MUSI	HYDRABAD TO NALGONDA	4.0-60.0	I
	MANJEERA	GOWDICHARLA TO NAKKAVAGU	5.0-26	II
	NAKKAVAGU	GANDILACHAPET TO SEVALAL THANDA	26.0	II
UTTAR PRADESH	HINDON	SAHARANPUR TO GHAZIABAD	48-120	I
	KALINADI	MUZAFFAR NAGAR TO GULAOTHI TOWN	8 - 78	I
	VARUNA	RAMESHWAR TO CONF WITH GANGA, VARANASI	4.5-45.2	I
	YAMUNA	ASGARPUR TO ETAWAH SHAHPUR TO ALLAHABAD (BALUA GHAT)	12.0-55	I
UTTARAKHAND	BHELA	KASHIPUR TO RAJPURA ATNDA	6.0-76.0	I
	DHELA	KASHIPUR TO GARHUWALA, THAKURDWARA	12 - 80	I
	SUSWA	MOTHROWALA TO RAIWALA	37.0	I
	KICHHA	ALONG KICHHA	28.0	II
WEST BENGAL	VINDHADHARI	HAROA BRIDGE TO MALANCHA BURNING GHAT	26.7-45.0	I
	MAHANANDA	SILIGURI TO BINAGURI	6.5-25	II

Polluted River Stretches- Priority III, IV & V				
STATE	RIVER NAME	RIVER STRETCH	BOD RANGE/ MAX VALUE (mg/L)	PRIORITY
ANDHRA PRADESH	KUNDU	NANDYAL TO MADDURU	7.7	IV
	TUNGABHADRA	MANTHRALAYAM TO BAVAPURAM	3.2 - 6.7	IV
	GODAVARI	RAYANPETA TO RAJAHMUNDRI	3.1 - 3.4	V
	KRISHNA	AMRAVATHI TO HAMSALA DEEVI	3.2	V
	NAGAVALI	ALONG THOTAPALLI	3.2	V
ASSAM	DEEPAR BILL	DEEPAR BILL TO GUWAHATI	10.6	III
	DIGBOI	LAKHIPATHE, RESERVE FOREST	14.0	III
	KAMALPUR	ALONG KAMALPUR	18.6	III
	PANCHNAI	ORANG TO BORSALA	11.4	III
	BRAHAMPUTRA	KHERGHAT TO DHUBRI	3.2 - 6.4	IV
	KHARSANG	ASSAM-ARUNANCHAL BORDER TO LONGTOM-1	7.2	IV
	PAGLDIA	NALBARI TO KHUDRA SANKARA	8.2	IV
	BARAK	PANCHGRAM TO SILCHAR	3.5 - 4.2	V
	BAROI	DOWNSTREAM OF BRIDGE AT NH-52	3.6	V
	BEGA	ALONG MANGALDOI	4.5	V
	BEKI	BARPETA ROAD TO JYOTI GAON	3.5	V
	BHOGDOI	JORHAT TO DULIAGAON	4.5	V
	BOGINADI	LAKHIMPUR TO DIBRUGARH	4.2	V
	BORBEEL	ALONG RAMNAGAR, DIGBOI	3.8	V
	BORDOIBAM BEELMUKH	ALONG BEELMUKH BIRD SANCTUARY, DHEMAJI	5.2	V
	BURHIDIHING	MARGHERITA TO TINSUKIA	4 - 4.6	V
	DHANSIRI	GOLAGHAT TO KATHKETIA	4.3 - 5.6	V
	DIKHOW	NAGINI MORA TO DIKHOMUKH	3.2	V
	DIKRONG	ALONG BANDARDEWA	3.2	V
	DIPLAI	ALONG SILGARA, KOKRAJHAR	3.2	V
	DISANG	DILLIGHAT TO GUNDAMGHAT	4.2	V
	GABHARU	ALONG TUMIUKI, SONITPUR	5.4	V
	HOLUDUNGA	ALONG SOMARAJAN, DHEMAJI	4.8	V
	Jai Bharali	ALONG SONITPUR	3.1	V
	JHANJI	JORHAT TO CHAWDANG	3.8	V
	KALONG	NAGAON TO MORI KALONG	3.7 - 4.3	V
	KAPILI	NAGAON TO KAMPUR TOWN	5.5	V
	KILLING	ALONG MOREGAON	5.8	V
	KOHORA	KOHORA TO MOHPARA	4.4	V
	KULSI	ALONG CHAYGAON	3.6	V
MALINI	ALONG RAMNAGAR, SILCHAR	5.3	V	
MORA BHARALI	ALONG TEZPUR	5.2	V	

	PARASHALI	ALONG DEMORIA	4.0	V
	PUTHIMARI	ALONG PUTHIMARI	4.8	V
	RANGA	ALONG GERAMUKH	3.8	V
	SAMAGURI	ALONG SAMAGURI, NAGAON	4.0	V
	SANKOSH	ALONG GOLAKGANJ	3.3	V
	SON	ALONG DEODHAR, KARIMGANJ	4.3	V
	SONAI	SONAI TO DAKSHIN MOHANPUR	4.4	V
	TENGA PUKHURI	ALONG KUKURACHOWA GAON	4.0	V
BIHAR	SIRSIA	RUXOL TO KOIREA TOLA (RAXAUL)	20.0	III
	FARMAR	ALONG JOGBANI	3.6	V
	GANGA	BUXAR TO BHAGALPUR	3.2 - 4.2	V
	POONPUN	GAURICHAK TO FATUHA	3.3	V
	RAM REKHA	HARINAGAR TO RAMNAGAR	5.0	V
	SIKRAHNA	ALONG NARKATIAGANJ	4.5	V
CHHATTISGARH	HASDEO	KORBA TO URGA	3.6 - 7	IV
	KHAROON	BUNDRI TO RAIPUR	3.3 - 7.2	IV
	MAHANADI	ARRANG TO SIHAWA	3.3 - 8	IV
	SEONATH	SHIMGA TO BEMTA	3.4 - 8.4	IV
	KELO	RAIGARH TO KANAKTORA	3.8	V
GOA	SAL	KHAREBAND TO MOBOR	4.2 - 16.8	III
	MANDOVI	MARCELA TO VOLVOI	3.3 - 6.2	IV
	TALPONA	ALONG CANACONA	6.8	IV
	ASSONORA	ASSONORA TO SIRSAIM	3.3	V
	BICHOLIM	BICHOLIM TO CURCHIREM	4.8	V
	CHAPORA	PERNEM TO MORJIM	3.5 - 5.2	V
	KHANDEPAR	PONDA TO OPA	3.4	V
	SINQUERIM	ALONG CANDOLIM	3.6	V
	TIRACOL	ALONG TIRACOL	3.9	V
	VALVANT	SANKLI - BICHOLIM TO PORIEM	4.3	V
ZUARI	CURCHOREM TO MADKAI	3.2 - 5.1	V	
GUJARAT	DHADAR	KHOTDA TO CHANDPURA	16.0	III
	TRIVENI	TRIVENI SANGAM TO BADALPARA	11.0	III
	AMRAVATI (TRIBUTARY OF NARMADA)	ALONG DADHAL, ANKALESHWAR	10.0	IV
	DAMANGANGA	KACHIGAON TO VAPI	8.0	IV
	KOLAK	KIKARLA TO SALVAV	8.0	IV
	MAHI	SEVALIA TO BAHADARPUR	4.5 - 7	IV
	SHEDHI	DHAMOD TO KHEDA	9.0	IV
	TAPI	KHADOD (BARDOLI) TO SURAT	8.0	IV
	ANAS	DAHOD TO FATEHPURA	5.0	V
	BALEHWAR KHADI	PANDESARA TO KAPLETHA	4.0	V
	KIM	SAHOL BRIDGE TO HANSOL	3.1	V
	MESHWVA	ALONG SHAMLAJI	4.0	V
	MINDHOLA	ALONG SACHIN	6.0	V
	NARMADA	GARUDESHWAR TO BHARUCH	5.0	V
HIMACHAL PRADESH	SIRSA	NALAGARH TO SOLAN	8 - 16	III
	ASHWANI	ALONG YASHWANT NAGAR	3.2	V
	BEAS	KULLU TO DEHRAGOPIPUR	6.0	V

	GIRI	ALONG SAINJ	4.4 - 6	V
	PABBAR	ALONG ROHRU	3.6 - 4	V
JAMMU & KASHMIR	BANGANGA	PONY SHED TO BATHING GHAT	6 - 14	III
	CHUNT KOL	MAULANA AZAD BRIDGE TO KANIKADAL	14.5	III
	GAWKADAL	GAWKADAL BRIDGE TO NOHATA	9.0	IV
	TAWI	SURAJNAGAR TO BELICARANA	5 - 8.3	IV
	BASANTER	SAMBA TO CHAKMANGARAKWAL	5 - 6	V
	CHENAB	JAL PATAN TO PARGAWAL	5.0	V
	JHELAM	CHATTABAL WEIR TO ANANTNAG	3.2 - 5.5	V
	SINDH	ALONG DUDERHAMA	3.7	V
JHARKHAND	GARGA	ALONG TALMUCHU	6.2	IV
	SANKH	KONGSERABASAR TO BOLBA	8.4	IV
	SUBARNAREKHA	HATIA DAM TO JAMSHEDPUR	3.4 - 10	IV
	DAMODAR	PHUSRO ROAD BDG TO TURIO	3.9	V
	JUMAR	KANKE DAM TO KADAL	3.3	V
	KONAR	ALONG TILAYA AND KONAR	3.4 - 3.6	V
	NALKARI	ALONG PATRATU	3.8	V
KARNATAKA	ARKAVATHI	HALLI RESERVOIR TO KANAKAPURA TOWN	14.0	III
	LAKSHMANTIRTHA	KATTEMALAVADI TO HUNSUR	7.1 - 12.4	III
	MALPRBHA	KHANAPUR TO DHARWAD	7.3 - 17.3	III
	TUNGABHADRA	HARIHAR TO KORLAHALLI	4 - 19	III
	BHADRA	HOLEHUNNUR TO BHADRAVATHI	5.5 - 7.8	IV
	CAUVERY	RANGANATHITTU TO SATHYAMANGALAM BRIDGE	3.1 - 6.7	IV
	KABINI	NANJANAGUD TO HEJJIGE	3.6 - 6.5	IV
	KAGINA	SHAHABAD TO HONGUNTA	4.6 - 7.4	IV
	KALI	HASAN MAAD (WEST COAST PAPER MILL) TO BOMMANAHALLI RESERVOIR	6.5	IV
	KRISHNA	YADURWADI TO TINTINI BRIDGE	3.1 - 6.2	IV
	SHIMSHA	YEDIYAR TO HALAGUR	4 - 10	IV
	ASANGI NALLA	ALONG ASANGI	4.4	V
	BHIMA	GHANAPUR TO YADGIR	3.3 - 6	V
	KUMARDHARA	ALONG UPPINANGADI	4.0	V
	NETRAVATHI	UPPINANGADI TO MANGALURU	4.0	V
	TUNGA	SHIVAMOGA TO KUDLI	4.3	V
YAGACHI	ALONG YAGACHI, HASSAN	4.0	V	
KERALA	BHARATHAPUZHA	ALONG PATAMBI	6.6	IV
	KADAMBAYAR	MANCKAKADAVU TO BRAHMAPURAM	5.9 - 6.4	IV
	KEECHERI	PULIYANNOR TO KECHERY	6.4	IV
	MANIMALA	KALLOOPARA TO THONDRA	6.3 - 6.4	IV
	PAMBA	MANNAR TO THAKAZHY	3.3 - 7.8	IV
	BHAVANI	ALONG ELACHIVAZHY	5.4	V
	CHITRAPUZHA	IRUMPANAM TO KARINGACHIRA	4.6	V

	KADALUNDY	ALONG HAJIRAPPALLY/ HAJIYARPALLI	3.6	V	
	KALLAI	THEKEPURAM TO ARAKKINAR	4.5	V	
	KARUVANNUR	ALONG KARUVANNUR	3.5	V	
	KAVVAI	ALONG KAVVAI	3.9	V	
	KUPPAM	THALIPARAMBA TO VELICHANGOOL	3.1 - 3.8	V	
	KUTTIYADY	ALONG KUTTIYADY	5.0	V	
	MOGRAL	ALONG MOGRAL	3.1	V	
	PERIYAR	ALWAYE-ELOOR TO KALAMASSERY	3.2 - 5.1	V	
	PERUVAMBA	ALONG PERUVAMBA	3.9	V	
	PUZHACKAL	OLARIKKARA TO PUZHACKAL	3.8	V	
	RAMAPURAM	ALONG RAMAPURAM	3.3	V	
	THIRUR	NADUVILANGADI TO THALAKKADATHUR	3.6	V	
	UPPALA	POYYA TO MULINJA	3.2	V	
MADHYA PRADESH	SONE	ALONG AMLAI	12.4	III	
	GOHAD	GOHAD DAM TO GORMI	6.3	IV	
	KOLAR	SURAJNAGAR TO SHIRDIPURAM	7.5	IV	
	TAPI	NEPANAGAR TO BURHANPUR	4.6 - 8	IV	
	BICHIA	SILPARI TO GADHAWA	3.5	V	
	CHAMLA	ALONG BADNAGAR, UJJAIN	4.0	V	
	CHOUPAN	ALONG VIJAIPUR	3.4	V	
	KALISOT	MANDIDEEP TO SAMARDHA VILLAGE	4.1	V	
	KANHAN	KANHAN IN CHINDWARA DISTRICT BOUNDRY	3.2	V	
	KATNI	ALONG KATNI	3.5	V	
	KUNDA	KHARGONE TO KHEDI KHURD	4.0	V	
	MALEI	JAORA TO BARAUDA	3.5	V	
	MANDAKINI (MP)	ALONG CHITRAKUT	5.8	V	
	NEWAJ	ALONG SHUJALPUR	4.0	V	
	PARVATI	BATAWADA TO PILUKHEDI	3.2	V	
	SIMRAR	ALONG KATNI	3.9	V	
	TONS	CHAKGHAT TO CHAPPAR	3.5	V	
	WAINGANGA	CHINDWARA TO BALAGHAT	3.2	V	
	MAHARASHTRA	GHOD	ANNAPUR TO SHISHUR	10.2	III
		KANHAN	BHANDARA TO NAGPUR	9.8-16.4	III
KOLAR (MAH)		ALONG KORADI	18.0	III	
KRISHNA		SHINDI TO KURUNDWAD	3.4-14.0	III	
MOR		JALGAON TO AMODA	16.0	III	
PATALGANGA		KHADEPADA TO KOPOLI	5.0-18	III	
PEDHI		NARAYANPUR TO BHATKULI	20.0	III	
PENGANGA		MEHKAR TO UMARKHED	8.6-20	III	
PURNA		DHUPESHWAR TO ASEGAON	10.2-18.4	III	
TAPI		RAVER TO SHAHADA	8.0-12.0	III	
URMODI		DHANGARWADI TO NAGTHANE	12.4	III	
VENNA		MAHABALESHWAR TO MAHULI	7.2-12.5	III	
WAGHUR		SUNASGAON TO SAKEGAON	18.0	III	
WENA		KAWADGHAT TO HINDONGHAT	10.2-13.8	III	

	BINDUSAR	SWARAJ NAGAR TO SNEHNAGAR	8.0	IV
	BORI	ALONG AMALNER	9.2	IV
	CHANDRABHAGA	PANDHARPUR TO SHEGAON DHUMALA	7.5-9.5	IV
	DARNA	IGATPURI TO SANSARI	5.0-9.0	IV
	GIRNA	MALEGAON TO JALGAON	6.6-9.0	IV
	HIWARA	PACHORA TO NIMBORA	8.6	IV
	KOYNA	KARAD TO PAPDARDE	8.6	IV
	PEHLAR	PELHAR DAM TO GOLANI NAKA	7.0	IV
	SINA	SOLAPUR TO BANKALAGI	8.5	IV
	TITTUR	ALONG CHALISGAON, JALGAON	7.8	IV
	AMBA	BENSE TO ROHA	4.8	V
	BHATSA	SHAHAPUR TO BHADANE	4.8-6.0	V
	GOMAI	LONKHEDA TO SHAHDA	6.0	V
	KAN	KAVATHE TO SAKARI	5.0	V
	MANJEERA	LATUR TO NANDED BRIDGE	5.0	V
	PANCHGANGA	SHIROL TO KOLHAPUR	3.2-5.8	V
	PANZARA	VARKHEDE TO DHULE	6.0	V
	RANGAVALI	TINTEMBA TO NAVAPUR	5.0	V
	SAVITRI	DADLI TO MUTHAVALI	3.2-5.0	V
	SURYA	DHAMNI DAM TO PALGHAR	4.4-5.0	V
	TANSA	ALONG THANE	6.0	V
	ULHAS	KALYAN TO BADLAPUR	4.0-5.0	V
	VAITARNA	GANDHRE TO SARASHI	4.0	V
	VASHISTI	KHERDI TO DALVATNE	3.2-3.4	V
MANIPUR	IMPHAL	KANGLA MOAT TO SAMUROU	3.4-6.4	V
	IRIL	KANGLA SIPHAI TO UKHRUL	3.2	V
	KHUGA	KHUGA LAKE TO CHURACHANDPUR	3.1-3.6	V
	KHUJAIROK	MOREH TO MAOJANG	4.3	V
	LOKCHAO	BISHNUPUR TO LOKTAK LAKE	4.5	V
	MANIPUR	SEKMAIJAN TO THOUBAL	3.6-4.3	V
	THOUBAL	SHONG KONG TO PHADOM	3.5	V
	WANGJING	WANGJING TO HEIROK	4.1-4.3	V
MEGHALAYA	KYRHUKHLA	SUTNGA TO KHLIERIAT	10.0	IV
	NONBAH	NANGSTOIN TO WAHRIAT	6.0-7.5	IV
	UMTREW	BYRNIHAT TO MORANG DALA	6.2-8.0	IV
	LUKHA	MYNDIHATI TO SHYMLONG	6.0	V
	MYNTDU	JOWAI TO PAMHADEM	5.2	V
MIZORAM	TIAU	ALONG CHAMPHAI	11.3	III
	TLAWNG	ALONG ZOBAWK, SAIRANG TO BAIRABI	3.1-6.7	IV
	TUIPUI	ALONG CHAMPHAI	8.2	IV
	TUIVAWL	ALONG KEIFANG	6.8	IV
	CHITE	ALONG ARMED VENG	3.7	V
	MAT	ALONG SERCHHIP	5.5	V
	SAIKAH	ALONG LAWNGTLAI	4.4	V
	TUIKUAL	ALONG SERCHHIP	6.0	V

	TUIRIAL	ALONG TUIRIAL, AIZWAL	3.4-4.6	V
NAGALAND	DZUNA	ALONG KOHIMA	6.0-13.0	III
	CHATHE	MEDZIPHEMA TO, DIMAPUR	7.0	IV
	DZU	KOHIMA TO DZUKO VALLEY	7.0	IV
	DZUCHA	ALONG KOHIMA	4.0	V
	SANO	ALONG KOHIMA	4.0	V
ODISHA	GURADIH NALLAH	ALONG ROURKELA	11.3	III
	KATHAJODI	CUTTACK TO URALI	5.8-11.2	III
	NANDIRAJHOR	D/S TALCHER	2.7 - 13	III
	DAYA	BHUBANESWAR TO BARAGARH	4.0-7.3	IV
	KUAKHAI	URALI TO BHUBANESWAR	6.7-7.7	IV
	BANGURU NALLAH	ALONG TALCHER RENGALI	3.2	V
	BHEDEN	ALONG BHEDEN	3.6	V
	BRAHAMANI	ROURKELA TO BIRITOL	5.8-6.0	V
	BUDHABALNAGA	MAHULIA TO BARIPADA	3.5	V
	KUSUMI	ALONG ANGUL TALCHER	3.2	V
	MAHANADI	SAMBALPUR TO PARADEEP	3.6	V
	MANGALA	ALONG PURI	5.7	V
	NAGAVALLI	JAYKAYPUR TO RAYAGADA	3.5	V
	NUNA	ALONG BIJIPUR, PURI	3.1	V
	RATNACHIRA	ALONG BHUBHNEISHWAR, PURI	3.3	V
	RUSHIKULYA	PRATAPPUR TO GANJAM	3.4	V
	SABULIA	ALONG JAGANNATHPATNA, RAMBHA	5.0	V
	SERUA	KHANDAETA TO SANKHATRASA	4.8	V
PUDUCHERRY	ARASALAR	ALONG KARAİKAL	7.0	IV
	CHUNNAMBAR	ALONG ARIYANKUPPAM	6.0	V
PUNJAB	KALI BEIN	SULTANPUR LODHI TO CONF TO BEAS	9.0	IV
	BEAS	ALONG MUKERIAN	3.8	V
RAJASTHAN	BANAS	ALONG BISALPUR DAM, SWAROOPGANJ, NEWTA DAM	13.2	III
	CHAMBAL	SAWAIMADHOPUR TO KOTA	3.2-4.8	V
SIKKIM	MANEY KHOLA	ADAMPOOL TO BURTUUK	3.2-4.5	V
	RANGIT	DAM SITE (NHPC) TO TREVANI	3.2-3.8	V
	RANICHU	NAMLI TO SINGTAM	3.8-4.0	V
	TEESTA	MELLI TO CHUNGTHANG	4.0-4.3	V
TAMIL NADU	BHAVANI	SIRUMUGAI TO KALINGARAYAN	3.3-6.6	IV
	TAMBIRAPANI	PAPPANKULAM TOARUMUGANERI	3.1-4.0	V
TELANGANA	KARAKAVAGU	ALONG PALWANCHA	18.0	III
	MANER	WARANGAL TO SOMNAPALLI	6-20.0	III
	GODAVARI	BASAR TO KHAMMAM	4.0-9.0	IV
	KINNERSANI	ALONG PALWANCHA	10.0	IV
	KRISHNA	THANGADIGI TO WADAPALLY	5.0-6.0	V
TRIPURA	BURIGAON	ALONG BISHALGARH	3.9	V
	GUMTI	TELKAJILA TO AMARPUR	3.9	V
	HAORA	AGARTALA TO BISHRAMGANJ	3.2-4.0	V
	JURI	ALONG	4.9	V

		DHARMANAGAR		
	KHOWAI	ALONG TELIAMURA	3.3	V
	MANU	ALONG KAILASHAHAR	3.5-3.6	V
UTTAR PRADESH	GOMTI	SITAPUR TO VARANASI	3.1-18.0	III
	GANGA	KANNAUJ TO VARANASI	3.5-8.8	IV
	RAMGANGA	MURADABAD TO KANNAUJ	6.6	IV
	BETWA	HAMIRPUR TO WAGPURA	3.5-4.2	V
	GHAGHARA	BARHALGANJ TO DEORIA	4.0-4.5	V
	RAPTI	DOMINGARH TO RAJGHAT	4.7-5.9	V
	SAI	UNNAO TO JAUNPUR	4.0-4.5	V
	SARYU	AYODHYA TO ELAFATGANJ	4.3	V
	UTTARAKHAND	KALYANI	D/S PANT NAGAR	16.0
GANGA		HARIDWAR TO SULTANPUR	6.6	IV
KOSI		SULTANPUR TO PATTIKALAN	6.4	IV
NANDOUR		ALONG SITARGANJ	5.6-8.0	IV
PILKHAR		IN THE VICINITY OF RUDRAPUR	10.0	IV
WEST BENGAL	CHURNI	SANTIPUR TOWN TO MAJHADIA	10.3-11.3	III
	DWARKA	TARAPITH TO SADHAK BAMDEB GHAT	5.6-17.0	III
	GANGA	TRIBENI TO DIAMOND HARBOUR	5.0-12.2	III
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	MATHABHANGA	MADHUPUR TO GOBINDAPUR	8.5	IV
	BARAKAR	KULTI TO ASANSOL	5.7	V
	DWARAKESHWAR	ALONG BANKURA	1-5.6	V
	KALJANI	BITALA TO ALIPURDWAR	6.0	V
	KAROLA	JALPAIGURI TO THAKURER KAMAT	3.9	V
	MAYURKASHI	SURI TO DURGAPUR	5.2	V
	RUPNARAYAN	KOLAGHAT TO BENAPUR	3.1-5.8	V
	SILABATI	GHATAL TO NISCHINDIPUR	3.8	V
TEESTA	SILIGURI TO PAHARPUR	3.3	V	

48. In view of above, it is absolutely necessary that Action Plans are prepared to restore the polluted river stretches to the prescribed standards. The Action Plans may cover the following:

A) Source control

Source control includes industrial pollution control and treatment and disposal of domestic sewage as detailed below:-

(a) Industrial pollution control

- (i) Inventorisation of industries
- (ii) Categories of industry and effluent quality

- (iii) Treatment of effluents, compliance with standards and mode of disposal of effluents
- (iv) Regulatory regime.

(b) Channelization, treatment, utilization and disposal of treated domestic sewage.

- (i) Identification of towns in the catchment of river and estimation of quantity of sewage generated and existing sewage treatment capacities to arrive at the gap between the sewage generation and treatment capacities;
- (ii) Storm water drains now carrying sewage and sullage joining river and interception and diversion of sewage to STPs,
- (iii) Treatment and disposal of septage and controlling open defecation,
- (iv) Identification of towns for installing sewerage system and sewage treatment plants.

(B) River catchment/Basin Management-Controlled ground water extraction and periodic quality assessment

- (i) Periodic assessment of groundwater resources and regulation of ground water extraction by industries particularly in over exploited and critical zones/blocks.
- (ii) Ground water re-charging /rain water harvesting
- (iii) Periodic ground water quality assessment and remedial actions in case of contaminated groundwater tube wells/bore wells or hand pumps.
- (iv) Assessment of the need for regulating use of ground water for irrigation purposes.

(C) Flood Plain Zone.

- (i) Regulating activities in flood plain zone.
- (ii) Management of Municipal, Plastic, Hazardous, Bio-medical and Electrical and Electronic wastes.
- (iii) Greenery development- Plantation plan.

(D) Ecological/Environmental Flow (E-Flow)

- (a) Issues relating to E-Flow
- (b) Irrigation practices

(E) Such other issues which may be found relevant for restoring water quality to the prescribed standards.

49. Model Action Plan for Hindon River, already prepared by the CPCB, may also be taken into account.

50. In view of above, we consider it necessary to issue the following directions:

- i) 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 finalisation of the action plans.
- ii) 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.
- iii) The action plan will include components like identification of polluting sources including functioning/ status of STPs/ETPs/CETP and solid waste management and processing facilities, quantification and characterisation of solid waste, trade and sewage generated in the catchment area of polluted river stretch. The action plan will address issues relating to; ground water extraction, adopting good irrigation practices, protection and management of Flood Plain Zones (FPZ), rain water harvesting, ground water charging, maintaining minimum environmental flow of river and plantation on both sides of the river. Setting up of biodiversity parks on flood plains by removing encroachment shall also be considered as an important component for river rejuvenation. The action plan should focus on proper interception and diversion of sewage carrying drains to the Sewage Treatment Plant (STP) and emphasis should be on utilization of treated sewage so as to minimize extraction of ground or surface water. The action plan should have speedy, definite or specific timelines for execution of steps. Provision may be made to pool the resources, utilizing funds from State budgets, local bodies, State Pollution Control Board/ Committee and out of Central Schemes.

- iv) The Action Plans may be subjected to a random scrutiny by a task team of the CPCB.
- v) The Chief Secretaries of the State and Administrators/ Advisors to Administrators of the Union Territories will be personally accountable for failure to formulate action plan, as directed.
- vi) All States and Union Territories are required to send a copy of Action Plan to CPCB especially w.r.t Priority I & Priority II stretches for approval.
- vii) The States and the Union Territories concern are directed to set up Special Environment Surveillance Task Force, comprising nominees of District Magistrate, Superintendent of Police, Regional Officer of State Pollution Control Board and one person to be nominated by District Judge in his capacity as Chairman of Legal Services Authority on the pattern of direction of this Tribunal dated 07.08.2018, in *Original Application No. 138/2016 (TNHRC), "Stench Grips Mansa's Sacred Ghaggar River (Suo-Motu Case)*.
- viii) The Task Force will also ensure that no illegal mining takes place in river beds of such polluted stretches.
- ix) The RRC will have a website inviting public participation from educational institutions, religious institutions and commercial establishments. Achievement and failure may also be published on such website. The Committee may consider suitably rewarding those contributing significantly to the success of the project.
- x) The RRCs will have the authority to recover the cost of rejuvenation in Polluter Pays Principle from those who may be responsible for the pollution, to the extent found necessary. In this regard, principle laid down by this Tribunal in order dated 13.07.2017 in *O.A No. 200 of 2014, M.C Mehta Vs. U.O.I* will apply. Voluntary donations, CSR contribution, voluntary services and private participation may be considered in consultation with the RRC.

51. We understand that the State Pollution Control Boards or other authorities are having funds deposited under the order of the Tribunal besides funds available

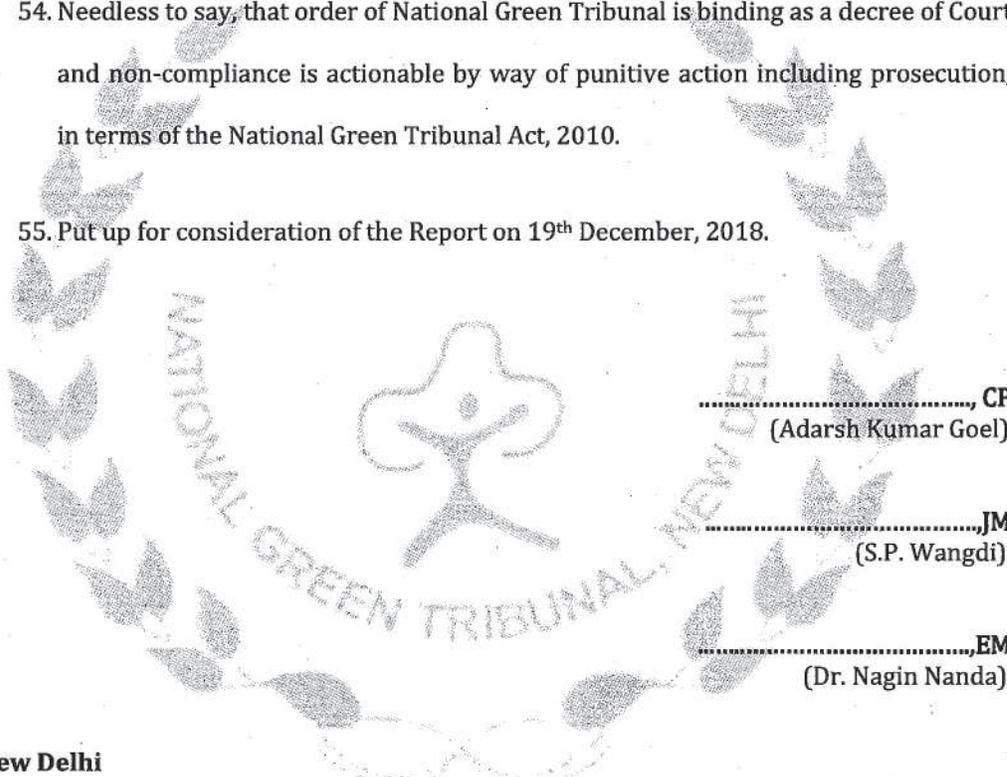
under Consent Mechanism. The said funds may be utilized for the purpose of expenditure for the Committees, including preparation and execution of action plans in accordance with the provisions contained in the Water Act, 1974.

52. A copy of this be sent by e-mail to all the concerned i.e. the Ministry of Water Resources, Ministry of Environment, Forest & Climate Change, Ministry of Housing and Urban Affairs, the Niti Ayog, National Mission for Clean Ganga, Central Pollution Control Board, Chief Secretaries of all the States and Union Territories for compliance.

53. The RRCs will send progress reports by e-mail at filing.ngt@gmail.com on or before 15.12.2018.

54. Needless to say, that order of National Green Tribunal is binding as a decree of Court and non-compliance is actionable by way of punitive action including prosecution, in terms of the National Green Tribunal Act, 2010.

55. Put up for consideration of the Report on 19th December, 2018.



....., CP
(Adarsh Kumar Goel)

....., JM
(S.P. Wangdi)

....., EM
(Dr. Nagin Nanda)

New Delhi
September 20, 2018

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ANNEXURE - R-2

**Government of Himachal Pradesh
Department of Environment, Science & Technology**

No. STE-E(3)-29/2018

Date: Shimla-2, 17.11.2018

NOTIFICATION

In compliance to the orders passed by the Hon'ble National Green Tribunal, Principal Bench at Delhi on 20-9-2018 in Original Application No. 673 of 2018 in the matter of News Item Published in 'The Hindu' authored by Shri. Jacob Koshy titled "More river stretches are now critically polluted: CPCB", the Governor, Himachal Pradesh is pleased to constitute the River Rejuvenation Committee and Special Environment Surveillance Task Force for 7 river stretches of Himachal Pradesh as under :-

River Rejuvenation Committee (RRC)

1. Director, Urban Development., HP Shimla (Nodal Officer)
2. Director, Deptt. of Industries., HP Shimla
3. Member Secretary, HP State Pollution Control Board, H.P.
4. Director, Deptt. of Environment, Science & Technology, H.P.

Special Environment Surveillance Task Force

1. The Concerned District Magistrate
2. Nominee of the Chairman of concerned District Legal Services Authority
3. The concerned Superintendent of Police,
4. The Regional Officer of HP State Pollution Control Board of concerned District.

The Terms of reference of the River Rejuvenation Committee

1. The 'River Rejuvenation Committee' shall 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 finalisation of the action plans of the 7 river stretches as tabulated below:-

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Sr. No.	River Name	River Stretch
1.	Sukhana	Sukhna To Parwanoo
2.	Markand	Kala Amb To Narayanpur
3.	Sirsa	Nalagarh To Solan
4.	Ashvani	Along Yashwant Nagar
5.	Beas	Kullu To Dehragopipur
6.	Giri	Along Sainj
7.	Pabbar	Along Rohru

2. The action plan will include components like identification of polluting sources including functioning/ status of STPs/ETPs/CETP and solid waste management and processing facilities, quantification and characterisation of solid waste, trade and sewage generated in the catchment area of polluted river stretch. The action plan will address issues relating to ground water extraction, adopting good irrigation practices, protection and management of Flood Plain Zones (FPZ), rain water harvesting, ground water charging, maintaining minimum environmental flow of river and plantation on both sides of the river. Setting up of biodiversity parks on flood plains by removing encroachment shall also be considered as an important component for river rejuvenation. The action plan should focus on proper interception and diversion of sewage carrying drains to the Sewage Treatment Plant (STP) and emphasis should be on utilization of treated sewage so as to minimize extraction of ground or surface water. The action plan should have speedy, definite or specific timelines for execution of steps. Provision shall be made to pool the resources, utilizing funds from State budgets, local bodies, State Pollution Control Board/ Committee and out of Central Schemes. The Action Plan will include components like identification of source and its apportionment considering sectors like vehicular pollution, industrial pollution, dust pollution, construction activities, garbage burning, agricultural pollution including pollution caused by burning of crop residue, residential and indoor pollution etc.
3. The Action Plans shall be subjected to a random scrutiny by a task team of the CPCB.
4. The RRC will have a website inviting public participation from educational institutions, religious institutions and commercial establishments. Achievement and failure shall also be published on such website. The Committee shall consider suitably rewarding those contributing significantly to the success of the project.

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5. The RRCs will have the authority to recover the cost of rejuvenation in Polluter Pays Principle from those who shall be responsible for the pollution, to the extent found necessary. In this regard, principle laid down by this Tribunal in order dated 13.07.2017 in O.A No. 200 of 2014, M.C Mehta Vs. U.O.I will apply. Voluntary donations, CSR contribution, voluntary services and private participation may be considered in consultation with the RRC.
6. The RRCs will send progress reports by e-mail at filing.ngt@gmail.com on or before 15.12.2018.

The Terms of reference of the Special Environment Surveillance Task Force

The Task Force will ensure that no illegal mining takes place in river beds of such polluted stretches.

By order

(R.D. Dhiman)

Addl. Chief Secretary (Env. Sci., & Tech.) to the
Government of Himachal Pradesh

Endsts. No. STE-E(3)-29/2018

Dated: Shimla-2 17.11.2018.

Copy forwarded to the following for information & necessary action:-

1. The Director, Urban Development., HP Shimla (Nodal)
2. The Director, Environment, Science & Technology HP Shimla
3. The Director, Deptt. of Industries., HP Shimla
4. The Member Secretary, HP State Pollution Control Board, Shimla.
5. The Concerned District Magistrate
6. Nominee, of the Chairman of concerned District Legal Services Authority
7. The concerned Superintendent of Police, HP.
8. The Member Secretary, Central Pollution Control Board Parivesh Bhawan, East Arjun Nagar, Delhi-110032.

O/C

17/11/18
Joint Secretary (Env. Sci., & Tech.) to the
Government of Himachal Pradesh.

Government of Himachal Pradesh
Department of Environment, Science & Technology

No. STE-E(3)-24/2018

Dated: Shimla-2, 04.12.2018

NOTIFICATION

In compliance to the orders passed by Hon'ble National Green Tribunal, Principal Bench at Delhi on 20-09-2018 in Original Application No. 673 of 2018 in the matter of News Item published in 'The Hindu' authored by Shri Jacob Koshy titled "More river stretches are now critically polluted: CPCB" and in continuation of this Department Notification of even number dated 17.11.2018, the Governor, Himachal Pradesh is pleased to constitute Special Environment Surveillance Task Force in each district namely Shimla, Solan, Kullu, Mandi, Hamirpur, Kangra and Sirmour on similar pattern of Govt. of HP Notification No. STE-E(3)-22/2018 dated 07.09.2018 issued on direction of the Hon'ble NGT dated 07.08.2018 in OA No. 138/2016 "Stench Grips Mansa's Sacred Ghaggar River" as per details below.

Composition of the District Level Special Environment Surveillance Task Force :

1. River- Sukhna, District-Solan (River Stretch: Sukhna to Parwanoo), River- Sirsa, District – Solan (River Stretch: Nalagarh to Solan)

Sr. No.	Composition of the Task force	
1.	Deputy Commissioner/District Magistrate, Solan	Chairman
2.	Representative of concerned District and Session Judge	Member
3.	Representative (concerned district) Forest Department	Member
4.	Representative (concerned district) Rural Development	Member
5.	Representative (concerned district) Urban Development	Member
6.	Representative (concerned district) Deptt. Industry	Member
7.	Executive Officer/ Representative Municipal Council, Baddi, Nalagarh, Pawanoo	Member
8.	Representative (concerned district) I&PH	Member
9.	Regional Officer, HP State Pollution Control Board, Baddi and Parwanoo	Member Secretary

4-12-18

2. River- Markanda, District – Sirmour (River Stretch: Kala Amb to Narayanpur)

Sr. No.	Composition of the Task force	
1.	Deputy Commissioner/District Magistrate, Sirmour	Chairman
2.	Representative of concerned District and Session Judge	Member
3.	Representative (concerned district) Forest Department	Member
4.	Representative (concerned district) Rural Development	Member
5.	Representative (concerned district) Urban Development	Member
6.	Representative (concerned district) Deptt. Industry	Member
7.	Executive Officer / Representative of Municipal Council/SADA	Member
8.	Representative (concerned district) I&PH	Member
9.	Regional Officer, HP State Pollution Control Board, Paonta Sahib	Member Secretary

3. River-Ashwani, District –Shimla (River Stretch: Along Yashwant Nagar), River-Giri, District –Shimla (River Stretch: Along Sainj), River-Pabbar, District – Shimla (River Stretch: Along Rohru)

Sr. No.	Composition of the Task force	
1.	Deputy Commissioner/District Magistrate, Shimla	Chairman
2.	Representative of concerned District and Session Judge	Member
3.	Representative (concerned district) Forest Department	Member
4.	Representative (concerned district) Rural Development	Member
5.	Representative (concerned district) Urban Development	Member
6.	Representative (concerned district) Deptt. Industry	Member
7.	Commissioner/ representative of Municipal Corporation	Member
8.	Representative (concerned district) I&PH	Member
9.	Regional Officer, HP State Pollution Control Board, Shimla	Member Secretary

4. River-Beas, Districts –Kullu, Mandi, Hamirpur, Una & Kangra (River Stretch: Kullu to Dehragopipur)

a) For Beas river stretch in Kullu District.

Sr. No.	Composition of the Task force	
1.	Deputy Commissioner/District Magistrate, Kullu	Chairman
2.	Representative of concerned District and Session Judge	Member
3.	Representative (concerned district) Forest Department	Member
4.	Representative (concerned district) Rural Development	Member
5.	Representative (concerned district) Urban Development	Member
6.	Representative (concerned district) Deptt. Industry	Member
7.	Executive Officer / Representative of Municipal Council, Kullu	Member
8.	Representative (concerned district) I&PH	Member
9.	Regional Officer, HP State Pollution Control Board, Kullu,	Member Secretary

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b) For Beas river stretch in Mandi District.

Sr. No.	Composition of the Task force	
1.	Deputy Commissioner/District Magistrate, Mandi	Chairman
2.	Representative of concerned District and Session Judge	Member
3.	Representative (concerned district) Forest Department	Member
4.	Representative (concerned district) Rural Development	Member
5.	Representative (concerned district) Urban Development	Member
6.	Representative (concerned district) Deptt. Industry	Member
7.	Executive Officer / Representative of Municipal Council, Mandi	Member
8.	Representative (concerned district) I&PH	Member
9.	Regional Officer, HP State Pollution Control Board, Mandi	Member Secretary

c) For Beas river stretch in Hamirpur District

Sr. No.	Composition of the Task force	
1.	Deputy Commissioner/District Magistrate, Hamirpur	Chairman
2.	Representative of concerned District and Session Judge	Member
3.	Representative (concerned district) Forest Department	Member
4.	Representative (concerned district) Rural Development	Member
5.	Representative (concerned district) Urban Development	Member
6.	Representative (concerned district) Deptt. Industry	Member
7.	Executive Officer / representative of Municipal Council	Member
8.	Engineer-in-Chief/ representative (concerned district) IPH	Member
9.	Regional Officer, HP State Pollution Control Board, Hamirpur.	Member Secretary

d) For Beas river stretch in Una District

Sr. No.	Composition of the Task force	
1.	Deputy Commissioner/District Magistrate, Una	Chairman
2.	Representative of concerned District and Session Judge	Member
3.	Pr. CCF/ Representative (concerned district) Forest Department	Member
4.	Director/ Representative (concerned district) Rural Development	Member
5.	Director/ Representative (concerned district) Urban Development	Member
6.	Director/ Representative (concerned district) Deptt. Industry	Member
7.	Executive Officer / Representative of Municipal Council	Member
8.	Representative (concerned district) I&PH	Member
9.	Regional Officer, HP State Pollution Control Board, Una.	Member Secretary

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e) For Beas river stretch in Kangra District

Sr. No.	Composition of the Task force	
1.	Deputy Commissioner/District Magistrate, Kangra	Chairman
2.	Representative of concerned District and Session Judge	Member
3.	Representative (concerned district) Forest Department	Member
4.	Representative (concerned district) Rural Development	Member
5.	Representative (concerned district) Urban Development	Member
6.	Representative (concerned district) Deptt. Industry	Member
7.	Commissioner/ Representative of Municipal Corporation	Member
8.	Representative (concerned district) I&PH	Member
9.	Regional Officer, HP State Pollution Control Board , Dharamshala	Member Secretary

The terms of reference of the Special Environment Surveillance Task Forces, in addition to those defined earlier in the aforesaid notification dated 17.11.2018 shall be as under:

The Task Force shall identify the polluting sources and the persons responsible for discharging of industrial and municipal effluents causing water pollution in the identified river stretches and their tributaries in their respective districts and will submit a monthly Action Taken Report to the River Rejuvenation Committee. They will also suggest various measures/ actions for preparing an Action Plan by the RRC in terms of the direction of the Hon'ble NGT in order to restore the polluted river stretches to the prescribed standards.

(R.D. Dhiman)
Addl. Chief Secretary (Env. Sci., & Tech.) to the
Government of Himachal Pradesh

Endsts. No. STE-E(3)-24/2018

Dated: Shimla-2 04.12.2018.

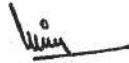
Copy forwarded to the following for information & necessary action:-

1. All Addl. Chief Secretary/Pr. Secy./Secretary (Forest, Rural Development, Urban Development, Industries) to the Govt. of HP Shimla-171002.
2. The Deputy Commissioner, district Shimla, Solan, Sirmour, Kullu, Mandi, Una, Hamirpur & Kangra
3. The Pr. Chief Conservator of Forest, H.P Shimla-171001.
4. The Director, Rural Development, HP Shimla.
5. The Director, Urban Development, HP Shimla.
6. The Director, Deptt. of Industries, HP Shimla
7. The Director, Environment, Science & Technology, HP Shimla.

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8. The Engineer-in-Chief, IPH, Shimla-171001.
9. The Member Secretary, H.P Pollution Control Board, Shimla-171009.
10. The Commissioner, Municipal Corporation, Shimla & Dharāmshala, H.P.
9. The Member Secretary, HP State Legal Services Authority, Shimla-171009.
11. The Executive Officer concerned Municipal Council, Solan, Sirmour, Kullu Mandi, Hamirpur and Una, H.P.
12. The Member Secretary, CPCB, New Delhi-110032.
13. The Regional Director, CPCB, Zonal Office (North) Lucknow.
14. Copy to nominee of the Member of concerned Committee.
15. Guard file.



(Satpal Dhiman)

4-12-2018

Joint Secretary (Env. Sci., & Tech.) to the
Government of Himachal Pradesh.

**Original Application. No. 673/2018 dated 20th September, 2018 19th
December, 2018 and 08th 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 River Ashwani: A
Revised Action Plan**

for Rejuvenation of River Ashwani, District- Shimla & Solan, HP

*(Submitted in compliance to the Hon’ble National Green Tribunal (NGT) order
dated 20th September, 2018 and 19th December and 8th April 2018)*



HP State Pollution Control Board

Him Parivesh, Phase – III, New Shimla - 171009

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Comprehensive Report on Prevention and Control of Pollution in Ashwani Khad: An Action Plan for Rejuvenation of Ashwani Khad at Shimla, District- Shimla, HP

- 1.0 BACKGROUND:-** Hon'ble National Green Tribunal passed the following orders in OA No. 673/2018 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 Ashwani Khad

- a) Ashwani Khad in District Shimla:-** The Ashwani Khad in Shimla is formed by Churat Nallah and Jagroti Nallah. The catchment area in District Shimla mainly comprising of Shimla town, Dhalli, Bhatta Kuffer, Shanan, Malyana, Vikasnagar, Kasumpti, Bishop Cotton School, Fagli, Tutikandi, Taradevi, Chhachhroo, Ganoti, Mehli Shakrala, Beolia, Kawalag, Pujarli, Boh Malothi, Tipra Gadogm, Chamiana, Shurala, Gussan and near by areas. Various drains/ rivulets and nallahs emerging from the Shimla town also meets the Ashwani Khad. The Ashwani Khad after travelling a distance of 16 Km enters District Solan at Sadhupul. There is no industrial area in the entire stretch of Ashwani Khad in District Shimla. However, there are hotels, educational institutes (having boarding facility), service stations, slaughter house and fruit and pickle manufacturing unit.
- b) Ashwani Khad in District Solan:-** Ashwani Khad enters District Solan upstream of Village Sadhupul. The catchment area in District Solan mainly comprises of villages i.e. Kohari, Ded, Galai, Mathia, Shanbar, Andi, Sunnu Tikri, Bayela, Jalkhara, Dawarli and exits District Solan at Village Gaura near Yashwantnagar. The total stretch of Ashwani Khad in District Solan is approx. 22 Km. The Ashwani Khad meets River Giri at Village Gaura in Yashwantnagar. There is no industrial area in the entire stretch of Ashwani Khad in Solan District from Sadhupul till it meets River Giri at Yashwant Nagar. Yashwant Nagar falls in Sirmour district of Himachal Pradesh.

2.1. Drains in the catchment of River Ashwani

The main sources of pollution in the catchment area of Ashwani khad :

- Shimla town and surrounding semi urban areas and rural areas.
- Untapped domestic sewage from the household/commercial activity which are not connected with the sewerage line provided by MC Shimla.
- The STP's installed by the MC Shimla are not meeting the prescribed standards. The treated sewage is ultimately discharged through nallahs into the Ashwani Khad.

The total population of the catchment area of Ashwani Khad which includes the area of Municipal Corporation Shimla is 1,20,923 and near by rural population is 18,799. In addition to this floating population of 70,000 is also contributing to the pollution load. There are three number of STP's located in the catchment area of Ashwani Khad i.e STP Dhalli, STP Malyana and STP Lalpani having total capacity of 25,540KLD. It is pertinent to mention here that due to topographical constraints there are some left out areas, which are not connected with common STPs. The houses which are not connected with common STPs have provided individual septic tanks/soak pits for treatment of domestic sewage.

Table: Sources of Pollution in the catchment of Ashwani Khad falling in District Shimla

Sr. No.	Sources of Pollution of Ashwani Khad and its tributary	Sub Catchment area of Ashwani Khad	Jurisdiction of Centralized treatment schemes existing and proposed at
1	Industrial (Hotel industry) and Domestic Habitation	<ul style="list-style-type: none"> ➤ Upper spur on the hill near Dhalli, Dhalli Bazar and surroundings ➤ Mundaghat ➤ Janedghat ➤ Jagroti Nallah and Churat <p>Nallah</p>	Common Sewage Treatment Plant at Dhalli and individual septic tank and STP
2	Industrial (Hotel industry) and Domestic Habitation	<ul style="list-style-type: none"> ➤ Engine Ghar ➤ Sanjauli Bazar ➤ Part of Nav Bahar ➤ Bhatta Kuffer ➤ Dhingu Devi Temple ➤ Cemetry ➤ Housing Board Colony 	Common Sewage Treatment Plant at Malyana and individual septic tank and individual ETP
3	Industrial and Domestic Habitation Drain carrying the waste water/ run off from Shimla Town	<ul style="list-style-type: none"> ➤ Ridge ➤ The Mall ➤ Lower Bazar ➤ Middle Bazar ➤ Ram Bazar ➤ Bus Stand ➤ Winter-field ➤ Jakhoo ➤ US Club 	Common Sewage Treatment Plant at Lalpani and individual septic tank and individual ETP and Proposed STP at Panthaghati

		<ul style="list-style-type: none">➤ Bemloe➤ Western Commend➤ Panthaghat➤ Nabla➤ Phagli➤ Ram Nagar➤ Chaura Maidan➤ Ghoda Chowky➤ Tutikandi➤ Boileauganj➤ Lalpani➤ Krishna Nagar➤ Indian Institute of Advanced study	
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Drainage map of Ashwani Catchment in Shimla & Solan

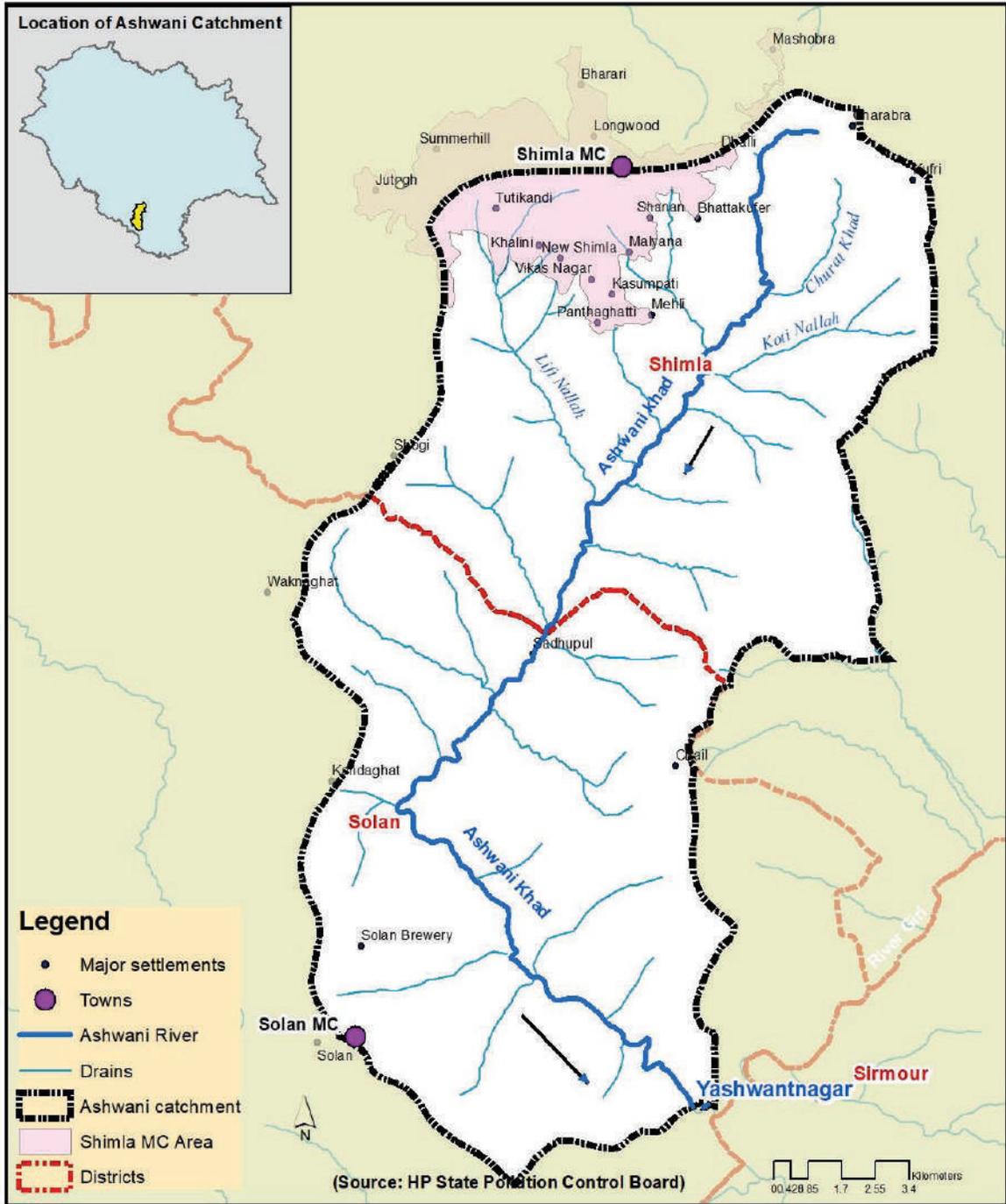


Figure: Digital Map showing drainage map of the catchment area of Ashwani Khad

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

It is an important aspect for revival of Ashwani Khad in context of its utility as it is of perennial nature. The ultimate goal for beneficial use of khad will determine the level of actions to be taken for maintaining the water quality. Under the present circumstances, it appears that AshwaniKhad 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 sewage generated from Hotels and other commercial activities contribute to the pollution load in Ashwani Khad should be treated to meet the effluent discharge standards stipulated under Schedule-VI of the Environment (Protection) Rules, 1986 which is given as *Annexure-I*. As per the court orders vide OA No. 673 of 2018, Ashwani Khad falls under Priority –V of designated criteria depending upon the level of Bio-chemical Oxygen Demand.

Sr. No.	River Name	River stretch	Priority	Criteria defined by CPCB (mg/l)	BOD range/ max value (mg/l)
1	Ashwani	Along Yawshwant Nagar Distict Shimla/Sirmour	V	03-06	3.2

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 Ashwani Khad is given in the following **Table –1**. As per Hon'ble NGT Directions, following quality to be achieved within 02 Years w.e.f 01st April, 2019.

Table :-Primary Water Quality Criteria for Bathing Water (Annexure-II)

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

4.0. Aspects in compliance of Hon'ble NGT Order 20th September 2018, 19th December 2018 and 08th April, 2019

4.1. Rain Water Harvesting/ Ground Water Recharge aspects

In Shimla region, there are 2 no's small rain water harvesting structures have already been constructed by IPH Department on the tributaries of River Ashwani. These 2 nos. rain water harvesting structures on the following location - i) At Jharech Nallah in GP Beolia ii) At Ashwani Khad near shooting range in GP Beolia. More rain water harvesting structures in the catchment area of river Ashwini has been proposed on following location :- i) At upstream of Ashwani Khad at a distance of about 50 meter upside of pump house of LWSS Chewara Pandli in GP Junga for Rs. 75.00 Lakh.

For Solan region of Ashwani khad, Rain water harvesting structures has been constructed at feasible sites in the catchment of Ashwani under AIBP schemes. There are 13 Nos rain water harvesting structure/water bodies constructed along the catchment of Ashwani River as under:-

1. Water body Kanewla in GP Jhaja.
2. Water body Powash in GP Jhaja.
3. Water body Chhaura in GP Jhaja.
4. Water body karon in GP Jhaja.
5. Water body banjani in GP Banjani.
6. Water body Bg(shallai) in GP Banjani.
7. Water body Chhari in GP Jhaja.
8. Water body Kurgal in GP Hinner.
9. Water body Dochi in GP Hinner.
10. Water body Ser Banera in GP Ser Banera.
11. Water body Suro in GP Bisha.
12. Water body Shungal in GP Bish.
13. Water body Bisha in GP Bisha.

The proposal for rainwater Harvesting/Dam structure in Ashwani Khad has already been explored by different departments including I&PH Department at Sadhupul, but due to geological conditions the site was found not feasible as per the Investigating Report submitted by State Geological Department. However, downstream of Ashwani Khad near LWSS to Solan town from Ashwani Khad intake point, RWH/Dam structure can be constructed. Being a specialized job, consultancy service is require to be hired for investigating and design & preparation of DPR for which a tentaive amount of Rs. 20 lakhs is required. The timeline after receipt of funds is as under:-

Activity	Consultancy, preparation of DPR & finalization of DNIT and calling of tenders.	Calling & finalization of tenders	Geological investigation, survey work & preparation of DPR including design.
Time	1 Month	1 ½ Month	6 Months

4.1.1 Ground Water Management:

Due to topographic conditions there is not continuous water table in this area and only perched aquifers are encountered. The area has not been notified under HP Ground Water Management and Regulations Act-2005 accordingly. It is pertinent to mention here that check of water quality of River Ashwani is being done by the department frequently and samples of the Ashwani Khud are being sent to National Institute of Virology (NIV) Pune for bacteriological tests with an interval of 15days. So far all the samples have been found negative for Hep-A & Hep-E.

4.2. Maintaining E-Flows

Ashwani River is a perennial river but the discharge of this river is very low during summer season. However the e-flow is being maintained. Maintaining E-flow in River and rivulets is an activity covered under Watershed Management Program. However, while formulating a scheme be it Water Supply Scheme or Irrigation department taps only 75% of available lean period discharge as dependable discharge work automatically takes care of maintaining e-flow at point of extraction. However as per Action plan for modification in existing sewage treatment plants, of Shimla region at Dhalli, Malayana and Lalpani the treated water will be discharged. E-flow will be assessed accordingly.

4.3. Water Shed Management:

There is no proposal of forest department.

4.4. Use of Treated Sewage:

Shimla Jal Prabandhan limited has proposed modification i.e provision of equalization and tertiary treatment to bring the treated water quality up to <10 mg/l Bod, so, however there is no proposal for utilization of treated sewage as there is no sufficient land for irrigation, and also techno-economic non-viability because of pumping sewage to higher elevation, Non-acceptability of public at large.

4.5. Good Irrigation Practice:

At present there exist 1 No tube well based water supply scheme of IPH Department on the River Ashwani and no irrigation schemes is existing from this river.

Good Irrigation Practices is being adopted by the IPH department. In place of open channel system for conveyance of irrigation water. Closed conduits system are being introduced resulting in reduction of water losses. Micro irrigation system is also being introduced in the new system. In this system per hectare water requirement reduces and more area can be covered with available water. Command area development scheme is being introduced which increases water use efficiency and ensure water availability at the tail end. Water use Association has been constituted for effective management of irrigation schemes. There are six nos. irrigation schemes in the catchment area of River Ashwani which irrigate 225.73 hectare. Command Area Development work is being executed for one scheme at an estimated cost of Rs. 25.18 lakh, to introduce good irrigation practices.

4.6. Development of Bio-diversity parks:

There is no proposal of Water Shed Management of Forest department on the catchment of Ashwani khad.

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 **Rs. 260.40 Crore**. The Chief Secretary has reviewed the proposal during meeting on 08th 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 River Ashwani will be done from local bodies or Urban Development Department. The details are elaborated in point no. 07.

6.0. Executive Summery

The Action Plan mainly comprising of Sewage Treatment's Plant and proposal of new STP, Solid Waste Management, Plantation Proposal. 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.

07. Proposed action plans (Short, Medium and Long term plans) with time lines including the organization/agency responsible for its implementation for Rejuvenation of Ashwani have been given below:

Sr No.	Action Plan for Rejuvenation of Ashwani	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
I	Industrial Effluent Management				
(a)	Inventorization of the water polluting Industries and Hotels in the catchment of Ashwani covering assessment on aspects relating to status of Consents under Water & Air Acts and Authorization, Effluent and Sewage Generation, ETP and STP Capacities and final mode of effluent/ sewage discharge.	HPSPCB	28 th February, 2019.	Department Own Budget	-
(b)	Action against the identified Industries and Hotels in operation without Consent under Water & Air Act/ Authorization under Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016.	HPSPCB	28 th February, 2019.	Department Own Budget	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 shall be taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Action against the Hotels and industries who have not installed ETPs and STPs but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	28 th February, 2019.	Department Own Budget	-
(d)	Prohibition of littering of any kind of Solid Waste, Plastic Waste, e-waste & Bio-Medical, Hazardous waste including agro residue along the stretch of drains conversing to	MC Shimla, MC Solan, Rural Developme	31 st July, 2019	Department Own Budget	-

	Ashwani by providing grids along the stretch .	nt Shimla			
(e)	Estimation of industrial effluent generation and commissioning of new Effluent Treatment Plant and Sewage Treatment Plant at Industries/Hotels premise including Himachal Road Transport Corporation workshops along the stretch of Ashwani.	HPSPCB, Himachal Road Transport Corporation	30 th April, 2019 and regular process 3 rd August, 2019	Department Own Budget	-
(f)	Proposal for Solid Waste Management for disposal of solid waste generated along Ashwani from rural areas for decentralized composter, shredding of plastic waste and its disposal at Waste to Energy Plant at Bhariyal (MC Shimla Plant).	Rural Development Shimla, MC Shimla	-	Department Own Budget	-
II	Domestic Sewage Management				
(a)	Area wise estimation of total population, water requirement and sewage generation.	IPH, Rural Development Department, MC Shimla	28 th February, 2019	Department Own Budget	-
(b)	Connectivity of left out areas through conveyance pipeline to existing common sewage treatment plants operational along the stretch of Ashwani located at Lalpani, Dhalli, Malyana.	MC Shimla	31 st March, 2022	Department Own Budget	-
(c)	Septage management for drains contributing to Ashwani catchment. (Honey Sucker)	MC Shimla	31 st August, 2020	Department Own Budget	-
(d)	Installation of continuous Real Time Water Quality Monitoring Stations at discharge points of STPs at Lalpani, Malyana and Dhalli.	MC Shimla	31 st July, 2019	Department Own Budget	-
(e)	Modification/upgradation in existing common Sewage Treatment Plants at Dhalli, Malyana and Lalpani, in order to improve the	MC Shimla	31 st March, 2021	Department Own Budget	-

	discharge effluent quality and setting up of new common Sewage Treatment Facility at Panthaghathi (02 MLD) to cover rural and urban area in the catchment of Ashwani.				
(f)	Proposal for improving the water quality of Ashwani by improving the quality of water in natural nallah's contributing to Ashwani by setting up of Phytoid treatment.	MC Shilmla	31 st March, 2021	Department Own Budget	-
(g)	Sewage management of rural areas falling under catchment of Ashwani, outside the jurisdiction of Municipal Corporation by providing community toilets and upgradation of septic tanks.	Rural Development Shimla, IPH	31 st July, 2019	Department Own Budget	-
(h)	Shimla : Proposal for connecting left out households by upgrading septic tanks in panchayats, providing community toilets and provision to treat the sewage in existing STPs at Lalpani, Dhalli and Malyana.	Rural Development Shimla, MC Shimla	31 st March, 2022	Department Own Budget	-
III	Ground Water Management				
(a)	Sampling of Tube wells, Bore wells, Hand Pumps in Shimla urban and rural areas under Ashwani catchment.	I & PH, HPSPCB	Already completed and regular process	Department Own Budget	-
(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Shimla urban and rural areas	I & PH	Already completed and regular process regular process	Department Own Budget	-
(c)	Sealing of contaminated handpumps and found to be unfit for drinking purpose by the public.	I & PH, HP GWA	30 th April, 2019	Department Own Budget	-

(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	I & PH, HP GWA	31 st July, 2019	Department Own Budget	-
(e)	To conduct periodic surprise inspection of the industries/hotels to rule out any forceful injection of industrial and sewage effluents onto surface water sources.	I & PH, HPSPCB	15 th February, 2019 & regular process	Department Own Budget	-
IV	Miscellaneous				
(a)	Regular monitoring and sampling of water quality of Ashwani and various drains on monthly basis.	HPSPCB	Every 1 Month.	Department Own Budget	-
(b)	Impact of water pollution on health of public by organizing Health Camp.	State Health Department	Every 3 Month	Department Own Budget	-
(c)	Plantation in Flood Plain Zone, complete removal of encroachments in forest land in the catchment of Ashwani also providing check dams.	Forest Department	31 st March, 2020 and regular process	Department Own Budget	-
(e)	Conducting feasibility study for setting up of bio-diversity parks.	Forest Department	30 th April, 2019	Department Own Budget	-
(f)	Regular checking of muck dumping in catchment of Ashwani.	Forest Department	15 days and continuous process.	Department Own Budget	-
(g)	Prohibition of disposal of Municipal Plastic and Bio-medical Waste particularly in drains by providing grids at outer boundary of drains.	MC Shimla HPSPCB	31 st July, 2019	Department Own Budget	-
(h)	Notification of flood plain zone by identifying flood prone areas in the catchment of Ashwani.	IPH Department Forest Department	31 st July, 2019	Department Own Budget	-
(I)	Setting up of Website for Public Participation.	HPSPCB	Completed	Department Own Budget	-

(J)	Measuring the E-flow in the Ashwani Khad and its tributaries on the monthly basis	MC Shimla IPH	28 th Februray 2019	Department Own Budget	-
(k)	Organizing cleanliness drive along the stretch of Ashwani	MC Shimla, Rural Development Shimla, HPSPCB	Every 02 Months	Department Own Budget	-
V	Other Aspects as NGT Order dated 20.09.2018 and 19.12.2018				
(a)	Rain Water Harvesting/ Ground Water Recharge aspects	I & PH	Already operational	State Government Budget	02 No's of project operational at Shimla region whereas 13 No's operate at Solan regions.
(b)	Maintaining E-Flows	I & PH	31 st March 2021	State Government Budget	After compiling sewage proposal.
(c)	Water Shed Management	Forest Department	No scheme exit		
(d)	Use of Treated Sewage	I & PH	31 st March 2022	-	Tertiary Treatment Proposed on 03 STPs and 01 New STP proposed for utilization of treated sewage.
(e)	Good Irrigation Practice	I & PH	operational	State Government Budget	6 No's of scheme of IPH Department already executed with estimated cost of Rs. 25.18 Lakhs.

(f)	Development of Bio-diversity parks	Forest Department	No scheme exit	-	No Forest land available hence not viable.
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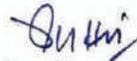
Director, Urban
Development

RRC Member



Director, Environment
Science and
Technology

RRC Member



Member Secretary, HP
State Pollution Control
Board

RRC Member



Director, Industry
Department

RRC Member

**Original Application. No. 673/2018 dated 20th September, 2018 19th
December, 2018 and 08th 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 8th 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.

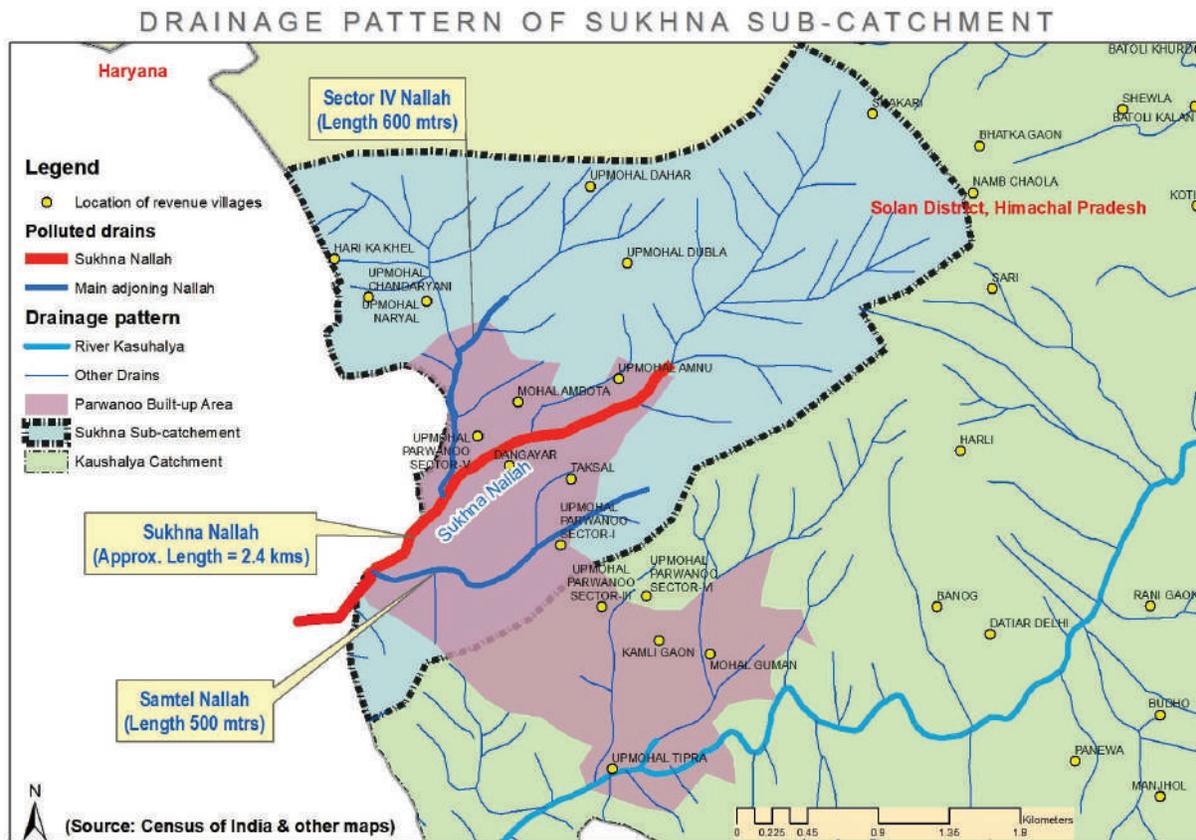


Figure 1: GIS-based Map showing Catchment Area of Sukhna Nallah along with River Kaushalya

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 01st 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 20th September 2018, 19th 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 m³/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 08th 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 21st 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 25th 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
I Industrial Effluent Management					
(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 th 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 th 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 st March, 2019.	28 Lakhs	PPP Mode.
(g)	For collection, Transportation, Processing and disposal of fresh waste at Baddi Cluster	BBNDA, MC Parwanoo & HPSPCB	31 st July, 2019.	Rs. 02 Crore as VGF by HPSPCB	The operation is on PPP Mode.
II Domestic Sewage Management					
(a)	Area wise estimation of total population, water requirement and sewage generation.	HIMUDA, IPH, Urban Development, Rural Development Department	28 th 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 st 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 st 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 st 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
III	Ground Water Quality				
(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 st 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 st 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.
IV	Miscellaneous				
(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 st 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				
Plantation Works:- Site specific plan along-with cost estimate to carry out plantation activities for this stretch is as under:-					

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 st 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 st March, 2019.	Department own Budget	
V	Other Aspects as per Hon'ble NGT Order dated 20.09.2018, 19.12.2018 and 08.04.2019.				
(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 st January, 2022	Non-perennial during lean season	E-flow will be assessed after completion of STP's and evaluation the discharge during lean. Season. Till that time Nallah will carry only sewage flows during lean season.
(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 st 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

RRC Member



Director, Industry Department

RRC Member

ANNEXORIS-R-6

Original Application. No. 673/2018 dated 20th September, 2018 19th
December, 2018 and 08th 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 River Markanda: A
Revised Action Plan
For Rejuvenation of River Markanda, District- Solan, HP**

*(Submitted in compliance to the Hon'ble National Green Tribunal (NGT) order
dated 20th September, 2018 and 19th December, 2018)*



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

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	Water Shed Management	
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Comprehensive Report

on

Prevention and Control of Pollution in River Markanda: Action Plan For Rejuvenation of River Markanda at Kala Amb, District- Sirmour HP

1.0 BACKGROUND:

Hon'ble National Green Tribunal passed the following orders in OA No. 673/2018 dated 20.09.2018 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 River Markanda and its tributaries in the State of Himachal Pradesh:

River Markanda is a tributary of the River Ghaggar, which as per legend is a part of the ancient Vedic Saraswati River basin system and is a small river of Nahan area, in the district Sirmour of Himachal Pradesh. There exists large historic temple on the bank of the river, which is called Markandeshwar temple after the name of the famous Maharshi Markandeya. River Markanda enters Kala Amb at Bikram Bag and leaves at Sadhora Bridge. It covers a distance of about 24 KM in Himachal Pradesh from Rukhri to Kala Amb, thereafter the river covers a distance of approx. 130 KM in Haryana before joining River Ghaggar at Ismailabad downstream of Shahbad (Haryana).

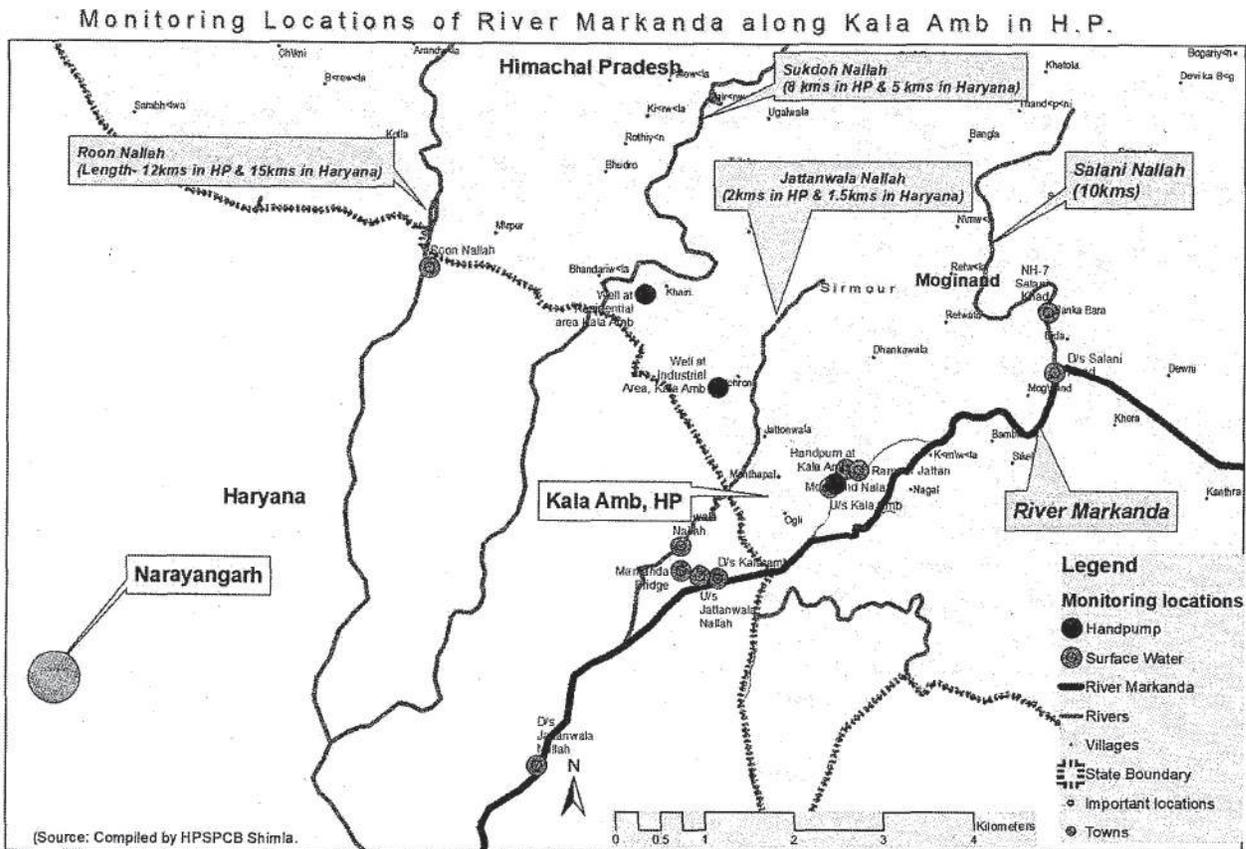


Figure 1: Digital Map showing Catchment Area of River Markanda in Himachal Pradesh

2.1 Drains Contributing the River Markanda:

- Jatta Wala Nallah which is only main contributor of Pollution Load to River Markanda from Industries and Sewage Load from Rural Areas of Jattawala Village and Local commercial establishments.
- Salani Nallah which originates from Sirmour Hills and meets the River Markanda at Moginand. This carries small extant of sewage Load to River Markanda.
- Roon Nallah is also a tributary of River Markanda, but meets in Haryana outside the boundary of HP and also does not contribute pollution to River. Sukdoh Nallah also a tributary to this drain.

River Markanda over all carries a Pollution load from Jatta Wala Drain and Industrial Area of Kala Amb.

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 River Markanda in context of their utility, as it is a non-perennial river. The ultimate goal for beneficial use of the river will determine the level of actions to be taken for maintaining the water quality. Under the present circumstances, it appears that River Markanda 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 River Markanda, which are ultimately joining and contributing to the pollution load in the river should be treated to meet the effluent discharge standards stipulated under Schedule-VI of the Environment (Protection) Rules, 1986 which is given as **Annexure-I**.

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

Sr. No.	River Stretch	Priority -II	BOD (mg/L)
1	River Markanda (Kala Amb to Naranyanpur)	Kala Amb	3.2-24

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. A suggested criterion for outdoor bathing (organized) in River Markanda is given in the following. *As per Hon'ble NGT Directions, following quality to be achieved within 2 years w.e.f 1st April, 2019.*

Table 1: Designated Water Quality Criteria for Outdoor Bathing by 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 20th September 2018, 19th December 2018 and 08th April, 2019

4.1. Rain Water Harvesting/ Ground Water Recharge aspects

Project DPR of channelization of River Markanda amounting 114.02 Crore have been posed to Central Water Commission for necessary approval. 03 Nos. low height dams have been proposed in the same project DPR for rain water harvesting structure in the area. The estimated cost of proposed 03 Dams is Rs. 400.00 Lacs.

Three Nos. Rain Water Harvesting Structures (Low Height Dams) have also been proposed in River Roon a tributary of Markanda River. Estimated cost of these structure of Rs. 1200.00 Lacs.

However, the existing Rain Water Structure has been strengthened during the current financial year in the River Roon a tributary of River Markanda, which will improve irrigation facilities and drinking water facilities in the area of Jangla Bhood. The structure was damaged due to floods during the rain of 2018-19. Total expenditure of Rs. 26.0 Lacs have been incurred on its revival. Now the structure has been revived and functions for the area.

4.2. Maintaining E-Flows

River Markanda is a seasonal flow river and no diversion barrage has been constructed or proposed on the same, therefore, E-flow doesn't arise in River Markanda. The average flow during peak season is 1300 m³ /hr and it becomes dry or carries minimal flow during lean season. Currently the average BOD level at last point of River Markanda is 15-20 mg/L which is expected to maintain the e-flow of 03 Mg/L once the project will be completed. Since, Jattanwala Nallah is a major contributor of pollution load with average flow is 316.00 m³ /hr, major portion will be connected to proposed STP cum CETP (05 MLD) and will be discharged after tertiary and advanced treatment.

4.3. Water Shed Management:

At present there is no proposal of Water Shed Management on the catchment of River Markanda.

4.4. Use of Treated Sewage

- (a). Re-use of effluent and sludge after treatment of sewage of Trilokpur, Kheri & Johron area has been considered in the proposed PPR of the project. Effluent from sewage treatment plant after treatment will be re-used for irrigation facilities in the area. Proposal has been considered in the DPR. The estimated cost of the proposed irrigation scheme is Rs. 90.0 Lac.
- (b). Sr. Environmental Engineer, H.P. State Pollution Control Board, Paonta Sahib as desired primary treatment level for domestic sewerage of Kala Amb during the meeting held on 26-11-2018 in the chamber of Deputy Commissioner, Sirmour H.P. Thereafter, the effluent will be processed to the proposed CETP at Kala Amb. Therefore, re-use of effluent and sludge will be taken care of by the concerned Department (DIC). Accordingly, this department has not considered the re-use of effluent and sludge in the PPR of sewerage of Kala Amb, Sirmour (H.P).

However, the effluent can also be re-used for the industries as the area being an industrial belt.

4.5. Good Irrigation Practice:

The IPH Department has informed that at present there exist 19 number of irrigation schemes in the catchment area of River Markanda, irrigates 794.34 hectare land of the area using flood irrigation method. However, sprinkler, drip system and nozzle system may be adopted to reduce the water consumption. Project proposal estimated cost @ 2.50 Lacs/ hectare is Rs. 1985.85 Lacs.

4.6. Development of Bio-diversity parks

There is no proposal for setting up of a Bio-diversity park.

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 already given 62.5 Lakhs to IPH Department. The Chief Secretary has reviewed the proposal during meeting on 8th 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 River Markanda will be done from local bodies or Urban Development Department. The details as 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 2 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 21st June, 2019 wherein approximately 30MT of waste along the drains have been collected and disposed. A plantation drive has also been done 25th May, 2019

7.0. Proposed Action Plans (Short, Medium and Long term plans) with time lines including the organization/agency responsible for its implementation for Rejuvenation of River Markanda, at Kala Amb, District- Sirmour

Sr. No.	Action Plan for Rejuvenation of River Markanda	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
I	Industrial Effluent Management				
(a)	Inventorization of the water polluting industries in the catchment of River Markanda 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	28 th February, 2019	Department own Budget	-
(b)	Action against the identified industries in operation without Consent under Water & Air Act/Authorization under Hazardous and Other Wastes (Management & Trans-boundary Movement) Rules, 2016.	HPSPCB	28 th February, 2019	Department own Budget	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 shall be taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Action against the industries who have not installed ETPs or existing ETPs but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	15 th February, 2019	Department own Budget	
(d)	Prohibition of Burning of any kind of waste including agro residue.	District Administration, Special Area Development Authority (SADA) Trilokpur	28 th February, 2019	Department own Budget	

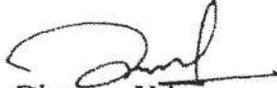
(e)	Estimation of industrial effluent generation and commissioning of CETP.	State Govt., Deptt. of Industries, District Administration	31 st January, 2022.	Departme nt own Budget	Environment Clearance and Installation of Conveyance Lines and Commissioning of Treatment Plant at an estimated cost of about Rs. 22 Crore.
(f)	Setting up of a Solid Waste Management Site at Kala Amb.	State Govt., Deptt. of Industries, District Administration	31 st January, 2022	Departme nt own Budget	Environment Clearance and Commissioning of Treatment Facility at an estimated cost of about Rs. 3.5 Crore.
II Domestic Sewage Management					
(a)	Area wise estimation of total population, water requirement and sewage generation.	IPH, Rural Development Department	28 th February, 2019	Department own Budget	
(b)	To undertake channelization of Markanda river from Rukhri to Kala Amb (24 KM).	I&PH, HPSIDC	31 st January, 2021.	Central Government Budget	Channelization Markanda River from Rukhri to Kala Amb (24KM) amounting to Rs. 114.02 Crore has been prepared by I&PH Nahan and submitted to the Chairman Ganga Flood Control Commission Patna for approval.

(c)	Installation of continuous Real Time Water Quality Monitoring Station.	I & PH	31 st July, 2019.	HPSPCB Budget	Approximately the cost for installation of Continuous Real Time Monitoring System is 30.0 Lakhs.
(d)	Proper design, execution of Sewerage Lines to be incorporated in proposed CETP at Kala Amb.	I&PH, Industry Department	31 st January, 2022.	Industry Department Budget	Preliminary Project Report (PPR) for laying the pipe line for Sewerage System of Industrial Area Kala Amb and Moginand amounting Rs. 30.40 Cr has been prepared by IPH
(e)	Laying down the sewerage lines and setting up of STP Trilokpur Area.	Irrigation and Public Health Department	31 st January, 2022.	Local Body Budget	Preliminary Project Report (PPR) for laying the pipe line for Sewerage System of Industrial Area Kala Amb and Moginand amounting Rs. 26.0 Cr has
III	Ground Water Management				
(a)	Sampling of Tube wells Bore wells, Hand Pumps in Kala Amb area.	I&PH, HPSPCB	28 th February, 2019.	Department own Budget	-
(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Kala Amb area	I&PH	Already Completed	Department own Budget	-
(C)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	I&PH, HP GWA	30 th April, 2019	Department own Budget	-

(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	I&PH, HP GWA	31 st July, 2019.	Department own Budget	-
(e)	To conduct periodic surprise inspection of the industries to rule out any forceful injection of industrial effluents into ground water sources	I&PH, HPSPCB	15 th February, 2019.	Department own Budget	-
(f)	All the industries should be directed to obtain NOC from HPGWA/CGWA and action against the units in operation without obtaining NOC from PGWA/CGWA.	I&PH	15 th February, 2019.	Department own Budget	-
IV	Miscellaneous				
(a)	Regular monitoring and sampling of water quality of River Markanda and various drains on monthly basis.	HPSPCB	Every 1 Month.	Department own Budget	-
(b)	Impact of water pollution on health of public and awareness thereof by organizing Health Camp.	State Health Deptt.,	Every 6 Month	Department own Budget	-
(c)	Plantation in Flood Plain Zone, Setting up of Bio-diversity Parks.	Forest Department	31 st July, 2020.	Department own Budget	The Cost estimate is 23.0 Lakhs for plantation and Vertical gardens etc.
(e)	Checking Encroachment in FPZ of River Markanda Notification of Flood Plain Zone.	District Local Administration, Forest Department	31 st July, 2019.	-	-
(f)	Prohibition of disposal of Municipal Plastic and Bio-medical Waste particularly in drains	District Local Administration	31 st March, 2019.	-	-

V	Other Aspects as NGT Order dated 20.09.2018 and 19.12.2018				
(a)	Rain Water Harvesting/ Ground Water Recharge aspects	I & PH	Existing have been completed and remaining shall be completed upto 31 st Jan, 2022.	Central and State Government Budget	“ 05 proposal is proposed.
(b)	Maintaining E-Flows	I & PH	31 st January, 2022	Non-perennial during lean season	E-flow will be assessed after completion of STP cum CETP (05 MLD) and evaluation the discharge during lean season.
(c)	Water Shed Management	Forest Department	-	-	No scheme
(d)	Use of Treated Sewage	I & PH	31 st January, 2022 (up to tertiary treatment)	State Government Budget	Tertiary Treatment Proposed on 01 (STP cum CETP) will be used for dilution of River.
(e)	Good Irrigation Practice	I & PH	-	State Government	19 Schemes available proposed.

(f)	Development of Bio-diversity parks	Forest Department	-	Not viable	No Forest land available hence not viable.
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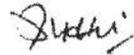
Director, Urban Development

RRC Member



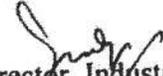
Director, Environment Science and Technology

RRC Member



Member Secretary, HP State Pollution Control Board

RRC Member



Director, Industry Department

RRC Member

**Original Application. No. 673/2018 dated 20th September, 2018 19th
December, 2018 and 08th 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 River Sirsa:
Revised Action Plan
For Rejuvenation of River Sirsa, Nalagarh, District- Solan, HP**

*(Submitted in compliance to the Hon’ble National Green Tribunal (NGT) order
Dated 20th September 2018, 19th December 2018 and 8th April, 2019)*



HP State Pollution Control Board

Him Parivesh, Phase – III, New Shimla - 171009

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Comprehensive Report on Prevention and Control of Pollution in River Sirsa: Action Plan for Rejuvenation of River Sirsa at Baddi, District- Solan, HP

1.0 BACKGROUND:-Hon'ble National Green Tribunal passed the following orders in OA No. 673/2018 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 River Sirsa and its Tributaries, activities thereof.

River Sirsa is the Tributary of River Satluj and it originates from the foothill of Kasauli near Kalka in Haryana having total length 54.00 km. After travelling 20.00 km in Haryana, it enters Himachal Pradesh near Baddi Town and after covering 28.00 km stretch in Himachal Pradesh and enters Punjab near Ghanauli and thereafter flowing 6.00 km in Punjab, it finally merges into River Satluj.

It is a Perennial River, having nearly 20 Nos of major tributaries & approximately 550.00 sq.km catchment area. The catchment area upto Himachal-Haryana boundry is 241.00 sq.km and upto HP-Punjab boundry is 521.11 sq.km. The discharge in the river is contributed by various streams of Kasauli & Ramshaher hills, Industrial Effluents of Kalka, Baddi-Nalagarh Area and Seasonal Rainfall. The average annual rainfall in the hilly and plain area is 1250.00 mm and 1022.00 mm respectively. The average slope of River Sirsa is 1 in 200 to 250, whereas tributaries having average 1 in 70 to 150. Mammoth floods in rainy

season and meandering nature of River Sirsa & its tributaries causes big losses to public properties, industrial establishments and to agricultural fields. The Drainage Map of River Sirsa catchment for Nalgarh Baddi region is shown in *Figure 1*.



Figure 1: Drainage Map showing Catchment Area of River Sirsa basin at Baddi-Nalagarh Area, Solan Area of Himachal Pradesh (Source: IPH Department, HP)

2.1. Total Pollution loads assessed in Drains and rivulets draining to the catchment of River Sirsa

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

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



Figure- : Photographs Depicting Sandholi Nallah and Housing Board Nallah

Table : Domestic Sewage Pollution Load Various Rivulets and Drains joining the River Sirsa Catchment

Sr. No.	Name of Rivulet / Drain	Flow MLD	BOD (mg/l)	Load Kg/Day
1.	Balad Khadd	9.9	16	158.4
2.	Sandholi Nalla	7.34	56	411.04
3.	Housing Board Nalla	3.715	30	111.45
4.	Khera Nalla	0.5	10	5

5.	Manpura Nalla	5.5	8	44
6.	Ratta khad	0.2	14	2.8
7.	Chikni khad	10	2.8	28
8.	HPSIDC Drain	0.6	200-230	120-138
9.	Bagbania Khadd		Dry	
10.	Kanhan Khadd		Dry	
11.	CETP outfall	17.5	22	385

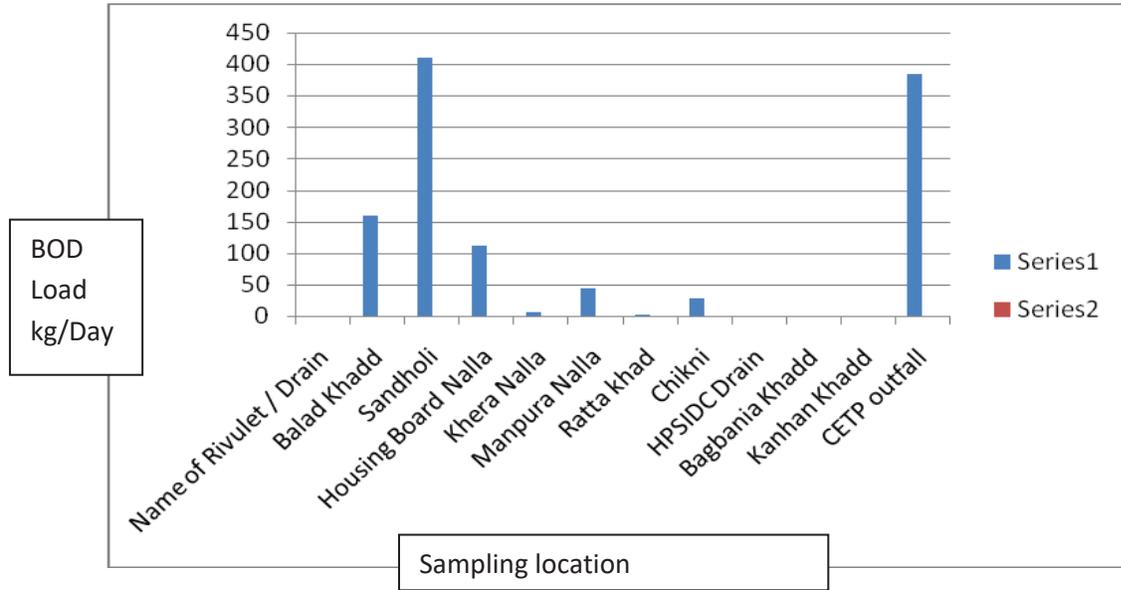


Figure- : Flow Chart Indicating the Pollution Load Level in River Sirsa

Domestic Sewage Pollution Load of major drains along the Sirsa River Stretch

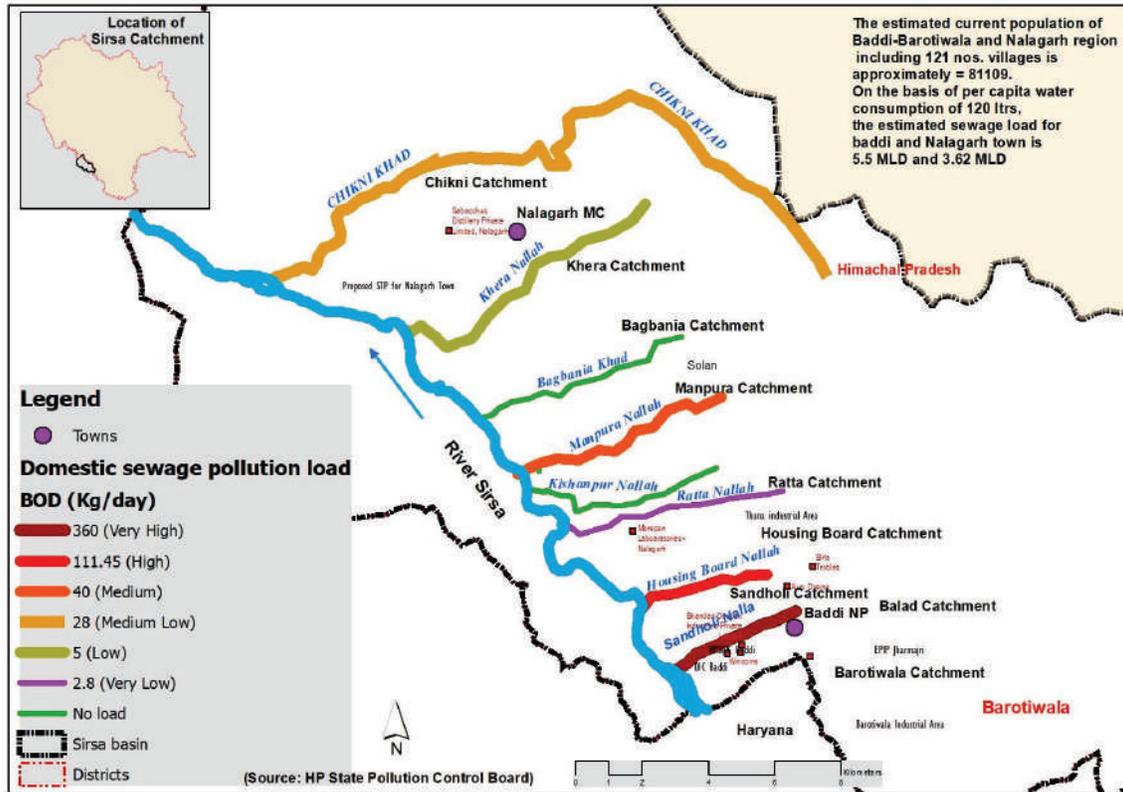


Figure: Digital Map showing Sources of Local Habitation, Sewage Generation, Proposed STPs, Drains contributing to Pollution Load in the Catchment Area of River Sirsa Basin at Baddi-Nalagarh Area, Solan, Himachal Pradesh.

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

It is an important aspect for revival of River Sirsa in context of its utility as it is Perennial River. 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 River Sirsa 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 River Sirsa, which are ultimately joining and contributing to the pollution load in River Sirsa should 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, River Sirsa falls under Priority –III of designated criteria depending upon the level of Bio-chemical Oxygen Demand.**

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

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 water quality criteria goal for outdoor bathing (organized) in River Sirsa are given in the following *Table - 1. As per Hon'ble NGT Directions, following quality to be achieved within 02 Years w.e.f 01st April, 2019.*

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

Sr. No.	Parameters	Water Quality Criteria –for Outdoor Bathing (Organized)
1.	pH	6.5 to 8.5
2.	Dissolved Oxygen (DO)	5 mg/L or more
3.	Biochemical Oxygen Demand 5 days 20^oC	3 mg/L or less
4.	Faecal Coliform	MPN/100ml shall be 500 or less

4.0. Aspects in compliance of Hon'ble NGT Order 20th September 2018, 19th December 2018 and 08th April, 2019

4.1. Rain Water Harvesting/ Ground Water Recharge aspects:

A proposal for channelization of River Sirsa River is being prepared after getting the mathematical Model study conducted by CWPRS. Proposal for Rain water harvesting /Dam as main Sirsa river can be formulated after the DPR for channelization is finalized so as to have a compatibility between these two proposal. However, the IPH department has prepared a proposal for C/O Rain Water Harvesting Structure at 10 identified in Nalagarh area and the same stands approved by NABARD for funding Rs. 509.41 crore. Out of these 10 sites, 2 sites namely Kanganwal and Chikni Khad are tributaries of Sirsa river. The tenders for this work have been received and are under process. As per the scope of the tender, The contractor shall submit detailed design after investigation and it likely that entire work as per scope may not be completed with available funds. Additional amount of about is Rs. 2.00 crore shall be required to complete this work as per scope.

The area has already been notified under State Regulatory Authority under HP Ground Water Management and Regulation Act- 2005 to regulate the management and development of ground water resources. Besides the sampling of Ground water is being done time to time to keep a check water quality.

Besides, Baddi-Baroti walla-Nalagarh-Development-Authority has asked IPH Department to prepare proposal for c/o RWH structure at 2 locations which is likely to be funded by them. The department has accordingly awarded the work for consultancy services for investigation, Survey, design, drawing & DPRs from consultants within 6 months and requirement of funds shall be projected after considering the extent of funding from BBNDA.

4.2. Maintaining E-Flows:

The River Sirsa Catchment is receiving mainly the Industrial Trade Effluent and Sewage Load as depicted in the sources of Pollution. There are 414 industrial units falling under the catchment of CETP Baddi, located at Kenduwal, Baddi. The industrial units discharging their untreated partially treated effluent to CETP Baddi for further treatment. The treated water of CETP is discharged into River Sirsa.

Presently CETP, Baddi is receiving around 17 to 17.5 MLD of effluent through pipe-line mainly (95 %) & remaining 5% through tankers operating outside Baddi catchment area covering mainly Kishnapura, Manpura & some industries form Nalagarh area.

The Pollution load in Rivers Sirsa with CETP discharge at 17.5 MLD with Bio-Chemical Oxygen Demand (BOD) 5 Days 20°C (20 mg/l) is around 340 Kg/day. The lean season flow of River Sirsa as obtained from IPH Department is 36.17 MLD. The BOD value coming out after dilution at downstream is 6.9 mg/L whereas target of achieving the BOD value is less than 03 mg/l. This indicates improvement in the bio-logical treatment vis-a-vis the function of CETP Baddi is needed. After the completion of the modification proposed in CETP, as incorporated in Action Plan, the E-flow will be maintained and BOD of River Sirsa shall be less than 03 mg/l.

4.3. Water Shed Management:

At present there is no proposal of Water shed management on the catchment of River Sirsa.

4.4. Re-Use of Treated Sewage:

In IPH Division, Nalagarh one number sewerage scheme amounting to Rs 1636.50 lakh for Nalagarh Town is under construction. 90% sewerage network and 305 of Sewage Treatment plant is completed. The effluent of the STP is proposed to be utilized for irrigation purpose for which a proposal amounting to Rs.147.90 lakh already stand approved by the Chief Engineer (SZ) IPH Shimla letter No . IPH-BE-SZ-WA-II/446/2017-18-1391-98 dated 21-4-2018. Under the proposal the adjoining village Bela is proposed to be covered under this irrigation scheme. This scheme is formulated as an outcome of PIL filled in Hon'ble High court by local residents objecting to setting up the STP. The AMICUS Curie appointed by the Hon'ble court has suggested such scheme based on specific demand of the beneficiaries. This scheme is proposed to be included in the supplementary budget for the year 2019-20. There is no budget provision for this scheme at present.

In addition to above providing Sewerage Scheme at Baddi Town amounting to Rs. 3334.34 lakh is already under construction under these division. 90% sewerage network has already been laid and work of construction of STP, is being carried out by Baddi infrastructure (a special purpose Vehicle) through M.C Baddi. The sewage will be treated with the equalization of existing CETP which is under the control of Baddi infrastructure. Further proposal to utilize the treated effluent for irrigation purpose can only be prepared by Baddi Infrastructure who shall be responsible for operation and maintenance of Baddi STP.

4.5. Good Irrigation Practice:

Good Irrigation Practices is being adopted by the IPH department. In place of open channel system for conveyance of irrigation water, closed conduits system are being introduced resulting in reduction of water losses. Micro irrigation system is also being introduced in the new system. In this system per hectare water requirement reduces and more area can be covered with availability water. Command area development scheme is being introduced which increases water

use efficiency and ensure water availability at the tail end. Water use Association has been constituted for effective management of irrigation schemes. Since there are no's of irrigation and water supply schemes constructed at River Sirsa and for maintaining the ecology of this river and its tributaries, it is proposed to undertake channelization work of this river from Sito-Majra to Saini Majra (85 kms) including main drains contributing to River Sirsa. An action plan to this effect stands already submitted. A DPR has been got prepared from the consultant after carrying out mathematical model study as per CWC guidelines and shall be put up before State Technical Advisory Committee of IPH Department for its approval to pose the same for funding.

There is one flow irrigation scheme Raj Khul where people are using water for irrigation from the stretch of River Sirsa having CCA 485.00 hectare.

In addition to above FIS, 9 Number Lift Irrigation Schemes (1) LIS Sirsa Mnjholi (2) Lis Handa Kundli (3) LIS Baddi Sitlapur (4) LIS Chunari (5) LIS Narsing Mandiyarpur (6) LIS Kenduwal (7) LIS Baddi Sitlapur (8) LIS Landewal Kalyanpur (9) LIS Khol Khas are also constructed on the River Sirsa covering total CCA of 870.00 hectare. As an initiative towards, Good irrigation practices, Command Area Development Works are being carried out in 2Nos, Schemes namely LIS Landewal Kalyanpur costing Rs. 14.81 lakh where 25% work has been completed and LIS Baddi Sitalpur for which A/A & E/S has been accorded for Rs. 19.08 lakh.

4.6. Development of Bio-diversity parks:

The forest to setup Nature Park Biodiversity park and proposed to spend Rs.57 lakh and completion time is 2022 the detailed break up of plantation is enclosed as **Annexure-I**.

It is not under the purview of IPH 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. 52.91Crore. The Chief Secretary has reviewed the proposal during meeting on 08th April, 2019 and directed the concerned department to complete the proposal from state government budget wherever applicable. The major PORTION OF Action Plan comprises of STP proposal for Baddi and Nalagarh is Rs. 49.7 Crore, the funds for which are already issued by the Municipal authority to I & PH. For the improvement in Function of existing **CETP at Baddi** w.r.t connecting the near about areas with Conveyance Pipeline (6,945 Meter Stretch) to treat the 1.10 MLD wastewater from Industries falling in River Sirsa Catchment, the fund amounting to Rs. 2.78 Crores has already been released by the Department of Industries to M/s Baddi Infrastructure. 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 Summery

The Action Plan mainly comprising of Sewage Treatment Proposal, modification of existing Sewage Treatment Plants, Solid Waste Management, Plantation Proposal, Overhauling and maintenance of existing Septic tanks, STPs monitoring of river water quality. The 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 21st June, 2019 wherein approximately 70 MT of Waste along the drains have been collected and disposed. A plantation drive has also been done 25th May, 2019 wherein 1051 plant sapling have been planted along the stretch of River Sirsa.

7. Proposed Action Plans (Short, Medium and Long Term Plan) with time lines including the organization/agency responsible for its implementation for Rejuvenation of River Sirsa, Baddi-Nalagarh, District – Solan

Sr. No.	Action Plan for Rejuvenation of River Sirsa	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
I	Industrial Effluent Management				
(a)	Inventorization of the Water Polluting Industries in the catchment of River Sirsa 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	Till 31.03.2019	Department own Budget	-
(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	Till 31.03.2019	Department own Budget	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 shall be taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Actions against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	Till 31.03.2019	Department own Budget	-

(d)	Prohibition of Disposal of Municipal Solid Waste, Plastic Waste, Bio-medical Waste, Hazardous Waste and Burning of any kind of Solid Waste.	BBNDA Municipal Council Baddi, Municipal Council, Nalagarh, District Administration	Till end of February 2019	Department own Budget	-
(e)	Improvement in Function of existing CETP at Baddi w.r.t connecting the near about areas with Conveyance Pipeline,	HPSPCB, Baddi Infrastructure (SVP)-CETP	Till 31.07.2020	Industry Department Budget	
(f)	Conducting Surprise inspections and Water Audit to reduce the Gap in Effluent generation and Treatment with CETP at Baddi.	HPSPCB	Till 31.07.2019	Department own Budget	
(g)	Detection of leakages in conveyance pipelines of CETP, Baddi.	HPSPCB, Baddi Infrastructure	Every 02 Months	Department own Budget	
(h)	Identification of industries falling in the catchment Zone of CETP, Baddi and not connected with CETP and Action to be taken thereafter.	HPSPCB	Till 31.03.2019	Department own Budget	
(i)	Proposal for improvement in functioning of CETP by modification in treatment process to improve the discharge effluent quality.	HPSPCB	Till 31.03.2019	Baddi Infrastructure Budget	
(j)	Installation of Real Time Online Effluent Monitoring System on category 17 units.	HPSPCB	Already installed	Baddi Infrastructure Budget	
(k)	Sludge Management from Industrial Effluent Treatment.	HPSPCB	Till 31.03.2019	Baddi Infrastructure Budget	

(i)	Estimation of industrial effluent generation and commissioning of CETP at Nalagarh.	State Govt., Deptt. of Industries, District Administration, BBNDA.	31.03.2021	Industry Department Budget	Codal formalities like preparation of Feasibility Report, Preparation of DPR, Land allotment, Environment clearance, land acquisition, Installation and Commissioning.
(j)	Setting up & operation of a Solid Waste Management facility at Kenduwal, Baddi	State Govt., Deptt. of Industries, District Administration, BBNDA and Deptt. of Urban Developmen	31.07.2019	Department Own Budget	
II Domestic Sewage Management					
(a)	Area-wise estimation of total population, water requirement, and sewage generation of Baddi-Nalagarh Area.	BBNDA, IPH, Department of Rural Development	28.02.2019	Department Own Budget	-
(b)	To undertake channelization of River Sirsa from Sitomajri to Sainimajra (Nalagarh) (85KM) including main drains contributing to River Sirsa.	BBNDA and I&PH	31.01.2021	Central Government Budget	The DPR for Channelization of River Sirsa will amount Rs. 1,085.00 Crore has been prepared by I&PH.
(c)	Measurement of Flow of Drains, Pollution Load contributing to River Sirsa.	IPH & HPSPCB	Till 28.02.2019	Department Own Budget	-
(d)	Execution of Project Proposal for Sewage Management through State of Art-Technology for Sewage Treatment Plant at Nalagarh.	I & PH	31.07.2019	Local Body Budget	
(c)	Installation of continuous Real Time Water Quality Monitoring Station on River Sirsa.	I & PH	31.07.2019	Baddi Infrastructure Budget	

(d)	Proper design, execution of sewerage Lines to be incorporated in proposed CETP at Baddi.	I&PH, Industry Department	31.07.2019	Department Own Budget	-
(e)	Sewage Management for Industrial Areas of Baddi, Jharmajri, Lodhimajra, Davni, & Thana.	HPSIDC, DIC	28.02.2019	Department Own Budget	-
(f)	Sewage/Septage management for of Rural Areas with low cost treatment technologies.	Rural Development/ Block Development Office, Nalagarh.	31.10.2019	Department Own Budget	
III Ground Water Management					
(a)	Sampling of Tube wells, Bore wells, Hand Pumps in BBN area.	I&PH, HPSPCB	31.03.2019	Department Own Budget	-
(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Baddi Nalagarh Area	I&PH	15.02.2019	Department Own Budget	-
(c)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	I&PH, HP GWA	30.04.2019	Department Own Budget	-
(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	I&PH, HP GWA	31.07.2019	Department Own Budget	-
(e)	To conduct periodic surprise inspection of the industries to rule-out any forceful injection of industrial effluents into ground water sources	HPSPCB	Every 15 Days	Department Own Budget	-
(f)	All the industries should be directed to obtain NOC from HPGWA/ CGWA and action against the units in operation without obtaining NOC from PGWA/ CGWA.	IPH	31.03.2019	Department Own Budget	-
(g)	Remedial measures for de-contamination of Highly Polluted Ground Water resources within Jurisdiction of Baddi – Nalagarh Area.	IPH & HPSPCB	31.07.2019	Department Own Budget	
IV Miscellaneous					
(a)	Regular monitoring and sampling of water quality of River Sirsa and various drains on monthly basis.	HPSPCB	Every 1 Month.	Department Own Budget	-
(b)	Impact of water pollution on health of public by organizing Health camp	State Health Deptt.	Every 3 Month	Department Own Budget	-

(c)	Plantation in Flood Plain Zone, Setting up of Bio-diversity Parks	Forest Department	Within 1.5 Year	Department Own Budget	-
(e)	Checking Encroachment in FPZ of River Sirsa by Notifying the Flood plain Area.	District Local Administration/ BBNDA/ IPH	31.07. 2019.	Department Own Budget	-
(f)	Maintaining the E-flow for having Ecological Balance in the River System	IPH	-	Department Own Budget	
(g)	Setting up of website for public participation.	HPSPCB	Completed.	Department Own Budget	
(h)	Monitoring of the Executing the Action Plans	BBNDA, HPSPCB	Continuous Process	Department Own Budget	
(J)	Cleanliness Drive along the Stretch of River Sirsa	HPSPCB, BBNDA, Ind. Deptt, Urban Local Body Rural Development, Industries Association and other stakeholders.	Every 01 Month	Department Own Budget	
V	Other Aspects as NGT Order dated 20.09.2018 and 19.12.2018				
(a)	Rain Water Harvesting/ Ground Water Recharge aspects	I & PH	31.03.2021	Central Government Budget (Rs. 509 Crore includes in Rs. 1085.00 Crore for Channelization Project	10 Sites identified, DPR preparation is under process. Implementation is subject to the availability of funds from the Central Government.
(b)	Maintaining E-Flows	I & PH	31.07.2020	State Government Budget	E-flow will be assessed after completion of modification in the existing CETP

.)	Water Shed Management	Forest and Rural Development, Department of Environment	-	-	No Scheme
(d)	Use of Treated Sewage	I & PH	After completion of 02 nos. of STPs proposal	State Government Budget	Proposal at Baddi and Nalagarh. In Nalagarh area, the treated sewage will be utilized for irrigation purpose.
(e)	Good Irrigation Practice	I & PH	Existing Schemes operational	Central Government Budget	Future proposal of Rs. 485.0 Crore included in channelization proposal
(f)	Development of Bio-diversity parks	Forest Department	31.03.2022	Department own Budget	Rs 57.00 Lakh proposal for setting up of Nature Park.



Director, Urban
Development

RRC Member



Director, Environment
Science and
Technology

RRC Member



Member Secretary, HP
State Pollution Control
Board

RRC Member



Director, Industry
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Report

On

**Prevention and Control of Pollution in River Beas: A
Revised Action Plan
for Rejuvenation of River Beas, Districts- Kullu, Mandi, Hamirpur &
Kangra (HP)**

*(Submitted in compliance to the Hon’ble National Green Tribunal (NGT) order
dated 20th September, 2018 and 19th December, 2018, 08th April, 2019)*



HP State Pollution Control Board

Him Parivesh, Phase – III, New Shimla - 171009

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Comprehensive Report

on

Prevention and Control of Pollution in River Beas: Action Plan for Rejuvenation of River Beas from Kullu to Dehra Gopipur of Himachal Pradesh

1. BACKGROUND:-Hon'ble National Green Tribunal passed the following orders in OA No. 673/2018 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 programmed 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 River Beas and its tributaries:-

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River Beas is one of the Indus River Systems of Himalaya. The River originates from Beas Kund, near Rohtang Pass, at a height of 4,062 m above sea level, on the southern end of the Pir Panjal Range of Distt. Kullu in Himachal Pradesh and flows a distance of about 245 Kms in Himachal and merge with the Sutlej at Harike Pattan south of [Amritsar](#) in [Punjab](#) after travelling 470 kms.

The catchment area of River Beas is around 10,000 sq.kms and the River travels around 245 Km in the given stretch from Kullu to Dehragopipur. This stretch of river passes through four districts of Himachal Pradesh i.e. Kullu (from Palchan to Bajaura i.e. 63 Km), Mandi (from Bajaura to Sachuhi i.e 103 km), Hamirpur (from Sachuhi to Kaloora i.e 54 Km) & Kangra (From Kaloora to Dehragopipur i.e 35 Km). The River Beas share the boundary of District Mandi and Kullu from Bajaura to Larji (i.e. around 18 km) and also from downstream of Distt. Mandi it flows at boundary of Distt.Hamirpur on left bank and Distt. Kangra on right bank from Sachuhi near Sandhol to Kaloora (i.e. 54 km). This is a Perennial River and experiences the vast variation in the flow discharge. The winter season is the lean season due to snow shed areas along River Beas and its major tributaries. The flow of River started to increase in month of March onwards and turned to flash floods time during monsoon season.

The stretch of River Beas falls under the jurisdiction of four districts of Himachal Pradesh i.e. Kullu, Mandi, Hamirpur and Kangra. Every district has different mode of impact in respective areas, that's why the action plan has been made separately for respective districts for proper monitoring and execution.

Drainage map of Beas Catchment from Rohtang to Dehra Gopipur, Kangra

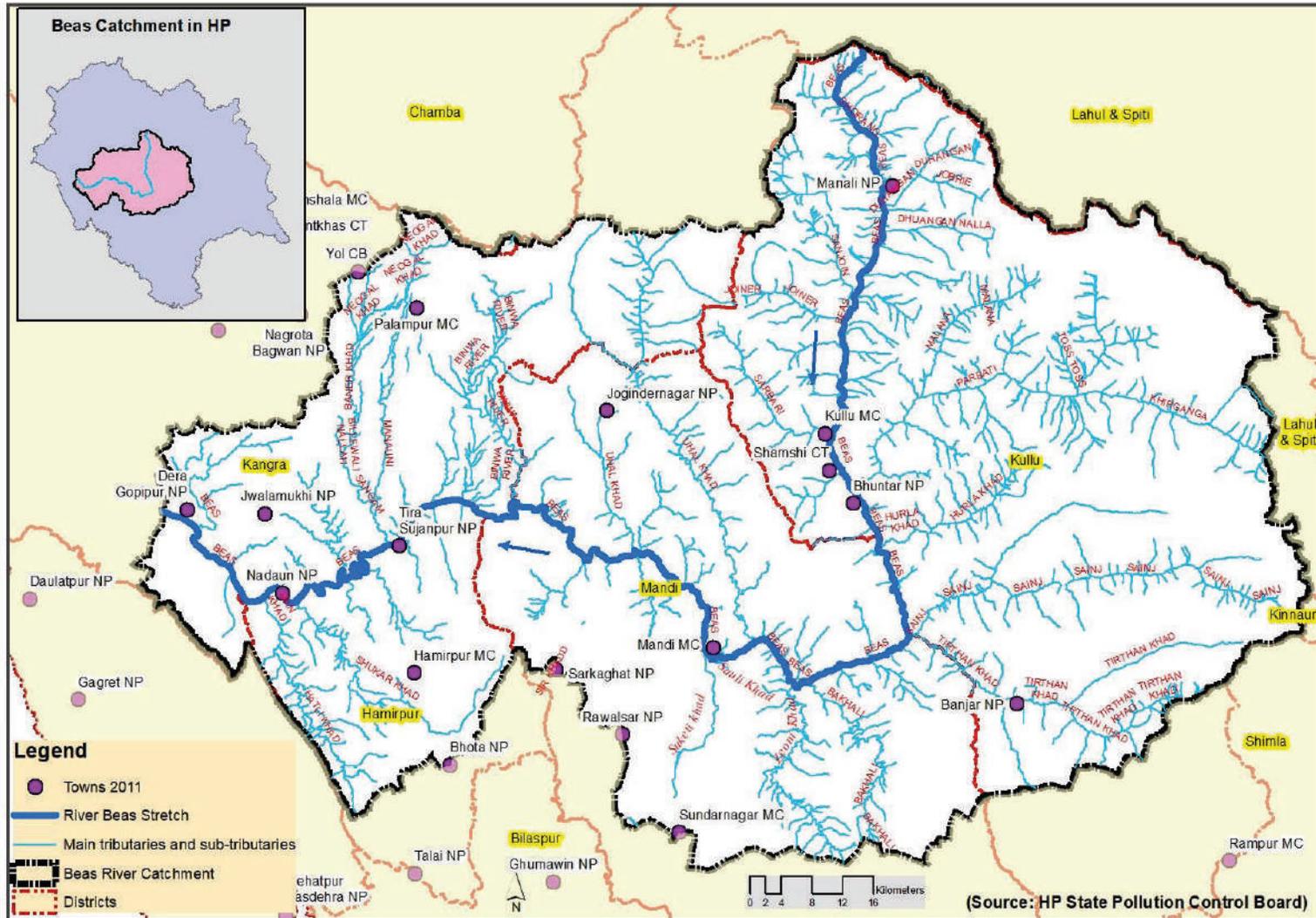


Figure 1: Drainage Map showing Catchment Area of River Beas basin in Himachal Pradesh

2.01 The River Beas in Distt Kullu:

The major tributaries of River Beas in Distt. Kullu are Manalsu Nalla, Alliane Nalla, Duhangan Nalla, Dobhi Nalla, Baragran Nalla, River Parvati, Hurla Nalla, Sainj and Tirthan River. The major towns on the River Beas are Manali, Kullu, Shamshi & Bhunter and the population as per census 2011 of these towns is as 8096, 18536, 8870 & 4475 respectively. Industrial establishments are very small in number and are of small scale nature. There is long fruit season in the District and tourism is becoming a major commercial activity these days. Hydro Projects are also established in significant numbers along the River Beas and its tributaries. Some stretches of the river experience flash floods in rainy season and its tributaries have created significant impact on soil erosion, loss to public properties, commercial establishments and to agricultural fields every year. The river enters District Mandi at Bajaura.

2.02 The River Beas in Distt Mandi:

The River Beas enters Distt. Mandi at Bajaura. There is Larji Dam, downstream of Bajaura and Pandoh Dam, upstream of Mandi town. From Pandoh Dam the water of river is diverted by BBMB through tunnel to Govindsagar Lake, which is a reservoir of Bhakra Dam on River Sutlej. H.P. Government has made it mandatory to maintain “E-flow” and as per guidelines issued by Govt. of HP to release minimum 15% flow in lean season immediate D/s of the dam site. Hence Larji HEP and BBMB releases the 15 % discharge at immediate D/s of dam site. The Northern and Eastern tributaries of the River Beas are perennial and snow fed, while Southern are seasonal. In Mandi District, the major tributaries are Tirthan, Bakhli, Jiuni, Uhl, Suketi, Panddi, Son and Bather. The River Beas enters the District Hamirpur at Sachuhi near Sandhol. The major towns in District Mandi in the catchment of River Beas are Mandi town and Jogindernagar having population 26,422 and 5,335 persons respectively as per census 2011.

2.03 The River Beas in Distt Hamirpur:

The River continues to flow in District Hamirpur from Sachuhi and major Towns in District Hamirpur situated in River Beas Stretch are Sujampur-Tihra and Nadaun. Sujampur Tihra is located on the Left bank of [River Beas](#). The Sujampur-Tihra Municipal Council has population of 7,943 as per report released by Census India 2011 and there are no industries in Sujampur Tihra Town although small Hotels/Guest-houses are situated at Sujampur Town. The second town is Nadaun on the River Bank having population around 4430 person as per census 2011. The main tributaries of the River Beas in this stretch are Binwa Khad, Mann Khad, Shukker Khad and Kunah Khad before leaving of District Hamirpur at Kaloor. In this complete stretch

of river Beas Distt. Hamirpur is at left bank of River Beas and Kangra is at the right bank upto Kaloor.

2.04 The River Beas in Distt Kangra

River Beas divides District Kangra and Hamirpur on the right bank is district Kangra and on left bank is district Hamirpur there is no activity on both the banks which contributes to pollution load in river Beas.. From Kaloor to Dehragopipur, the river covers around 48 Km and merges into the reservoir of Pandoh dam of BBMB. The major tributaries are Bain, Banganga, Luni, Chakki, Gaj Khad and Baner. The population of Jawalamukhi town is 5,361 persons and of Dehragopipur town is 4,816 persons (as per census 2011).

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

As River Beas is a perennial river so it is an important aspect to improve the quality of River Beas in context of its utility for drinking and Irrigation purposes. The ultimate goal for beneficial use of river will determine the level of actions to be taken for maintaining the water quality as BOD below 03 mg/liter, DO above 05 mg/liter and the total count of Faecal Coliform bacteria below 500 MPN/100. Under the present circumstances, it appears that River Beas may serve the purpose of outdoor bathing (organized) and to achieve this objective, generated domestic sewage should be treated to meet the outdoor bathing standards. Also, the industrial effluents generated from small industrial areas in Kullu, Mandi, Hamirpur and Kangra which are ultimately joining and contributing to the pollution load in River Beas should be treated to meet the effluent discharge standards stipulated under Schedule-VI of the Environment (Protection) Rules, 1986 which is given as **Annexure-VI. As per the Hon'ble NGT orders vide OA No. 673 of 2018, River Beas falls under Priority –V of designated criteria, depending upon the level of Bio-chemical Oxygen Demand.**

Table No. 01:- Showing Priority of River Beas stretch

Sr. No.	River Stretch Name	Stretch of Priority -V	BOD (mg/L)
1.	River Beas (Kullu, Mandi, Hamirpur and Kangra)	Kullu- to- Dehragopipur	6.0

The river water quality for outdoor bathing (organized) also requires more stringent conditions and river water has to maintain adequate Dissolved Oxygen (DO) and Coliforms. The suggested criteria for outdoor bathing (organized) in River Beas are given in the following **Table - 2. As per Hon'ble NGT Directions, following quality to be achieved within 02 Years w.e.f 01st April, 2019.**

Table 2: Final goal to achieve the Water quality of River Beas throughout the Stretch i.e. Kullu to Dehragopipur

Sr. No.	Parameters as per Hon'ble Court Order	Water Quality Criteria for Outdoor Bathing (Organized)
1.	pH	6.5-8.5
2.	Biochemical Oxygen Demand 5 days 20°C	Less than 3mg/l
3.	Dissolved Oxygen	More than 5.0 mg/liter
4.	Faecal Coliforms	Less than 500 MPN/100ml

4.0. Aspects in compliance of Hon'ble NGT Order 20th September 2018, 19th December 2018 and 08th April, 2019

4.1. Rain Water Harvesting/ Ground Water Recharge aspects:

The IPH department Rain water harvesting Plans already operational.

4.2. Maintaining E-Flows:

Beas River is a perennial river and the discharge of this river is sufficient lean season. However the e-flow is being maintained. Maintaining E-flow in River and rivulets is an activity covered under Watershed Management Program also. However, while formulating a scheme be it Water Supply Scheme or Irrigation department taps only 75% of available lean period discharge as dependable discharge work automatically takes care of maintaining e-flow at point of extraction. However as per Action plan for modification in existing sewage treatment plants along Kullu, Mandi, Hamirpur the treated water will be discharged. The E-flow will be assessed accordingly.

4.3. Water Shed Management: -

The Forest Department has ongoing water reservoir management plans operation on the Stretch of River Beas along drains or contributing Rivers i.e Parvati River, AD Nallahs with combined estimate of Rs.

4.4. Use of Treated Sewage:

IPH Department has proposed modification i.e provision of equalization and tertiary treatment in existing Sewage treatment Plants to bring the treated water quality up to <10 mg/l Bod, so, however there is no proposal for utilization of treated sewage as there is no sufficient land for irrigation, and also techno-economic non-viability because of pumping sewage to higher elevation, Non-acceptability of public at large.

4.5. Good Irrigation Practice:

No irrigation scheme exist as reported by IPH.

4.6. Development of Bio-diversity parks:

No Such proposal of forest Department exist till date.

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 **Rs. 260.40 Crore**. The Chief Secretary has reviewed the proposal during meeting on 08th 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 River Ashwani will be done from local bodies or Urban Development Department. The details are elaborated in point no. 07.

6.0. Executive Summery :

The Action Plan mainly comprising of Sewage Treatment's Plant and proposal of new STP, Solid Waste Management, Plantation Proposal. 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.

7. Proposed Action Plan

7.1. Proposed Action Plans (Short, Medium and Long Term Plan) with timelines including the organization/agency responsible for its implementation for Rejuvenation of River Beas, of Distt. Kullu

(Kullu)

Sr. No.	Action Plan for Rejuvenation of River Beas	Organization/ Agency Responsible for Execution of the Action plan	Time Target	Total Budget Estimate	Remarks
I.	Industrial Effluent Management				
	(a)	Inventorisation of the industries/Hotels in the catchment area of River Beas in Manali to Kullu region, covering assessment on aspects relating to Status of Consents under Water & Air Acts and Authorisation, Effluent Generation, ETP capacities and final mode of effluent discharges.	HPPCB	28 th February, 2019	Department Own Budget
	(b)	Actions against the Identified Industries / Hotels in operation without Consents under Water & Air Acts/Authorisation under the H& OW (M & TM) Rules, 2016 as amended	HPPCB	31 st March, 2019	Department Own Budget
	(c)	Action against the industries/Hotels not installed ETPs or STPs exist but not operating or ETP outlet or treated effluent from ETP or STP is not complying to the effluent discharge standards or norms.	HPPCB	31 st March, 2019	Department Own Budget
	(d)	Directions to all the industries/Hotels which are observed to be not in operation or closed or temporarily closed to remain close till further order from HPSPCB	HPPCB	31 st March, 2019	Department Own Budget

	(e)	Estimation of industrial effluent generation or sewage generation and to arrive gap between the industrial effluent or sewage generation and the existing capacity of treatment provided and action thereof by providing ETPs/STPs or modifications.	HPPCB	31 st May, 2019	Department Own Budget	
II	Sewage Treatment and Management					
	(a)	Area wise population, water requirement, estimation of total sewage generation, total population, water supply and existing treatment capacities, sewage presently treated in existing STPs/septic tanks, gaps in sewage treatment capacity.	I&PH and M.C Kullu Rural Development	15 th March, 2019	Department Own Budget	
	(b)	To undertake flow test, to identify the areas contributing pollution load in drains w.r.t. no. of households, commercial settlements, hotels, along with improvements. The existing mode of treatment for upgrading septic tanks, setting up of captive STPs or connectivity with sewer lines.	I&PH and M.C Kullu	31 st July, 2019	Department Own Budget	
	(c)	Channelization including diversion of sewage generated from Hotels/household/townships/villages to sewer lines/interception of all the drains presently carrying sewage and for ensuring proper treatment through the upcoming STPs at Manali region and existing STPs at Kullu region.	I&PH and M.C Kullu	Proposal for channelization of River Beas from Palchan to Aut under HP Flood & River Management Project has been submitted to the Govt. of India for funds amounting to Rs. 585 crores , which has	Department Own Budget	

				principally been approved and final approval from Govt. of India is awaited. After approval of the fund, the channelization will be completed by 31-03-2023 as proposed by I&PH Department.		
	(d)	Proper design, execution of STPs with full utilization capacity by connecting the left out areas with existing s i.e. 1 no.STP at Manali and 6 Nos. of STP at Kullu.	I&PH	DPR submitted. At Present the STP is functioning with full capacity and the DPR for the requirement /capacity of 3.0 MLD has been prepared amounting to Rs 6.17 crores and has been submitted for approval to the higher authority. Works undergoing: For connecting the left out households to the sewer line, estimated cost	Department Own Budget	

				amounting to Rs. 1053.89 Lakhs has been approved and work is under progress. A sewerage scheme for Marhi area is being executed and the estimated cost of Rs.114.32 Lakh and it has been proposed to construct a 20 KLD STP at Marhi. It is proposed to complete the work by 31st December, 2019.		
(e)	Execution of project proposal for sewage treatment by setting up of STPs for three regions at Manali and Kullu regions (if any).	I&PH	Proposed STPs at Manali: Location Sector1 & Sector-2 4.21 Jagatsukh 0.32 Kanyal & Sector-3 9.17 Old Manali 1.28 Total capacity 12.34 MLD	State Government Budget		
(f)	Sewage/Septage management with low cost treatment technology for rural areas.	Rural Development, Municipal Council	Solid Liquid Waste Management in Rural area in the catchment of River Beas in district- Kullu shall be	State Government Budget		

				completed by 31 st October, 2019			
III	Ground Water Quality						
	(a)	Sampling of Tube wells, Bore wells, Hand Pumps.	I&PH, HPPCB	28 th February, 2019	Department Own Budget		
	(b)	Sampling and analysis of Drinking Water Supply Schemes along River Beas catchment for Manali, Kullu upto Aut.	I&PH	28 th February, 2019 There is no drinking water supply scheme from River Beas, however monitoring of any left out water supply scheme in catchment of River Beas shall be covered.	Department Own Budget		
	(c)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	I&PH.	31 st March, 2019	Department Own Budget		
	(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	I&PH	15 th February, 2019 No such areas fall in this region, assessment shall be done to check if any.	Department Own Budget		
	(e)	To conduct periodic surprise inspection of the industries to rule out any forceful injection of industrial effluents into ground water sources	I&PH, HPPCB	Every 15 days.	Department Own Budget		

	(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 and CGWA	28 th February, 2019	Department Own Budget		
	(g)	Regular monitoring and sampling of water quality of River Beas from Manali to Kullu and upto Aut.	HPPCB	Every month	Department Own Budget		
	(h)	Impact of water pollution on health of public by organizing Health camp.	Health Department.	Every 3 months	Department Own Budget		
IV	Solid Waste Management						
	(a)	Setting up of common solid waste processing facility for Manali and Kullu region for Disposal of Solid Waste as per Solid Waste Management Rules, 2016	Municipal Council, Manali Municipal Council, Kullu	31 st March, 2019	Department Own Budget		
	(c)	Prohibition of disposal of Plastic and unattended dumping of solid waste, hazardous waste, e-waste and bio-medical waste by ___ actions thereof	MC Manali, MC Kullu, HPSPCB	28 th February, 2019	Department Own Budget		
V	Flood Plain Zone						
	(a)	Plantation in flood Plain Zone along Kullu and Manali region.	Forest Department.	31 st January, 2022	Department Own Budget		
	(b)	Checking encroachments on the banks of River Stretches in District Kullu i.e. Beas at Kullu, Parvati at Manikaran, Sainj at Sainj valley, Sarwari Nalla at Kullu and removal of encroachment thereof.	District Administration, Forest Department	31 st July, 2019	Department Own Budget		
	(c)	Notification of Flood Plain Zone	IPH, Forest Department, State Government	31 st July, 2019	Department Own Budget		
	(d)	Measurement of flow of all the Four Rivers i.e. Beas from Kullu to Aut Parvati at Manikaran, Sainj at Sainj valley, Sarwari Nalla at Kullu.	I&PH	31 st March, 2019	Department Own Budget		

	(e)	Prevention of muck dumping along the bank of river Beas and its tributaries	NHAI, PWD, I&PH and Mining Department	28 th February, 2019	Department Own Budget		
	(f)	Complete prevention of illegal mining along the catchment of River Beas by conducting surprise checking and sealing all illegal mining activities.	Mining Department	31 st March, 2019	Department Own Budget		
VI	Miscellaneous						
	(a)	Cleanliness drive along River Beas stretch.	District Administration, HPSPCB, MC, other stakeholders	Once every month	Department Own Budget		
	(b)	Maintaining ecological flow for ecological balance	IP&H	As per the mandate of HP Govt. HEPs release 15% of flow in the immediate downstream as “e-flow” and the real time online discharge is available in public	Department Own Budget		
	(c)	Setting up of website for public participation		HPSPCB has created a suggestion Tab on the website hppcb.nic.in.	Department Own Budget		
	(d)	Illegal mining	Mining department	Surprise inspection to stop the Illegal mining along the river. On regular basis.	Department Own Budget		

7.2. Proposed action plans (Short, Medium and Long term plans) with time lines including the organization/agency responsible for its implementation for Rejuvenation of River Beas (Mandi)

(Mandi)

Sr.No.	Action Plan for Rejuvenation of River Beas	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
I	Industrial Effluent Management				
(a)	Inventorization of the water polluting industries/ Hotels in the catchment of River Beas covering assessment on aspects relating to status of Consents under Water & Air Acts and Authorization, Effluent and Sewage Generation, ETP Capacities and final mode of effluent discharge	HPSPCB	28 th February, 2019	Department Own Budget	--
(b)	Action against the identified industries and Hotels in operation without Consent under Water & Air Act/ Authorization under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	HPSPCB	28 th February, 2019	Department Own Budget	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 shall be taken against any unit found <u>operating</u>
(c)	Action against the Hotels and industries who have not installed ETPs or STPs and also against the industries which have existing ETPs or STPs but not operating and treated effluent is not meeting the prescribed standards as per stipulated norms.	HPSPCB	Within 15 days and continuous feature.	Department Own Budget	Seasonal operation of cold storage (3 nos.) as when in operation sample will be collected.
(d)	Estimation of industrial effluent generation and treatment capacity exist to check the gap and actions thereof by installations of ETP/STPs or modification in existing system.	HPSPCB	Within 4 months 31 st May, 2019	Department Own Budget	--

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(e)	Proper protection measures for existing MC Mandi dumping sites along river Beas catchment in order to prevent from littering setting up of common solid waste processing facility at Mandi.	MC Mandi	28 th February, 2019	Department Own Budget	--
II	Domestic Sewage Management				
(a)	Area wise estimation of total population, water requirement and sewage generation of Mandi and rural areas along stretch of River Beas.	IPH, Rural Development Department, MC Mandi	28 th February, 2019	Department Own Budget	
(b)	To undertake channelization of Beas River	I&PH	31 st January, 2021	Department Own Budget	
(c)	Installation of continuous Real Time Water Quality Monitoring Station at sewage treatment plant at Mandi.	MC Rohru and I&PH	31 st July, 2019	Department Own Budget	
(d)	Proper design, execution of sewerage lines and up-gradation of Sewage Treatment Plant of Mandi Town.	I&PH, Industry Department.	31 st January, 2021	Department Own Budget	
(e)	Measurement of drains contributing pollution load to River Beas through human settlements and rural areas.		28 th February, 2019	Department Own Budget	
(f)	Sewage/septage management of rural areas with low cost treatment technology.	Rural Development	31 st October, 2019	Department Own Budget	
III	Ground Water Management				
(a)	Sampling of Tube wells, Bore wells, Hand Pumps in Mandi area.	I&PH, HPSPCB	28 th February, 2019	Department Own Budget	-

(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Mandi area.	I&PH	15 th February, 2019	Department Own Budget	-
(C)	Sealing of contaminated handpumps and found to be unfit for drinking purpose by the public.	I&PH, HP GWA	31 st March, 2019	Department Own Budget	-
(d)	Carrying assessment of ground water survey for quality and to identify overexploited and critical areas.	I&PH, HP GWA	15 th February, 2019	Department Own Budget	
(e)	To conduct periodic surprise inspection of the industries/hotels to rule out any forceful injection of industrial and sewage effluents onto ground water sources	I&PH, HPSPCB	Every 15 days.	Department Own Budget	-
(f)	All the industries should be directed to obtain NOC from HPGWA/CGWA and action against the units in operation without obtaining NOC from PGWA/CGWA.	I&PH	Within 15 days.	Department Own Budget	
IV		Miscellaneous			
(a)	Regular monitoring and sampling of water quality of River Beas and various drains on monthly basis.	HPSPCB	Every 1 Month.	Department Own Budget	-
(b)	Impact of water pollution on health of public by organizing Health Camps.	State Health Deptt.,	Every 3 Months	Department Own Budget	-
(c)	Plantation/a forestation in Flood Plain Zone.	Forest Department	31 st January, 2022	Department Own Budget	-
(d)	Conducting feasibility study for setting up of bio-diversity parks along the stretch of River Beas.	Forest Department	90 days	Department Own Budget	
(e)	Checking encroachment in flood plain zone of River Beas along with notifying flood plain zone along the stretch of River Beas.	IP&H Department Forest Department State Government	31 st July, 2019	Department Own Budget	
(f)	Prohibition of disposal of Municipal Plastic and Bio-medical Waste particularly in drains	District Local Administration	Within 2 months.	Department Own Budget	

(f)	Maintaining e-flow in River Beas for having ecological balance in the river system.	125 136 PH Department		Department Own Budget	As per the mandate of HP Govt. HEPs release 15% of flow in the immediate downstream as "e-flow" and the real time online discharge is available in public domain through HPSPCB website hppcb.nic.in
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7.3. Action Plan for Rejuvenation of River Beas Stretch (from Village Sachuhi Tehsil Sujanpur Tihra to Village Kaloor, Tehsil Nadaun falls under the jurisdiction of District Hamirpur (HP)

(Hamirpur)

Sr. No.	Action Plan for Rejuvenation of River Beas	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
I	Industrial Pollution Control				
(a)	Inventorization of the water polluting industries in the catchment of River Beas 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	Completed	Department Own Budget	--
(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	Within one month 28 th February, 2019	Department Own Budget	----
(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	Completed	Department Own Budget	Presently no water polluting unit operating without ETP and future

					inspection will be carried out on regular basis of the area randomly.
II	Ground Water Quality				
(a)	Sampling of Tubewells, Borewells, Hand Pumps.	I&PH	Completed	Department Own Budget	Total 10 no's Samples have been taken by IPH Hamirpur in Sujapur & Nadaun Towns. The results reported by Executive Engineer, I&PH Hamirpur are within the limit
IV	Miscellaneous				
(a)	Cleanliness drive	District Administration, HPSPCB, MC, other stakeholders	Every month	Department Own Budget	A cleanliness drive was taken out by HPSPCB along with Administration, MC/NP, Mahila Mandal and Local residents along the River Beas at Nadoun and Sujnapurtihra.
(b)	Maintaining ecological flow for ecological balance	IP&H, HEP	Real time online display	Department Own Budget	As per the mandate of HP Govt. HEPs release 15% of flow in the immediate downstream as "e-flow" and the real time online

					discharge is available in public domain through HPSPCB website hppcb.nic.in
(c)	Plantation and setting up of bio-diversity park.	Forest Department	31 st January, 2021	Department Own Budget	90 days for conducting feasibility study for setting up of bio-diversity park.
(d)	Notification of Flood Plain Zone along the stretch of River Beas.	IP&H District Administration	31 st July, 2019	Department Own Budget	--

7.4. Proposed Action Plans (Short, Medium and Long Term Plan) with time lines including the organization/agency responsible for its implementation for Rejuvenation of River Beas, of Distt. Kangra

(Kangra)

Sr. No.	Action Plan for Rejuvenation of River Beas	Organization/ Agency Responsible for Execution of the Action plan	Time Target	Total Budget Estimate	Remarks
I.	Industrial Pollution Control				
(a)	Inventorization of the industries/Hotels in the catchment area of River Stretches in District Kangra, covering assessment on aspects relating to Status of Consents under Water & Air Acts and Authorization, Effluent Generation, ETP capacities and final mode of effluent discharges.	HPSPCB, Department of Industries and Tourism Department. 28 th February, 2019	01 Month	Department Own Budget	There is no major water polluting industries in the catchment area. 11 units (6 Stone Crushers, 2 hotels, 2 HMP and 1 katha Bhatti) are

					situated.	
	(b)	Actions against the Identified Industries/Hotels in operation without Consents under Water & Air Acts/Authorization under the H & OW (M & TM) Rules, 2016 as amended	HPPCB	31 st March, 2019	Department Own Budget	
	(c)	Action against the industries/Hotels not installed ETPs or ETPs or exist but not operating or ETP outlet or treated effluent is not complying to the effluent discharge standards or norms.	HPPCB	31 st March, 2019	Department Own Budget	
	(d)	Prohibition of Burning of any kind of waste including agro-residues.	State Govt./District and Local authorities	MC Dehra - No Burning is being allowed and regularly monitoring the area to check such incidents if any	Department Own Budget	
	(e)	Directions to all the industries/Hotels which are observed to be not in operation or closed or temporarily closed to remain close till further order from PCB	HPPCB	28 th February, 20119	Department Own Budget	
	(f)	Estimation of industrial effluent generation and to arrive gap between the industrial effluent generation and the existing treatment capacity and installation, modification of ETPs/STPs	HPPCB	30 th May, 2019	Department Own Budget	
II	Domestic Sewage Management					

	(a)	Population, water supply and estimation of total sewage generation, existing treatment capacities of existing STPs/septic tanks, quantum of sewage presently treated in existing STPs to arrive gaps in sewage treatment capacity.	I&PH and M.C Rural Development	15 th April,	Department Own Budget	
	(b)	To undertake flow test, to identify the areas contributing pollution load in drains w.r.t. no. of households, commercial settlements, hotels, along with improvements. The existing mode of treatment for upgrading septic tanks, setting up of captive STPs or connectivity with sewer lines.	I&PH and M.C Dehra	31st July, 2019	Department Own Budget	
	(c)	Proper design, execution of STPs by constructing proposed STPs at left out areas and connectivity thereof.	I&PH	At present there is only 01 No. STP of capacity 2.83 MLD is functioning at Jawalamukhi town. 01 No. STP proposed for Dehra town is still under construction, which shall be completed by 31 st March, 2019.	Department Own Budget	
III	Ground Water Quality					
	(a)	Sampling of Tube wells, Bore wells, Hand Pumps.	I&PH, HPPCB	28 th February, 2019	Department Own Budget	

	(b)	Sampling and analysis of Drinking Water Supply Schemes in and around River Stretches in District Kangra.	I&PH	28 th February, 2019	Department Own Budget	
	(c)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	I&PH.	31 st March, 2019	Department Own Budget	
	(d)	To conduct periodic surprise inspection of the industries to rule out any forceful injection of industrial effluents into ground water sources	I&PH, HPPCB	Every 15 days	Department Own Budget	
	(e)	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	28 th February, 2019	Department Own Budget	
	(f)	Regular monitoring and sampling of water quality of River Beas from Harsi to Dehr in District Dehra	HPPCB	On monthly basis	Department Own Budget	
	(g)	Impact of water pollution on health of public by organizing Health camp.	Health Department	Every 3 months	Department Own Budget	
IV	Solid Waste Management					
	(a)	Setting up of solid waste facility for Disposal of Solid Waste as per Solid Waste Management Rules, 2016	M.C. Dehra	Every 3 months	Department Own Budget	
	(b)	Prohibition on littering of plastic waste, solid waste, bio-medical waste, e-waste and hazardous waste and burning of solid waste including actions thereof.	MC, HPSPCB	Regularly monitoring the hotspots	Department Own Budget	
V	Flood Plain Zone					
	(a)	Plantation in flood plain zone in the catchment area of River Beas	Forest Department.	31 st January, 2021	Department Own Budget	

	(b)	Checking encroachments on the bank of River Stretches in District Kangra i.e.along catchment area of River Beas and removal of encroachments thereof.	Forest Department /District Administration	31 st July, 2019	Department Own Budget	
	(c)	Notification of Flood Plain Zone	IPH, State Government	31 st July, 2019	Department Own Budget	
	(d)	Measurement of flow of river Bias and its Tributaries.	I&PH	31 st March, 2019	Department Own Budget	
	(e)	Prevention of muck Dumping along the bank of river Beas and its tributaries	NHAI, PWD, I&PH and Mining Department	Three months	Department Own Budget	
	(g)	Complete prevention of illegal mining by conducting surprise inspections on areas _____ and sealing all illegal mining activity.	Mining Department	31 st March, 2019	Department Own Budget	
V	Other Aspects as NGT Order dated 20.09.2018, 19.12.2018 and 08.04.2019					
	(a)	Rain Water Harvesting/ Ground Water Recharge aspects	I & PH	Operational.	State Government Budget	Two Sites identified, DPR preparation is under
	(b)	Maintaining E-Flows	I & PH	31 st januray, 2022.	State Government Budget	E-flow will be assessed.
	(c)	Water Shed Management	Forest and Rural Development, Department of Environment	31 st January, 2022.	Department Own Budget	-

(d)	Use of Treated Sewage	I & PH	-	-	Tertiary Treatment Proposed on 02 STPs but no agricultural land available. Hence not viable.
(e)	Good Irrigation Practice	I & PH	-	-	Not viable
(f)	Development of Bio-diversity parks	Forest Department	-	-	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
RRC Member


Director, Industry Department
RRC Member

**Original Application. No. 673/2018 dated 20th September 2018, 19th
December, 2018 and 08th 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 River Giri:
Revised Action Plan
For Rejuvenation of River Giri, District- Shimla, HP**

*(Submitted in compliance to the Hon’ble National Green Tribunal (NGT) order
Dated 20th September, 2018 19th December, 2018 and 08th April, 2019)*



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

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Comprehensive Report

on

Prevention and Control of Pollution in River Giri: Action Plan for Rejuvenation of River Giri at Sainj, District Shimla, Himachal Pradesh

- 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 River Giri, and activities in the catchment area of River Giri in Himachal Pradesh**

River Giri is an important river which feeds the River Yamuna. It is also well known as the Giri Ganga. This River originates from a small spring in the south eastern areas of Himachal Pradesh in the hills of Kotkhai- Kharapather, namely known as "Kupad" in district Shimla. It flows through the districts of Shimla, Solan & Sirmour and finally joins River Yamuna at Paonta Sahib.

In district Shimla, River Giri travels distance of about 40 kilometers from its origin at Kharapathar to Sainj along Kotkhai, Gumma, Chailla, and Sainj. After that, it enters into district Solan. There are quite few small settlements mainly in Kotkhai, Gumma, Chailla, and Sainj in district Shimla and which comprises of various rural as well urban populations. There is no industrial area or polluting industry in the Catchment.

2.1. Sources of Pollution in the River Giri within the jurisdictions of Himachal Pradesh.

The main sources of the pollution in the catchment of the River Giri are small commercial establishments and sewage load from human settlements along the river stretch. There are few small commercial and human settlements at Kotkhai, Gumma, Chailla and Sainj in district Shimla HP, falls in the catchment area of River Giri. In addition to this, the rural areas mentioned above along both sides of the river also contribute to the pollution load into River Giri. The Run-off water and untapped sewage from the local and adjoining Panchayats flows downstream into the river and sometimes degrading the water quality of River Giri. Moreover, the unscientific dumping of the solid waste near the river stretch also flows downstream, and thereby degrading the water quality index of River Giri. Main sources along the stretch are detailed in **Table**.

Table:- Pollution sources in the catchment area of River Giri in District Shimla

Sr. No.	Sources of Pollution of River Giri	Main Polluting areas over catchment and along River Giri	Jurisdiction of Centralized treatment schemes existing and proposed.
1.	Industrial and Domestic Habitation.	Kotkhai, Gumma, Bagain, Chailla, Parala Fruit Mandi Sainj, Jaisghatti & Nagal Devi in Theog area.	<ul style="list-style-type: none"> • Individual septic tanks in Hotels and households. • STPs of capacities 0.465 MLD (02 Nos) and 1.15 MLD are proposed at Kotkhai and Theog respectively.

There are total 11 numbers of hotels and 6 numbers of Cold Stores (operational only during apple season) in the catchment of River Giri and every single unit have provided septic tank and soak pit for final disposal of Sewage and Sullage. At present there is no facility for scientific disposal of solid waste. The sector wise list of water polluting industries along with their estimated discharge has been given in **Table**

Table:- Water Polluting Industries in the catchment of River Giri at Sainj

Sr. No.	Type of unit	Number of units	Waste water generated in KLD	ETP/Septic tank provided
1.	Hotels	11	23.5	Septic Tank/Soak Pits
2.	Controlled Atmospheric Cold Store	6	3.04	ETP
Total		17	26.54	
<p>Sewage and Sullage generation in the Catchment Area of River Giri:-As per study conducted by IP&H, the population of Kotkhai is 1190 people and floating population is around 900 people. The population of Chailla is 1903 people and floating population is around 1000 people. Population of Sainj is 2363 people and floating population is around 700 people. For above population including rural areas the estimated sewage load calculations as per water demand of 70 litres per capita will be 3.86 MLD (approx). (Source: IPH).</p>				

Drainage pattern of Giri River along Sainj

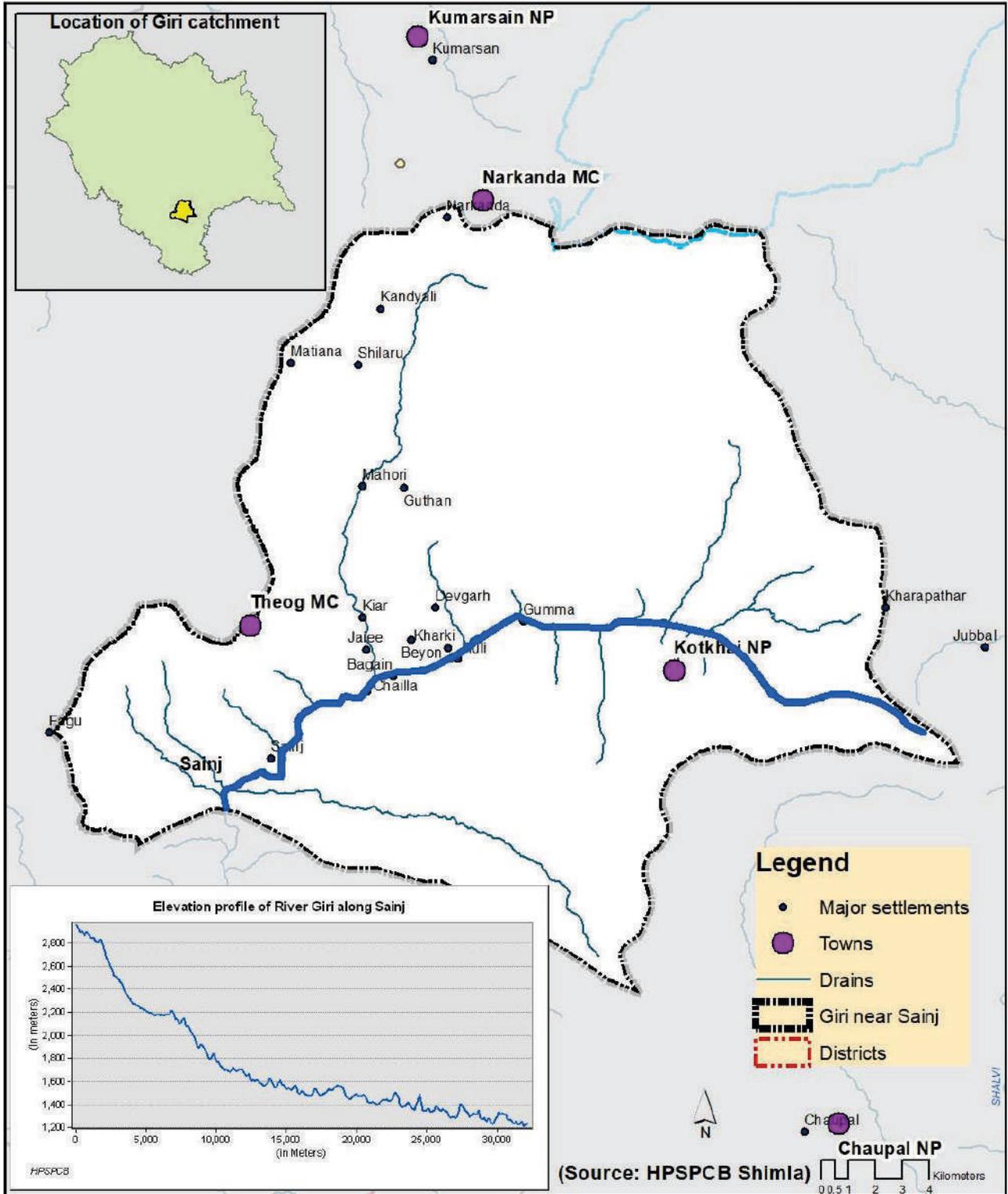


Figure 1: Digital Map showing Catchment Area of River Giri, District Shimla.

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 River Giri in context of its utility, as it is the Perennial River. The ultimate goal for beneficial use of River Giri will determine the level of actions to be taken for maintaining the water quality. Under the present circumstances, it appears that River Giri may serve the purpose of outdoor bathing (organized) and for this objective, generated domestic sewage should be treated to meet the outdoor bathing standards. There is no industry which generates trade effluent and only sewage is generated from small Gram Panchayat, Hotels and other small commercial activities which contribute to the pollution load in River Giri. These Gram Panchayats namely are Kotkhai, Chaila and Sainj. Sewage needs to be treated to meet the effluent discharge standards stipulated under Schedule-VI of the Environment (Protection) Rules, 1986.

Water from River Giri is lifted for drinking purposes to Shimla town and other rural areas. Therefore, river water quality for drinking purpose and outdoor bathing (organized) requires more stringent conditions and river water quality has to be maintained for drinking and bathing. Suggested criteria for outdoor bathing (organized) in River Giri are given in the **Table** As per the Hon'ble NGT orders vide OA No. 673 of 2018, River Giri falls under Priority-V of designated criteria depending upon the level of Bio-chemical Oxygen Demand. As per Hon'ble NGT order dated 08th April, 2019 quality of river shall meet primary water quality criteria and Action Plan should be completed within 02 years w.e.f. 1st April, 2019.

Sr. No.	Stretch	Stretch of Priority -V	BOD (mg/L)
1.	Giri	at Sainj	3-6

Table 1: Designated Water Quality Criteria for Outdoor Bathing Water by CPCB.

Sr. No.	Parameters	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 at 20°C)	3mg/l or less
4.	Faecal Coliform	MPN/100ml shall be 500 or less

4.0. Aspects in compliance of Hon'ble NGT Order 20th September 2018, 19th December 2018 and 08th April, 2019

4.1. Rain Water Harvesting/ Ground Water Recharge aspects

3 no's small rain water harvesting structures have already been constructed by the IPH Department on the tributaries, nallahs of River Giri. These 3 nos. rain water harvesting structures have been constructed on the following location :- i) At Noti Khad in GP Balghar ii) At village Halai in GP Ghorna iii) At village Bagri in GP Bagri. More rain water harvesting structures in the catchment area of River Giri can be proposed / constructed subject to the availability of funds on the following location :- i) At Kharki Nallah near village Dhagali in GP Balag for Rs. 6.00 Lakh ii) At Chilla Khad in

GP Deothi for Rs. 10.00 Lakh iii) At Bashali Khad in GP Kuthar for Rs. 15.00 Lakh. A DPR for construction of dam on River Giri at Sainj to augment drinking water supply to Shimla Town and providing lift irrigation facility to 6 surrounding Panchayats of the area from the proposed dam/harvesting structure has been approved for Rs. 88.75 crore only by the Govt.

4.2. Maintaining E-Flows

River Giri is a perennial river however the discharge of the this river is very low during summer season. However the e-flow is being maintained. No barrage and dam has been constructed on this river yet. However a dam of 25 meter height has been proposed to be constructed on this river near Sainj. The approval of this dam has been accorded by the competent authority for Rs. 88.75 Crore only. Desired E- Flow shall be maintained even after the construction of this dam. The River Giri carries sufficient flow during lean period and even after completing of STP and discharge of sewage, sufficient dilution is available and e-Flow maintained to carry BOD<03 mg/L and dTC<500 MPN/100ml.

4.3. Water Shed Management:

No proposal received from Forest Department.

4.4. Use of Treated Sewage

There is one STP under construction by IPH Department at Theog which shall be commissioned by December 2019. After taking consent of the local people the effluent can be used for Irrigation purposes till date there is no proposal of STP treated water utilization due to non availability of irrigation land throughout the year and non-acceptability of people. The proposal shall be prepared after commissioning of this STP by taking local people in to confidence. STP's are also under construction at Kotkhai the report of which can be submitted by Superintending Engineer IPH Circle Rohroo.

4.5. Good Irrigation Practice

At present there exist 5 No's irrigation schemes by IPH Department and in the catchment area of river Giri: i) LIS Bagain in GP Bagain ii) LIS Charain in GP Ghoond iii) LIS Parala in GP Sainj iv) LIS Sainj in GP Sainj v) LIS Balag in GP Balag. It irrigates about 166.87 Hect. of land of the area by flood irrigation method .However sprinkler, drip system and nozzle system may be adopted to reduce the water consumption, accordingly the project proposal can be framed subject to availability of fund.

4.6. Development of Bio-diversity parks

Establishment of Bio-diversity park requires detailed study to find out feasibility to determine availability of the area in term of extent and suitability for this purpose and also requires advance planning to determine the lay out design and technical aspects like choice of species to be grown and presences of right kind of edaphic and micro-climate condition. The Forest Department will get a feasibility study done for establishment of Bio-diversity Park in this stretch and submit cost plan for the same, if found feasible.

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. 2.81 Crore**. The Chief Secretary Himachal Pradesh has reviewed the proposal during meeting on 8th 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 be done from local bodies or Urban Development Department. The details as elaborated in point no. 07.

6.0. Executive Summary

The Action Plan mainly comprising of Sewage Treatment Proposal, Solid waste Management, Plantation Proposal. As per the directions of Hon'ble NGT, Action plan implementation shall be done within 2 years as directed by Hon'ble NGT vide order dated 08th April, 2019.

07. Proposed action plans (Short, Medium and Long term plans) with time lines including organization/agency responsible for its implementation for Rejuvenation of River Giri along Sainj.

Sr. No.	Action Plan for Rejuvenation of Giri	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks/
I	Industrial Effluent Management				
(a)	Inventorization of the water polluting industries/ Hotels in the catchment of River Giri covering assessment on aspects relating to status of Consents under Water & Air Acts and Authorization, Effluent and Sewage Generation, ETP and STP Capacities and final mode of effluent/ sewage discharge	HPSPCB	Completed	Department Own Budget	-
(b)	Action against the identified industries and Hotels in operation without Consent under Water & Air Act/Authorization under Hazardous and Other Wastes(Management and Trans boundary Movement) Rules, 2016.	HPSPCB	Completed	Department Own Budget	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 shall be taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Action against the Hotels and industries who have not installed ETPs and STPs but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	28 th February 2019	Department Own Budget	Seasonal operation of cold storage (3 nos.) as when in operation sample will be collected.
(d)	Prohibition of Burning of any kind of waste including agro residue along the stretch along with littering of plastic, solid waste along the stretch of River Giri at Kotkhai ,Chailla, and Sainj.	Rural Development Shimla	30 th April, 2019	Department Own Budget	
(e)	Estimation of industrial effluent generation and commissioning of Effluent treatment plants.	HPSPCB HRTC	30 th April, 2019	Department Own Budget	

(f)	Proposal of a Solid Waste Management facility proposal at Theog in order to cater solid waste of Chailla, Kotkhai and Sainj along the stretch of River Giri.	MC Shimla Rural Development Shimla	30 th June, 2019.	Department Own Budget	
II	Domestic Sewage Management				
(a)	Area wise estimation of total population, water requirement and sewage generation in urban and rural areas.	IPH, Rural Development Department, MC Shimla	28 th February, 2019	Department Own Budget	-
(b)	Sewage and Septage management under Rural areas – Sainj, Chailla, Gumma by upgradation of septic tanks, setting up of new septic tanks at Chailla and setting up of community toilets at Panchayat level.	Rural Development	31 st October, 2019.	Department Own Budget	
(c)	Sewage management of Kotkhai, Nagar Panchayat Theog MC by completing the construction of 2 nos. of STPs at Kotkhai and 01 no. of STP at Theog.	IPH	31 st December 2019	Department Own Budget	
(d)	Installation of continuous Real Time Water Quality Monitoring Stations at Kotkhai sewage treatment plant and Theog.	IPH	31 st December, 2019.	Department Own Budget	
III	Ground Water Management				
(a)	Sampling of Tube wells, Bore wells, Hand pumps of Chailla, Kotkhai, Theog, Sainj.	I&PH, HPSPCB	28 th February, 2019	Department Own Budget	-
(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Chailla, Kotkhai, Theog, Sainj.	I&PH	Within 15 days	Department Own Budget	-
(C)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	I&PH	30 th April, 2019	Department Own Budget	-

(d)	To conduct periodic surprise inspections of the industries/hotels to rule out any forceful injection of industrial and sewage effluents onto ground water/surface water sources.	I&PH, HPSPCB	Every 15 days.	Department Own Budget	-
IV	Miscellaneous				
(a)	Regular monitoring and sampling of water quality of River Giri and various drains on monthly basis at Chailla.	HPSPCB	Every 1 Month.	Department Own Budget	-
(b)	Impact of water pollution on health of public by organizing Health Camp.	State Health Department	Every 3 Month	Department Own Budget	-
(c)	Plantation/afforestation in Flood Plain Zone, along Sainj surrounding areas at River Giri stretch.	Forest Department	31 st March, 2022	Department Own Budget	-
(d)	Conducting feasibility study for setting up of bio-diversity parks along the stretch of River Giri.	Forest Department	31 st July, 2019.	Department Own Budget	-
(e)	Removal of encroachments in forest land in the catchment of River Giri.	Forest Department	15 days and continuous	Department Own Budget	-
(f)	Regular checking of muck dumping in catchment of River Giri.	Forest Department	15 days and continuous	Department Own Budget	-
(g)	Providing check dams along the stretch of River Giri.	Forest Department	31 st July, 2019.	Department Own Budget	-
(h)	Notification of flood plain zone by identifying flood prone areas in the catchment of River Giri.	IPH Department Forest Department State	31 st July, 2019.	Department Own Budget	-

Other Aspects as NGT Order dated 20.09.2018, 19.12.2018 and 08.04.2019					
(a)	Rain Water Harvesting/ Ground Water Recharge aspects	I & PH	03 proposed of Rain Water harvesting Rs. 88.75 crore by State Government.	State Government Budget	-
(b)	Maintaining E-Flows	I & PH	31 st December, 2019	State Government Budget	e-Flow is maintained in River.
(c)	Water Shed Management	Forest Department	No scheme exists	State Government Budget	-
(d)	Use of Treated Sewage	I & PH	31 st December, 2019	State Government Budget	Tertiary Treatment Proposed on 01 STPs.
(e)	Good Irrigation Practice	I & PH	Operational	State Government Budget	5 Nos of irrigation scheme by IPH Department.



Director, Urban
Development

RRC Member



Director, Environment
Science and
Technology

RRC Member



Member Secretary, HP
State Pollution Control
Board

RRC Member



Director, Industry
Department

RRC Member

Original Application. No. 673/2018 dated 20th September, 2018 19th
December, 2018 and 08th 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 River Pabbar: A
Revised Action Plan
for Rejuvenation of River Pabbar, District- Shimla, HP

*(Submitted in compliance to the Hon’ble National Green Tribunal (NGT) order
dated 20th September, 2018, 19th December, 2018 and 8th April, 2019)*



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

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Comprehensive Report**On****Prevention and Control of Pollution in River Pabbar: Action Plan for Rejuvenation of River Pabbar at Rohru, District- Shimla, HP.**

1.0 BACKGROUND:-Hon'ble National Green Tribunal passed the following orders in OA No. 673/2018 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....."

2.0 About River Pabbar and its tributaries, Activities thereof in the Catchment**2.1. About River Pabbar**

River Pabbar originates in Shimla district at Rohru near Chanshal peak. The origin place is Chandra-nahan Lake from where it flows towards Shimla and Sirmour district and travels a distance of approx. 70 Km in Himachal and has a flow of 4.6 m³/s at upstream Chirgaon, during lean period. The River Pabbar is a tributary river of Tons which finally merges with the River Yamuna. A Rivulet Andhra, Whiskilty khad and Shikari khad is also a subsidiary of Pabbar River. Chirgaon, Rohru and Hatkoti are the small towns located on the River Pabbar. The total catchment area of River Pabbar falling in Himachal Pradesh is 1234 Sq.Km.

2.2. Towns located in the Basin/Catchment of River Pabbar and its tributaries**a) Chirgaon**

Chirgaon is a medium size village located in Chirgaon Tehsil of Shimla district, Himachal Pradesh with total 233 families residing. The Chirgaon village has population of 1,070 as per Population Census of 2011 and present population of Chirgaon is 1085 as per projection based on decadal growth rate 17.64 %.

b) Rohru

Rohru is a town in Rohru Tehsil in Shimla District of Himachal Pradesh State, India. It has a Municipal Council and this town lies on the right bank of the River Pabbar. The river offers many fishing ponds. Chirgaon (16 kms. upstream Rohru) is famous for the breeding of Trout fish. Rantari, Jagothi, Bhalara, Arhal, Kui are the nearby Villages to Rohru. Rohru is surrounded by Chauhara Tehsil towards East, Jubbal Kotkhari Tehsil towards west, Rampur Tehsil towards North, Nankhari Tehsil towards west. The Rohru city is divided into 07 wards. Rohru Municipal Council has over 1,652 houses to which it provides basic amenities like water and sewerage. It is located at the right

bank of River Pabbar. As of 2011 India census, Rohru town had a population of 6875 and present population is 7875.

c) Jubbal

Jubbal is a Nagar Panchayat in district of Shimla, Himachal Pradesh. The urban local body is divided into 7 wards and has total 442 houses to which it provides basic amenities like water and sewerage. Jubbal, an average elevation of 2200 meters (7220 feet). As of 2011 India census, Jubbal had a population of 1640 and present population Jubbal town is 1871.

d) Hatkoti

Hatkoti is a small village located in Jubbal Tehsil of Shimla district, Himachal Pradesh with 61 families residing therein. The Hatkoti village has population of 285 as per Population Census 2011. As per data received from the ULB's the population of Hatkoti and Saraswati Nagar (Sawra) for the 2011 is 1070 and present population of the village is 1085.

2.3. Drains in the catchment of River Pabbar

The main sources of pollution to River Pabbar is sewage load contributed by habitation of Chirgaon, Rohru, Jubbal and Hatkoti located at the bank of River Pabbar and its tributary rivulets and also the rural area of Tehsil Chirgaon, Rohru and Jubbal located at the bank of River Pabbar and its tributary rivulets.

- Untapped Domestic sewage of Rohru and Jubbal.
- Domestic sewage of Chirgaon.
- Unscientific disposal of Solid waste of Chirgaon, Rohru and Jubbal and other rural areas of Tehsil Chirgaon, Rohru and Jubbal located at the basin of River Pabbar and its Rivulets.

Table : Sources of Pollution in the catchment of River Pabbar

Sr. No.	Sources of Pollution of River Pabbar and its tributary	Sub Catchment of River Pabbar	Jurisdiction of Centralized treatment schemes existing and proposed.
1	Hotels and Domestic Habitation located at the basin of Shikari Khad.	<ul style="list-style-type: none"> ➤ Rohru town towards Rampur ➤ Samala 	Common Sewage Treatment Plant at Rohru and individual septic tanks.
2	Hotels, Commercial establishment and Domestic Habitation located at the basin of Andhara Khad.	<ul style="list-style-type: none"> ➤ Rohru Town towards Chirgaon ➤ Seema ➤ Chirgaon ➤ Dhambari 	Common Sewage Treatment Plant at Rohru and individual septic tanks.
3	Hotels, Commercial establishment and Domestic Habitation of Rohru town located at the Bank of River Pabbar	<ul style="list-style-type: none"> ➤ Rohru Town towards Hatkoti ➤ Snail ➤ Kuddu 	Common Sewage Treatment Plant Rohru and individual septic tanks.
4	Industrial and Domestic Habitation of Hatkoti, Jubbal located at the Bank of Pabbar river, Whiskility Khad	<ul style="list-style-type: none"> ➤ Rohru Town towards Hatkoti ➤ Hakoti ➤ Jubbal 	Common Sewage Treatment Plant at Rohru, Jubbal and individual septic tanks.

The other main source of pollution in River Pabbar includes Solid Waste and liquid waste from various Hotels/ offices/ shops located in and around Rohru and Jubbal. There are two number of STP's located in the catchment area of River Pabbar i.e STP at Rohru Town and STP at Jubbal Nagar Panchayat. Most of the times sewage discharged from STP's at Rohru and Jubbal are not meeting the norms for Surface Water Discharge under EP Rules, 1986 which ultimately degrading water quality of River Pabbar. The STP at Rohru is on the bank of River Pabbar and the treated sewage from the STP is discharged into the River Pabbar. The treated sewage from the STP Jubbal is discharged into Whiskility Khad a tributary of River Pabbar which ultimately meets River Pabbar at Hatkoti after travelling a distance of about 7-8 Kms.

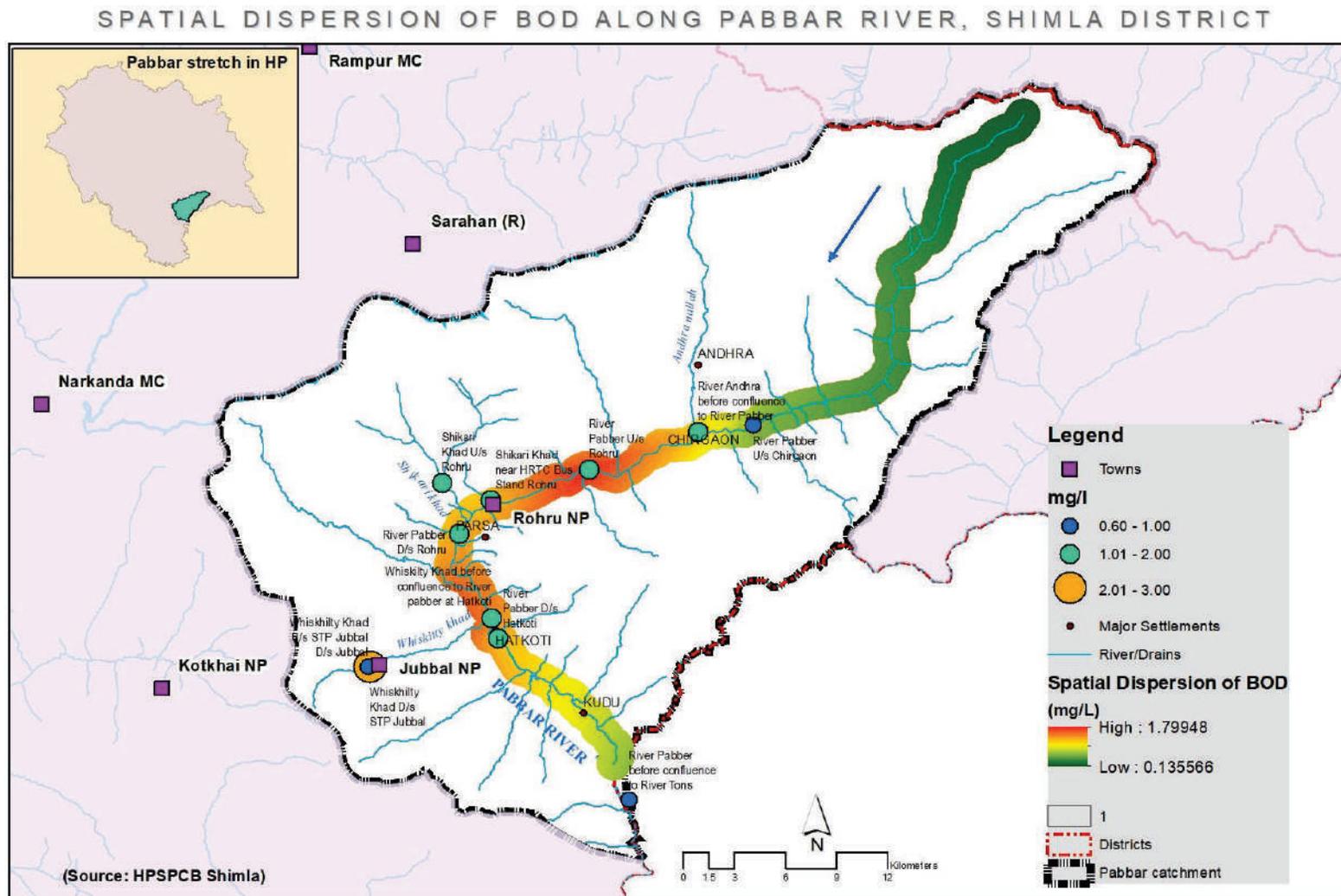


Figure : GIS-based Map showing Spatial Dispersion of BOD (mg/l) in River Pabbar.

Table : Showing BOD Level in the Rivulets of River Pabbar

Sr. No.	Name of Khad/Rivulets	Area of Catchment	Flow, M³/Sec	BOD load Kg/day
1.	Whiskility Khad U/s STP Jubbal D/s Jubbal	Jubbal Town	0.5	43.2
2.	Whiskility Khad D/s STP Jubbal	Jubal Town and STP Jubbal	0.51	114.57
3.	Shikari Khad U/s Rohru	Samala, Jagothi, Karalash	2.0	172.8
4.	Shikari Khad Near HRTC Bus Stand Rohru	Rohru town	2.1	181.4
5.	River Andhra Before confluence to river Pabbar	Rural area of Chirgaon Tehsil	5.5	475.2
6.	Whiskility Khad before confluence to River Pabbar at Hatkoti	Jubbal, Hatkoti	0.46	39.74

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

It is an important aspect for revival of River Pabbar in context of its utility as it is Perennial River. 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 River Pabbar 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 has very minimal load, however the treated effluent shall be allowed to discharge after meeting the effluent discharge standards stipulated under Schedule-VI of the Environment (Protection) Rules, 1986 which is given as Annexure-I. As per the court orders vide OA No. 673 of 2018, River Pabbar falls under Priority -V of designated criteria depending upon the level of Bio-chemical Oxygen Demand.

Sr. No.	River Name	River Stretch	Priority -V	Criteria defined by CPCB (mg/l)	BOD range/ max value (mg/l)
1.	Pabbar	Along Rohru District Shimla	V	03 - 06	3.6 - 4

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 River Pabbar are given in the following Table –

1. As per directions of Hon'ble NGT, River water quality to be achieved w.r.t primary water quality criteria within 02 years w.e.f 01st April 2019.

Table 1: Primary Water Quality Criteria for Outdoor Bathing

Sr. No.	Parameters	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	MPN/100ml shall be 500 or less

4.0. Aspects in compliance of Hon'ble NGT Order 20th September 2018, 19th December 2018 and 08th April, 2019

4.1. Rain Water Harvesting/ Ground Water Recharge aspects

25 MCM of water has already been harvested with the construction of low height structures and is used for irrigation purpose only. However a single proposal for construction of dam in Nehari Nallah has already been initiated to double the farmer income with an estimated cost of project about 4.50 crore, and to bring more 110 hect

of CCA under this project. However no rain water harvesting structure is required to be constructed for dilution of treated sewage flow from the plant because the plant have been constructed along the side of River Pabbar and Giri and sufficient length is available for dilution of treated sewerage.

4.2. Maintaining E-Flows

The discharge of river is measured during the lean period i.e. November of every year. The lean period discharge of river pabbar measured during November 2018 is 18 cumecs. The treated water from sewage treatment plant of jubbal and Rohru is being discharged in to River Pabbar, has very minimum inspect, and as per the latest water quality results, the River pabbar already meeting Primary water quality criteria for bathing and E-flow is maintained in to the River.

4.3. Water Shed Management

The Forest Department has undertaken Water Shed Management along River Pabbar in Rohru area. The work includes Water Reservoir Management, Plantation along the reservoir. The total amount allotted for the work is Rs.45.24 Lakh. The details for the year 2017-18 are enclosed at **Annexure I**.

4.4. Use of Treated Sewage:

At present the treated sewerage water is not used for irrigation purpose but is being discharged into the River Pabbar which get diluated in a length of 2 KM in the river itself. Keeping in view the direction of NGT. 2 No's of proposals costing 3.05crore and 1.38crore respectively has been framed for treated sewerage out flow. Tertiary treatment has been proposed in both the proposals which would further reduce the BOD below 3 mg/l, The work can be taken in hand after receipt of the above mention budget from State government.

4.5. Good Irrigation Practice:

In this connection it is intimated that good irrigation Practices has already been under taken by the Department. Surface water is utilized through gravity as well as Lift Irrigation Scheme and up to date potential created under this Circle is 1856.16 hect and utilization is 1432.84 hect. The treated sewerage water can not be used for irrigation because the public will not allow the sewerage treated water to be used in their private orchards/irrigation area.

4.6. Development of Bio-diversity parks

No additional proposal for setting-up of Bio-diversity park, however, plantation proposal is already included in the Action Plan.

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. 2.81 Crore**. The Chief Secretary has reviewed the proposal during meeting on 08th 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 River Pabbar 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 Solid Waste Management, Plantation Proposal, Water Shed Management. The Action Plan implementation shall be done within 02 years as directed by Hon'ble NGT vide order dated 08th April, 2019.

7. Proposed action plans (Short, Medium and Long term plans) with time lines including the organization/agency responsible for its implementation for Rejuvenation of Rive Pabbar along Rohru.

Sr.No.	Action Plan for Rejuvenation of Pabbar	Agency Responsible for Execution of Task	Time Line for Execution	Total Budget Estimate	Remarks
I	Industrial Effluent Management				
(a)	Inventorization of the water polluting industries/ Hotels in the catchment of River Pabbar covering assessment on aspects relating to status of Consents under Water & Air Acts and Authorization, Effluent and Sewage Generation, ETP and STP Capacities and final mode of effluent/ sewage discharge	HPSPCB	Completed	Department Own Budget	-
(b)	Action against the identified industries and Hotels in operation without Consent under Water & Air Act/ Authorization under Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016.	HPSPCB	28 th February, 2019 and continuous process	Department Own Budget	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 shall be taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Action against the Hotels and industries who have not installed ETPs and STPs but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	15 th February, 2019 and continuous process	Department Own Budget	Seasonal operation of cold storage (3 nos.) as when in operation sample will be collected.
(d)	Modification of effluent treatment plant of HRTC workshop located at Rohru on River Pabbar stretch.	HPSPCB, Himachal Road Transport Corporation	30.08.2019	Department Own Budget	
(e)	Connectivity of all Hotels which have septic tanks under capacity, old unprepared to sewer network of existing sewage treatment plants.		06 months	Department Own Budget	

(f)	Proposed facility for setting up of common solid waste management facility for areas – Rohru, Jubbal and Hatkoti and other area	Department of Urban Development	30.06.2019	Department Own Budget	
II	Domestic Sewage Management				
(a)	Area wise estimation of total population, water requirement and sewage generation of urban and rural areas of Rohru and other rural areas.	IPH, Rural Development Department, MC Rohru and Nagar Panchayat Jubbal.	28 th February, 2019	Department Own Budget	-
(b)	Connectivity of left out areas through conveyance pipeline to existing common sewage treatment plants operational along the stretch of River Pabbar at Jubbal and Rohru	MC Rohru, Nagar Panchayat Jubbal and I&PH	3 months	Department Own Budget	
(c)	Sewage and Septage management for rural areas of Hatkoti, Jubbal contributing to river Pabbar, by providing community toilets and Septage treatment to existing STPs.	MC Rohru, Rural Development, Nagar Panchayat Jubbal and I&PH	31 st October, 2019	Department Own Budget	
(d)	Installation of continuous Real Time Water Quality Monitoring Stations at discharge points of STPs at Rohru, Jubbal.	MC Rohru and I&PH	06 months 31 st July, 2019	Department Own Budget	
(e)	Modification/upgradation in existing common Sewage Treatment Plants at Rohru and Jubbal, in order to improve the discharge effluent quality.	MC Rohru, Nagar Panchayat and I&PH.	31 st March, 2021	Department Own Budget	
III	Ground Water Management				
(a)	Sampling of Tube wells Bore wells, Hand Pumps in the catchment of River Pabbar	I&PH, HPSPCB	28 th February, 2019	Department Own Budget	-

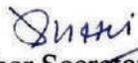
(b)	Sampling and analysis of Drinking Water Supply Schemes in and around the catchment of River Pabbar at Rohru, Jubbal, Hatkoti.	I&PH	28 th February, 2019	Department Own Budget	-
(c)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	I&PH, HP GWA	31 st March, 2019	Department Own Budget	-
(d)	To conduct periodic surprise inspection of the industries/hotels to rule out any forceful injection of industrial and sewage effluents onto ground water/surface water sources	I&PH, HPSPCB	28 th February, 2019 & regular process.	Department Own Budget	-
IV	Miscellaneous				
(a)	Regular monitoring and sampling of water quality of River Pabbar and various drains around Rohru, Hatkoti, Jubbal, etc.	HPSPCB	Every Month.	Department Own Budget	-
(b)	Impact of water pollution on health of public by organizing Health Camps at Rohru.	State Health Deptt.,	Every 3 Month	Department Own Budget	-
(c)	Plantation/afforestation in Flood Plain Zone, complete removal of encroachments in forest land in the catchment of River Pabbar and also providing check dams.	Forest Department	31 st July, 2020	Department Own Budget	-
(d)	Conducting feasibility study for setting up of bio-diversity parks along the stretch of River Pabbar.	Forest Department	90 days	Department Own Budget	
(e)	Regular checking of muck dumping in catchment of River Pabbar.	Forest Department	15 days and continuous process	Department Own Budget	
(f)	Notification of flood plain zone by identifying flood prone areas in the catchment of River Pabbar.	IPH Department and Forest Department	03 months	Department Own Budget	-

(g)	Setting up a website for public participation review and monitor the progress.	HPSPCB Environment Department	Created	Department Own Budget	
(h)	Measuring the E-flow of River Pabbar and its rivulets	IPH Department	28 th February, 2019	Department Own Budget	
V	Other Aspects as NGT Order dated 20.09.2018 and 19.12.2018				
(a)	Rain Water Harvesting/ Ground Water Recharge aspects	I & PH		State Government Budget	The single proposed of Rs. 4.5 crore has been proposed on State Government Budget.
(b)	Maintaining E-Flows	I & PH	E-flow maintained	-	No dilution required as River has already meeting Water Quality criteria.
(c)	Water Shed Management	Forest Department	Already operational	Department Own budget.	Rs.45.24 lakh work is already operational.
(d)	Use of Treated Sewage	I & PH	-	State government budget	Tertiary Treatment Proposed on 02 STPs but no agricultural land available. Hence not viable Rs. 4.43 crore has been proposed for modification.

(e)	Good Irrigation Practice	I & PH	Already operational.	-	Gravity and left Water supply scheme already operational.
(f)	Development of Bio-diversity parks	Forest Department	-	-	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
RRC Member


 Director, Industry Department
RRC Member

RIVER STRETCHES FOR RESTORATION OF WATER QUALITY

(State wise and Priority wise)



Central Pollution Control Board

(Ministry of Environment, Forest & Climate Change, Govt. of India)

Parivesh Bhawan, East Arjun Nagar,

Delhi – 110032

SEPTEMBER 2018

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1.0 IDENTIFICATION OF POLLUTED RIVER STRETCHES

The water quality data under national water quality monitoring programme for the year 2016 and 2017 is analysed statistically and monitoring locations exceeding the water quality criteria are identified as polluted.

The polluted locations in a continuous sequence are defined as polluted river stretches and categorised in five priority classes based on BOD concentration exceeding to BOD levels >30 mg/l, BOD between 20&30 mg/l, BOD between 10&20mg/l, BOD between 6-10 mg/l and BOD between 3& 6 mg/l.

Criteria for Priority 1

- ◆ Monitoring locations exceeding BOD 30 mg/l has been considered as it is the standard for discharge of treated sewage from sewage treatment plants and general standard for effluent discharge from effluent treatment plants to rivers/streams it appears without dilution.(River locations having water quality exceeding discharge standards for BOD to fresh water sources)
- ◆ All monitoring locations exceeding BOD concentration 6 mg/l on all occasions.
- ◆ Monitoring locations exceeding 3 mg/l BOD are not meeting desired water quality criteria but does not affect to Dissolved Oxygen level in water bodies. If BOD exceeds 6mg/l in water body, the Dissolved Oxygen is reduced below desired levels.
- ◆ The raw water having BOD levels upto 5 mg/l are does not form complex chemicals on chlorination for municipal water supplies. Hence the water bodies having BOD more than 6 mg/l are considered as polluted and identified for remedial action.
- ◆ List of identified stretches enclosed.

Criteria for Priority 2

- ◆ Monitoring locations having BOD between 20-30 mg/l.
- ◆ All monitoring locations exceeding BOD concentration 6 mg/l on all occasions.
- ◆ List of identified stretches enclosed.

Criteria for Priority 3

- ◆ Monitoring locations having BOD between 10-20 mg/l.
- ◆ All monitoring locations exceeding BOD concentration 6 mg/l on all occasions.
- ◆ List of identified stretches enclosed.

Criteria for Priority 4

- ◆ Monitoring locations having BOD between 6-10 mg/l.

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- ◆ List of identified stretches enclosed.

Criteria for Priority 5

- ◆ Monitoring locations having BOD between 3-6 mg/l.
- ◆ The locations exceeding desired water quality of 3mg/l BOD.
- ◆ List of identified stretches enclosed.

OUTCOME:- The priority wise number of river stretches are given in Table 1.

Table1: Priority wise Number of Polluted River Stretches

Priority	Number of Stretches
Priority 1	45
Priority 2	16
Priority 3	43
Priority 4	72
Priority 5	175
Total	351

2.0 STATUS OF POLLUTED RIVER STRETCHES IN INDIA

The assessment of water quality for identification of Polluted River Stretches has found that there are 31 States and Union Territories having rivers and streams not meeting water quality criteria.

The state of Maharashtra has highest number of 53 polluted river stretches followed by the Assam, Madhya Pradesh, Kerala, Gujarat, Odisha, West Bengal, Karnataka Uttar Pradesh, Goa, Uttarakhand, Mizoram, Manipur, Jammu & Kashmir, Telangana, Meghalaya, Jharkhand, Himachal Pradesh, Tripura, Tamilnadu, Nagaland, Bihar, Chattisgarh, Andhra Pradesh, Sikkim, Punjab, Rajasthan, Puducherry, Haryana and Delhi. The state-wise numbers of Polluted river stretches are given in Table 2.

3.0 PRIORITY WISE POLLUTED RIVER STRETCHES IN STATES AND UNION TERRITORIES

The 351 river stretches on 323 rivers are prioritised based on BOD vales in five classes. Polluted River Stretches of Priority 1 and 2 are located in 20 States and Union Territories and the names of rivers alongwith stretches is provided in Table 3. The polluted stretches of Priority 3,4 and 5 are located in 28 States and Union Territories and the names of rivers alongwith stretches is listed in Table 4.

Table – 2: State-wise & Priority wise number of Polluted River Stretches

S.No.	STATE/UNION TERRITORY	PRIORITY					Grand Total
		I	II	III	IV	V	
1	ANDHRA PRADESH				2	3	5
2	ASSAM	3	1	4	3	33	44
3	BIHAR			1		5	6
4	CHHATTISGARH				4	1	5
5	DAMAN, DIU AND DADRA NAGAR HAVELI	1					1
6	DELHI	1					1
7	GOA			1	2	8	11
8	GUJARAT	5	1	2	6	6	20
9	HARYANA	2					2
10	HIMACHAL PRADESH	1	1	1		4	7
11	JAMMU & KASHMIR		1	2	2	4	9
12	JHARKHAND				3	4	7
13	KARNATAKA			4	7	6	17
14	KERALA	1			5	15	21
15	MADHYA PRADESH	3	1	1	3	14	22
16	MAHARASHTRA	9	6	14	10	14	53
17	MANIPUR		1			8	9
18	MEGHALAYA	2			3	2	7
19	MIZORAM			1	3	5	9
20	NAGALAND	1		1	2	2	6
21	ODISHA	1		3	2	13	19
22	PUDUCHERRY				1	1	2
23	PUNJAB	2			1	1	4
24	RAJASTHAN			1		1	2
25	SIKKIM					4	4
26	TAMIL NADU	4			1	1	6
27	TELANGANA	1	2	2	2	1	8
28	TRIPURA					6	6
29	UTTAR PRADESH	4		1	2	5	12
30	UTTARAKHAND	3	1	1	4		9
31	WEST BENGAL	1	1	3	4	8	17
	Grand Total	45	16	43	72	175	351

Tab13 3: Polluted River Stretches- Priority I & Priority II				
STATE	RIVER NAME	RIVER STRETCH	BOD RANGE/ MAX VALUE (mg/l)	PRIORITY
ASSAM	BHARALU	GUWAHATI TO CHILARAI NAGAR	52.0	I
	BORSOLA	Along SARABBHATTI, GUWAHATI	34.0	I
	SILSAKO	Along chachal, Guwahati	34.0	I
	SORUSOLA	Along Paltan Bazar, Guwahati	30.0	II
DAMAN, DIU AND DADRA NAGAR HAVELI	DAMANGANG A	SILVASSA TO DAMAN JETTY, MOTI DAMAN	10 - 80	I
DELHI	YAMUNA	WAZIRABAD TO ASGARPUR	9 - 80	I
GUJARAT	AMLAKHADI	PUNGUM TO BHARUCH	40 - 45	I
	BHADAR	JETPUR VILLAGE TO SARAN VILLAGE	426.0	I
	BHOGAVO	SURENDRANAGAR TO NANA KERALA	67.0	I
	KHARI	LALI VILLAGE TO KASHIPURA	235.0	I
	SABARMATI	KHEROJ TO VAUTHA	4 - 147	I
	VISHWAMITRI	Vadodara to Asod	6 - 21	II
HARYANA	GHAGGAR	RORKI TO SIRSA	6 - 482	I
	YAMUNA	PANIPAT TO SONEPAT	4 - 55	I
HIMACHAL PRADESH	SUKHANA	SUKHNA TO PARWANOO	54.0	I
	MARKANDA	KALA AMB TO NARAYANPUR	3.2 - 24	II
JAMMU & KASHMIR	DEVIKA	GURU RAVIDAS TEMPLE TO NAINSU	3.4-22	II
KERALA	KARAMANA	MALEKKDU TO THIRUVALLAM	56.0	I
MADHYA PRADESH	CHAMBAL	NAGDA TO RAMPURA	12 - 80	I
	KHAN	KABIT KHEDI TO KHAJRANA	30.8 - 80	I
	KSHIPRA	SIDDHAWAT TO TRIVENISANGAM	4 - 38	I
	BETWA	MANDIDEEP TO VIDISHA	3.3 - 20.2	II
MAHARASH TRA	GODAVARI	SOMESHWAR TEMPLE TO RAHED	5.0-88	I
	KALU	Along ATALE VILLAGE	75.0	I
	KUNDALIKA	SALAV TO ROHA	3.8-65	I
	MITHI	POWAI TO DHARAVI	250.0	I
	MORNA	AKOLA TO TAKALIJALAM	52.8	I
	MULA	BOPODI TO AUNDH GAON	33-35	I
	MUTHA	SHIVAJI NAGAR TO KHADAKWASLA DAM	5.0-42.5	I
	NIRA	SANGAVI TO SHINDEWADI	12.5-35	I
	VEL	NHAVARE TO SHIKARPUR	30.2	I
	BHIMA	VITHALWADI TO TAKLI	8.0-22.0	II
	INDRAYANI	MOSHIGAON TO ALANDIGAON	12.5-22	II
	MULA-MUTHA	THEUR TO MUNDHWA BRIDGE	14-22	II
	PAWANA	DAPODI TO RAVET	15.5-24	II
	WAINGANGA	TUMSA TO ASHTI	10.4-22.4	II
WARDHA	GHUGHUS TO RAJURA	7.0-22.0	II	
MANIPUR	NAMBUL	SINGDA DAM TO BISHNUPUR	3.6-23.7	II
MEGHALAY A	UMKHRAH	MAWLAI TO SHILLONG	30-90.2	I
	UMSHYRPI	UMSHYRPI BRIDGE TO DHANKETI	38.5-95.0	I
NAGALAND	DHANSIRI	CHECK GATE TO DIPHU BDG	7.0-50.0	I

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ODISHA	GANGUA	D/s Bhuwaneshwar	14-39	I
PUNJAB	GHAGGAR	SARDULGARH TO MUBARAKPUR	9.0-380	I
	SATLUJ	RUPNAGAR TO HARIKA BRIDGE	3.8-108	I
TAMIL NADU	CAUVERY	METTUR TO MAYILADUTHURAI	3.3-32	I
	SARABANGA	THATHAYAMPATTI TO T.KONAGAPADI	78.0	I
	THIRUMANIM UTHAR	SALEM TO PAPPARAPATTI	190.0	I
	VASISTA	MANIVILUNDHAN TO THIYAGANUR	675.0	I
TELANGANA	MUSI	HYDRABAD TO NALGONDA	4.0-60.0	I
	MANJEERA	GOWDICHARLA TO NAKKAVAGU	5.0-26	II
	NAKKAVAGU	GANDILACHAPET TO SEVALAL THANDA	26.0	II
UTTAR PRADESH	HINDON	SAHARANPUR TO GHAZIABAD	48-120	I
	KALINADI	MUZAFFAR NAGARTO GULAOTHI TOWN	8 - 78	I
	VARUNA	Rameshwar to conf with Ganga, Varanasi	4.5-45.2	I
	YAMUNA	ASGARPUR TO ETAWAH SHAHPUR TO ALLAHABAD (BALUA GHAT)	12.0-55	I
UTTARAKHAND	BHELA	KASHIPUR TO RAJPURA ATNDA	6.0-76.0	I
	DHELA	KASHIPUR TO GARHUWALA, THAKURDWARA	12 - 80	I
	SUSWA	MOTROWALA TO RAIWALA	37.0	I
	KICHHA	Along Kichha	28.0	II
WEST BENGAL	VINDHADHAR I	HAROA BRIDGE TO MALANCHA BURNING GHAT	26.7-45.0	I
	MAHANANDA	SILIGURI TO BINAGURI	6.5-25	II

Table 4: Polluted River Stretches- Priority III, IV & V

STATE	RIVER NAME	RIVER STRETCH	BOD RANGE/ MAX VALUE (mg/l)	PRIORITY
ANDHRA PRADESH	KUNDU	NANDYAL TO MADDURU	7.7	IV
	TUNGABHADRA	MANTHRALAYAM TO BAVAPURAM	3.2 - 6.7	IV
	GODAVARI	RAYANPETA TO RAJAHMUNDRI	3.1 - 3.4	V
	KRISHNA	AMRAVATHI TO HAMSALA DEEVI	3.2	V
	NAGAVALI	Along Thotapalli	3.2	V
ASSAM	DEEPAR BILL	DEEPAR BILL TO GUWAHATI	10.6	III
	DIGBOI	LAKHIPATHE, RESERVE FOREST	14.0	III
	KAMALPUR	Along Kamalpur	18.6	III
	PANCHNAI	ORANG TO BORSALA	11.4	III
	BRAHAMPUTRA	KHERGHAT TO DHUBRI	3.2 - 6.4	IV
	KHARSANG	ASSAM-ARUNANCHAL BORDER TO LONGTOM-1	7.2	IV
	PAGLDIA	NALBARI TO KHUDRA SANKARA	8.2	IV
	BARAK	PANCHGRAM TO SILCHAR	3.5 - 4.2	V
	BAROI	DOWNSTREAM OF BRIDGE	3.6	V

	AT NH-52			
	BEGA	Along Mangaldoi	4.5	V
	BEKI	BARPETA ROAD TO JYOTI GAON	3.5	V
	BHOGDOI	JORHAT TO DULIAGAON	4.5	V
	BOGINADI	LAKHIMPUR TO DIBRUGARH	4.2	V
	BORBEEL	Along Ramnagar, Digboi	3.8	V
	BORDOIBAM BEELMUKH	Along BEELMUKH BIRD SANCTUARY, DHEMAJI	5.2	V
	BURHIDIHING	MARGHERITA TO TINSUKIA	4 - 4.6	V
	DHANSIRI	GOLAGHAT TO KATHKETIA	4.3 - 5.6	V
	DIKHOW	NAGINI MORA to Dikhomukh	3.2	V
	DIKRONG	Along BANDARDEWA	3.2	V
	DIPLAI	Along SILGARA, KOKRAJHAR	3.2	V
	DISANG	DILLIGHAT TO GUNDAMGHAT	4.2	V
	GABHARU	Along TUMIUKI, SONITPUR	5.4	V
	HOLUDUNGA	Along SOMARAJAN, DHEMAJI	4.8	V
	Jai Bharali	Along SONITPUR	3.1	V
	JHANJI	JORHAT TO CHAWDANG	3.8	V
	KALONG	NAGAON TO MORI KALONG	3.7 - 4.3	V
	KAPILI	NAGAON TO KAMPUR TOWN	5.5	V
	KILLING	Along Moregaon	5.8	V
	KOHORA	KOHORA TO MOHPARA	4.4	V
	KULSI	Along Chaygaon	3.6	V
	MALINI	Along Ramnagar, Silchar	5.3	V
	MORA BHARALI	Along Tezpur	5.2	V
	PARASHALI	Along DEMORIA	4.0	V
	PUTHIMARI	Along PUTHIMARI	4.8	V
	RANGA	Along Geramukh	3.8	V
	SAMAGURI	Along Samaguri, nagaon	4.0	V
	SANKOSH	Along Golakganj	3.3	V
	SON	Along Deodhar, KARIMGANJ	4.3	V
	SONAI	SONAI TO DAKSHIN MOHANPUR	4.4	V
	TENGA PUKHURI	Along Kukurachowa Gaon	4.0	V
BIHAR	SIRSIA	RUXOL TO KOIREA TOLA (RAXAUL)	20.0	III
	FARMAR	Along JOGBANI	3.6	V
	GANGA	BUXAR TO BHAGALPUR	3.2 - 4.2	V
	POONPUN	Gaurichak to Fatuha	3.3	V
	RAM REKHA	HARINAGAR TO RAMNAGAR	5.0	V
	SIKRAHNA	Along Narkatiaganj	4.5	V
CHHATTISGARH	HASDEO	KORBA TO URGA	3.6 - 7	IV
	KHAROON	BUNDRI TO RAIPUR	3.3 - 7.2	IV
	MAHANADI	ARRANG TO SIHAWA	3.3 - 8	IV
	SEONATH	SHIMGA TO BEMTA	3.4 - 8.4	IV
	KELO	RAIGARH TO KANAKTORA	3.8	V
GOA	SAL	KHAREBAND TO MOBOR	4.2 - 16.8	III

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	MANDOVI	MARCELA TO VOLVOI	3.3 - 6.2	IV
	TALPONA	along canacona	6.8	IV
	ASSONORA	ASSONORA TO SIRSAIM	3.3	V
	BICHOLIM	BICHOLIM TO CURCHIREM	4.8	V
	CHAPORA	PERNEM TO MORJIM	3.5 - 5.2	V
	KHANDEPAR	PONDA TO OPA	3.4	V
	SINQUERIM	Along Candolim	3.6	V
	TIRACOL	Along Tiracol	3.9	V
	VALVANT	SANKLI – BICHOLIM TO PORIEM	4.3	V
	ZUARI	Curcholem to Madkai	3.2 - 5.1	V
GUJARAT	DHADAR	KHOTDA TO CHANDPURA	16.0	III
	TRIVENI	TRIVENI SANGAM TO BADALPARA	11.0	III
	AMRAVATI (TRIBUTARY OF NARMADA)	Along Dadhal, Ankaleshwar	10.0	IV
	DAMANGANGA	KACHIGAON TO VAPI	8.0	IV
	KOLAK	KIKARLA TO SALVAV	8.0	IV
	MAHI	SEVALIA TO BAHADARPUR	4.5 - 7	IV
	SHEDHI	DHAMOD TO KHEDA	9.0	IV
	TAPI	KHADOD (BARDOLI) TO SURAT	8.0	IV
	ANAS	DAHOD TO FATEHPURA	5.0	V
	BALEHWAR KHADI	PANDESARA TO KAPLETHA	4.0	V
	KIM	SAHOL BRIDGE TO HANSOL	3.1	V
	MESHWA	Along Shamlaji	4.0	V
	MINDHOLA	Along Sachin	6.0	V
	NARMADA	GARUDESHWAR TO BHARUCH	5.0	V
HIMACHAL PRADESH	SIRSA	NALAGARH TO SOLAN	8 - 16	III
	ASHWANI	Along YASHWANT NAGAR	3.2	V
	BEAS	KULLU TO DEHRAGOPIPUR	6.0	V
	GIRI	Along Sainj	4.4 - 6	V
	PABBAR	Along Rohru	3.6 - 4	V
JAMMU & KASHMIR	BANGANGA	PONY SHED TO BATHING GHAT	6 - 14	III
	CHUNT KOL	MAULANA AZAD BRIDGE TO KANIKADAL	14.5	III
	GAWKADAL	GAWKADAL BRIDGE TO NOHATA	9.0	IV
	TAWI	SURAJNAGAR TO BELICHARANA	5 - 8.3	IV
	BASANTER	SAMBA TO CHAKMANGARAKWAL	5 - 6	V
	CHENAB	JAL PATAN TO PARGAWAL	5.0	V
	JHELAM	CHATTABAL WEIR TO ANANTNAG	3.2 - 5.5	V
	SINDH	ALONG DUDERHAMA	3.7	V
JHARKHAND	GARGA	Along Talmuchu	6.2	IV
	SANKH	KONGSERABASAR TO BOLBA	8.4	IV
	SUBARNAREKHA	HATIA DAM TO JAMSHEDPUR	3.4 - 10	IV

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	DAMODAR	PHUSRO ROAD BDG TO TURIO	3.9	V
	JUMAR	KANKE DAM TO KADAL	3.3	V
	KONAR	Along Tilaya and konar	3.4 - 3.6	V
	NALKARI	Along Patratu	3.8	V
KARNATAKA	ARKAVATHI	HALLI RESERVOIR TO KANAKAPURA TOWN	14.0	III
	LAKSHMANTIRTHA	KATTEMALAVADI TO HUNSUR	7.1 - 12.4	III
	MALPRBHA	KHANAPUR TO DHARWAD	7.3 - 17.3	III
	TUNGABHADRA	HARIHAR TO KORLAHALLI	4 - 19	III
	BHADRA	HOLEHUNNUR TO BHADRAVATHI	5.5 - 7.8	IV
	CAUVERY	RANGANATHITTU TO SATHYAMANGALAM BRIDGE	3.1 - 6.7	IV
	KABINI	NANJANAGUD TO HEJJIGE	3.6 - 6.5	IV
	KAGINA	SHAHABAD TO HONGUNTA	4.6 - 7.4	IV
	KALI	HASAN MAAD (WEST COAST PAPER MILL) TO BOMMANAHALLI RESERVOIR	6.5	IV
	KRISHNA	YADURWADI TO TINTINI BRIDGE	3.1 - 6.2	IV
	SHIMSHA	YEDIYAR TO HALAGUR	4 - 10	IV
	ASANGI NALLA	Along Asangi	4.4	V
	BHIMA	GHANAPUR TO YADGIR	3.3 - 6	V
	KUMARDHARA	along Uppinangadi	4.0	V
	NETRAVATHI	Uppinangadi to Mangaluru	4.0	V
	TUNGA	SHIVAMOGA TO KUDLI	4.3	V
YAGACHI	Along Yagachi, Hassan	4.0	V	
KERALA	BHARATHAPUZHA	Along Patambi	6.6	IV
	KADAMBAYAR	MANCKAKADAVU TO BRAHMAPURAM	5.9 - 6.4	IV
	KEECHERI	PULIYANNOR TO KECHERY	6.4	IV
	MANIMALA	KALLOOPARA TO THONDRA	6.3 - 6.4	IV
	PAMBA	Mannar to THAKAZHY	3.3 - 7.8	IV
	BHAVANI	Along Elachivazhy	5.4	V
	CHITRAPUZHA	IRUMPANAM TO KARINGACHIRA	4.6	V
	KADALUNDY	along HAJIRAPPALLY/ Hajiyarpalli	3.6	V
	KALLAI	THEKEPURAM TO ARAKKINAR	4.5	V
	KARUVANNUR	Along KARUVANNUR	3.5	V
	KAVVAI	Along Kavvai	3.9	V
	KUPPAM	THALIPARAMBA TO VELICHANGOOL	3.1 - 3.8	V
	KUTTIYADY	Along Kuttiyady	5.0	V
	MOGRAL	Along Mogral	3.1	V
	PERIYAR	ALWAYE-ELOOR TO KALAMASSERY	3.2 - 5.1	V
	PERUVAMBA	Along PERUVAMBA	3.9	V
PUZHACKAL	OLARIKKARA TO PUZHACKAL	3.8	V	

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	RAMAPURAM	Along Ramapuram	3.3	V
	THIRUR	NADUVILANGADI TO THALAKKADATHUR	3.6	V
	UPPALA	POYYA TO MULINJA	3.2	V
MADHYA PRADESH	SONE	Along amlai	12.4	III
	GOHAD	GOHAD DAM TO GORMI	6.3	IV
	KOLAR	SURAJNAGAR TO SHIRDIPURAM	7.5	IV
	TAPI	NEPANAGAR TO BURHANPUR	4.6 - 8	IV
	BICHIA	SILPARI TO GADHAWA	3.5	V
	CHAMLA	Along BADNAGAR, UJJAIN	4.0	V
	CHOUPAN	Along Vijaipur	3.4	V
	KALISOT	MANDIDEEP TO SAMARDHA VILLAGE	4.1	V
	KANHAN	Kanhan in Chindwara district boundry	3.2	V
	KATNI	Along Katni	3.5	V
	KUNDA	KHARGONE TO KHEDI KHURD	4.0	V
	MALEI	JAORA TO BARAUDA	3.5	V
	MANDAKINI (MP)	Along CHITRAKUT	5.8	V
	NEWAJ	Along Shujalpur	4.0	V
	PARVATI	BATAWADA TO PILUKHEDI	3.2	V
	SIMRAR	along katni	3.9	V
	TONS	CHAKGHAT TO CHAPPAR	3.5	V
	WAINGANGA	CHINDWARA TO BALAGHAT	3.2	V
MAHARASHTRA	GHOD	ANNAPUR TO SHISHUR	10.2	III
	KANHAN	BHANDARA TO NAGPUR	9.8-16.4	III
	KOLAR (MAH)	Along Koradi	18.0	III
	KRISHNA	SHINDI TO KURUNDWAD	3.4-14.0	III
	MOR	JALGAON TO AMODA	16.0	III
	PATALGANGA	KHADEPADA TO KOPOLI	5.0-18	III
	PEDHI	NARAYANPUR TO BHATKULI	20.0	III
	PENGANGA	MEHKAR TO UMARKHED	8.6-20	III
	PURNA	DHUPESHWAR TO ASEGAON	10.2-18.4	III
	TAPI	RAVER TO SHAHADA	8.0-12.0	III
	URMODI	DHANGARWADI TO NAGTHANE	12.4	III
	VENNA	MAHABALESHWAR TO MAHULI	7.2-12.5	III
	WAGHUR	SUNASGAON TO SAKEGAON	18.0	III
	WENA	KAWADGHAT TO HINDANGHAT	10.2-13.8	III
	BINDUSAR	SWARAJ NAGAR TO SNEHNAGAR	8.0	IV
	BORI	Along AMALNER	9.2	IV
	CHANDRABHAGA	PANDHARPUR TO SHEGAON DHUMALA	7.5-9.5	IV
	DARNA	IGATPURI TO SANSARI	5.0-9.0	IV
GIRNA	MALEGAON TO JALGAON	6.6-9.0	IV	
HIWARA	PACHORA TO NIMBORA	8.6	IV	

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	KOYNA	KARAD TO PAPDARDE	8.6	IV
	PEHLAR	PELHAR DAM TO GOLANI NAKA	7.0	IV
	SINA	SOLAPUR TO BANKALAGI	8.5	IV
	TITUR	Along CHALISGAON, JALGAON	7.8	IV
	AMBA	BENSE TO ROHA	4.8	V
	BHATSA	SHAHAPUR TO BHADANE	4.8-6.0	V
	GOMAI	LONKHEDA TO SHAHDA	6.0	V
	KAN	KAVATHE TO SAKARI	5.0	V
	MANJEERA	LATUR TO NANDED BRIDGE	5.0	V
	PANCHGANGA	SHIROL TO KOLHAPUR	3.2-5.8	V
	PANZARA	VARKHEDE TO DHULE	6.0	V
	RANGAVALI	TINTEMA TO NAVAPUR	5.0	V
	SAVITRI	DADLI TO MUTHAVALI	3.2-5.0	V
	SURYA	DHAMNI DAM TO PALGHAR	4.4-5.0	V
	TANSA	Along Thane	6.0	V
	ULHAS	KALYAN TO BADLAPUR	4.0-5.0	V
	VAITARNA	GANDHRE TO SARASHI	4.0	V
	VASHISTI	KHERDI TO DALVATNE	3.2-3.4	V
MANIPUR	IMPHAL	KANGLA MOAT TO SAMUROU	3.4-6.4	V
	IRIL	KANGLA SIPHAI TO UKHRUL	3.2	V
	KHUGA	KHUGA LAKE TO CHURACHANDPUR	3.1-3.6	V
	KHUJAIROK	MOREH TO MAOJANG	4.3	V
	LOKCHAO	BISHNUPUR TO LOKTAK LAKE	4.5	V
	MANIPUR	SEKMAIJAN TO THOUBAL	3.6-4.3	V
	THOUBAL	SHONG KONG TO PHADOM	3.5	V
	WANGJING	WANGJING TO HEIROK	4.1-4.3	V
MEGHALAYA	KYRHUKHLA	SUTNGA TO KHLIERIAT	10.0	IV
	NONBAH	NANGSTOIN TO WAHRIAT	6.0-7.5	IV
	UMTREW	BYRNIHAT TO MORANG DALA	6.2-8.0	IV
	LUKHA	MYNDIHATI TO SHYMPLONG	6.0	V
	MYNTDU	JOWAI TO PAMHADEM	5.2	V
MIZORAM	TIAU	Along CHAMPHAI	11.3	III
	TLAWNG	Along Zobawk, Sairang to Bairabi	3.1-6.7	IV
	TUIPUI	Along CHAMPHAI	8.2	IV
	TUIVAWL	Along KEIFANG	6.8	IV
	CHITE	Along ARMED VENG	3.7	V
	MAT	Along Serchhip	5.5	V
	SAIKAH	Along LAWNGTLAI	4.4	V
	TUIKUAL	Along SERCHHIP	6.0	V
	TUIRIAL	Along TUIRIAL, Aizwal	3.4-4.6	V
NAGALAND	DZUNA	Along Kohima	6.0-13.0	III
	CHATHE	MEDZIPHEMA TO, DIMAPUR	7.0	IV
	DZU	KOHIMA TO DZUKO VALLEY	7.0	IV
	DZUCHA	Along Kohima	4.0	V

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	SANO	Along Kohima	4.0	V
ODISHA	GURADIH NALLAH	Along Rourkela	11.3	III
	KATHAJODI	CUTTACK TO URALI	5.8-11.2	III
	NANDIRAJHOR	D/s Talcher	2.7 - 13	III
	DAYA	BHUBANESWAR TO BARAGARH	4.0-7.3	IV
	KUAKHAI	URALI TO BHUBANESWAR	6.7-7.7	IV
	BANGURU NALLAH	Along Talcher Rengali	3.2	V
	BHEDEN	Along Bheden	3.6	V
	BRAHAMANI	ROURKELA TO BIRITOL	5.8-6.0	V
	BUDHABALNAGA	MAHULIA TO BARIPADA	3.5	V
	KUSUMI	Along Angul Talcher	3.2	V
	MAHANADI	SAMBALPUR TO PARADEEP	3.6	V
	MANGALA	Along Puri	5.7	V
	NAGAVALLI	JAYKAYPUR TO RAYAGADA	3.5	V
	NUNA	Along Bijipur, Puri	3.1	V
	RATNACHIRA	Along Bhubhneswar, Puri	3.3	V
	RUSHIKULYA	PRATAPPUR TO GANJAM	3.4	V
	SABULIA	Along JAGANNATHPATNA, Rambha	5.0	V
SERUA	KHANDAETA TO SANKHATRASA	4.8	V	
PUDUCHERRY	ARASALAR	Along KARAİKAL	7.0	IV
	CHUNNAMBAR	Along Ariyankuppam	6.0	V
PUNJAB	KALI BEIN	Sultanpur lodhi to conf to Beas	9.0	IV
	BEAS	Along MUKERIAN	3.8	V
RAJASTHAN	BANAS	ALONG BISALPUR DAM, SWAROOPGANJ, NEWTA DAM	13.2	III
	CHAMBAL	SAWAIMADHOPUR TO KOTA	3.2-4.8	V
SIKKIM	MANEY KHOLA	ADAMPOOL TO BURTUKK	3.2-4.5	V
	RANGIT	DAM SITE (NHPC) TO TREVENI	3.2-3.8	V
	RANICHU	NAMLI TO SINGTAM	3.8-4.0	V
	TEESTA	MELLI TO CHUNGTHANG	4.0-4.3	V
TAMIL NADU	BHAVANI	SIRUMUGAI TO KALINGARAYAN	3.3-6.6	IV
	TAMBIRAPANI	PAPPANKULAM TO ARUMUGANERI	3.1-4.0	V
TELANGANA	KARAKAVAGU	Along Palwancha	18.0	III
	MANER	WARANGAL TO SOMNAPALLI	6-20.0	III
	GODAVARI	BASAR TO KHAMMAM	4.0-9.0	IV
	KINNERSANI	Along Palwancha	10.0	IV
	KRISHNA	THANGADIGI TO WADAPALLY	5.0-6.0	V
TRIPURA	BURIGAON	Along BISHALGARH	3.9	V
	GUMTI	TELKAJILA TO AMARPUR	3.9	V
	HAORA	AGARTALA TO BISHRAMGANJ	3.2-4.0	V
	JURI	Along DHARMANAGAR	4.9	V

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	KHOWAI	Along TELIAMURA	3.3	V
	MANU	Along KAILASHAHAR	3.5-3.6	V
UTTAR PRADESH	GOMTI	SITAPUR TO VARANASI	3.1-18.0	III
	GANGA	KANNAUJ TO VARANASI	3.5-8.8	IV
	RAMGANGA	MURADABAD TO KANNAUJ	6.6	IV
	BETWA	HAMIRPUR TO WAGPURA	3.5-4.2	V
	GHAGHARA	BARHALGANJ TO DEORIA	4.0-4.5	V
	RAPTI	DOMINGARH TO RAJGHAT	4.7-5.9	V
	SAI	UNNAO TO JAUNPUR	4.0-4.5	V
	SARYU	AYODHYA TO ELAFATGANJ	4.3	V
UTTARAKHAND	KALYANI	D/s Pant Nagar	16.0	III
	GANGA	HARIDWAR TO SULTANPUR	6.6	IV
	KOSI	SULTANPUR TO PATTIKALAN	6.4	IV
	NANDOUR	Along Sitarganj	5.6-8.0	IV
	PILKHAR	in the vicinity of Rudrapur	10.0	IV
WEST BENGAL	CHURNI	SANTIPUR TOWN TO MAJHADIA	10.3-11.3	III
	DWARKA	TARAPITH TO SADHAK BAMDEB GHAT	5.6-17.0	III
	GANGA	TRIBENI TO DIAMOND HARBOUR	5.0-12.2	III
	DAMODAR	DURGACHAKM TO DISHERGARH	4.4-8.2	IV
	JALANGI	LAAL DIGHI TO KRISHNA NAGAR	8.3	IV
	KANSI	MIDNAPORE TO RAMNAGAR	9.9	IV
	MATHABHANGA	MADHUPUR TO GOBINDAPUR	8.5	IV
	BARAKAR	KULTI TO ASANSOL	5.7	V
	DWARAKESHWAR	Along Bankura	1-5.6	V
	KALJANI	BITALA TO ALIPURDWAR	6.0	V
	KAROLA	JALPAIGURI TO THAKURER KAMAT	3.9	V
	MAYURKASHI	SURI TO DURGAPUR	5.2	V
	RUPNARAYAN	KOLAGHAT TO BENAPUR	3.1-5.8	V
	SILABATI	GHATAL TO NISCHINDIPUR	3.8	V
TEESTA	SILIGURI TO PAHARPUR	3.3	V	



**POLLUTED
RIVER
STRETCHES
FOR
RESTORATION
OF WATER
QUALITY- 2022**

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POLLUTED RIVER STRETCHES FOR RESTORATION OF WATER QUALITY



**WATER QUALITY MANAGEMENT (I) DIVISION
Central Pollution Control Board (CPCB)
Ministry of Environment, Forests & Climate Change (MoEF & CC)
Parivesh Bhawan, East Arjun Nagar,
Delhi – 110032
November, 2022**

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PREFACE

The water quality of aquatic resources has been one of the major environmental concerns. It is important that effective actions are taken to control water pollution that adversely affects water bodies. Water bodies need to be regularly monitored to assess the quality and help formulating appropriate plan of actions. CPCB has been assessing water quality of aquatic resources in the country in association with State Pollution Control Boards & Pollution Control Committees under National Water Quality Monitoring Network (NWMP). At present, the network consists of 4484 locations spread in 28 States and 7 Union Territories across the country.

As part of a periodic assessment of water quality of rivers in the country, CPCB identifies polluted river stretches (PRS) considering Bio-Chemical Oxygen Demand (BOD) as a criteria parameter. The analysis helps in preparation and implementation of appropriate action plans for restoration of identified polluted river stretches.

This study 'Polluted River Stretches for Restoration of Water Quality – 2022' is a report based on the aforementioned periodic analysis of water quality data generated. To give a brief overview, of the 603 rivers assessed, there are 311 Polluted stretches in 279 rivers in 30 States & Union Territories. On a positive note, the number of polluted river stretches has decreased from 351 in year 2018 to 311 in year 2022. Further, marked improvement in previously identified 180 PRS has been observed, and 106 of these PRS no longer remain in the list of PRS.

Going forward, concerted efforts of Central and State Government organizations with effective public participation are required for further improvement in river water quality in India. I am optimistic that this study will be of use to all concerned stakeholders and agencies in taking remedial measures to achieve our collective goal of restoration of identified Polluted River Stretches.

Dr. Prashant Gargava
Member Secretary

November, 2022

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EXECUTIVE SUMMARY

Central Pollution Control Board (CPCB) executes National Water Quality Monitoring Programme (NWMP) for assessment of water quality of aquatic resources in the country. The assessment indicates that organic and microbial contamination of aquatic resources is a major concern for both rivers and static water bodies.

The present study is a periodic assessment of water quality of rivers in the country which is reflected in exceedances observed with respect to criteria parameter, Bio-Chemical Oxygen Demand (BOD) and identification of polluted river stretches/ locations where water quality is required to be restored with distinctive interventions and time targeted action plans.

CPCB initiated the exercise of identifying polluted river stretches (PRS) in the country since 2009 based on the river water quality monitored during the years 2002 - 2008 in 29 States/ UTs, and afterwards reports were brought out in 2015 based on assessment of water quality data monitored during the years 2009-2012 in 27 States/ UTs and in 2018 based on water quality data of the years 2016 & 2017 in 31 States/ UTs. Total 150 PRS on 121 rivers, 302 PRS on 275 rivers and 351 PRS on 323 rivers were identified & reported in year 2009, 2015 and 2018. The present assessment is based on the river water quality data of the years 2019 & 2021 excluding monitored data of year 2020 being the pandemic year.

It is observed that in the year 2015, 70% of rivers monitored (275 out of 390) were identified as polluted whereas, in the year 2022, only 46% of rivers monitored (279 out of 603) were identified as polluted.

As per latest assessment, out of 1920 locations on rivers monitored during 2019 & 2021, 1103 locations (57%) were observed complying with BOD criteria of less than 3.0 mg/L, notified for Outdoor bathing.

A comparative assessment of the PRS identified in present study with previous assessment of PRS in 2018 reveals that total number of PRS have decreased in number from 351 (in 2018) to 311 (in 2022). Significant reduction in number of PRS are observed in Priority V.

Detailed assessment indicates that improvement in water quality has been observed in 180 polluted river stretches identified during year 2018. Out of 180 PRS, 106 river stretches are

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removed from the earlier identified list of polluted stretches due to compliance of BOD criteria i.e value less than 3.0 mg/ L. These stretches are located in Andhra Pradesh (5), Assam (22), Goa (7), Gujarat (8), Himachal Pradesh (1), Jammu & Kashmir (2), Jharkhand (3), Karnataka (4), Kerala (11), Madhya Pradesh (7), Maharashtra (1), Mizoram (7), Nagaland (2), Odisha (10), Puducherry (1), Punjab (1), Sikkim (4), Tripura (5), Uttarakhand (1) and West Bengal (4).

Due to improvement in water quality priority class of 74 previously identified polluted river stretches has been shifted to lower priority class. These stretches are in the States/ UTs of Assam (3), Chhattisgarh (2), Daman, Diu & Dadra Nagar Haveli (1), Goa (2), Gujarat (3), Himachal Pradesh (1), Jammu & Kashmir (3), Jharkhand (1), Karnataka (6), Kerala (4), Madhya Pradesh (4), Maharashtra (21), Manipur (1), Meghalaya (3), Nagaland (3), Odisha (1), Punjab (1), Tamil Nadu (3), Telangana (4), Uttar Pradesh (1), Uttarakhand (2) and West Bengal (4).

Priority class of 108 polluted river stretches identified in both the assessment years of 2018 and 2022 remained same indicating no improvement/ change in their water quality. Out of 108, 27 are identified in P – I, 02 in P – II, 08 in P – III, 04 in P – IV and 58 identified in P- V Class. No change in priority class indicates no further impact of pollution on water quality despite of increased activities with time in the catchment area of river like population, industrial growth, agricultural activity to cope up with demand resulting in increased quantity of sewage, solid waste, industrial effluent and agricultural run- off etc.

The decrease in number of identified polluted river stretches which have shown improvement in the water quality could be attributed to the efforts being made for development for infrastructure for Sewage management, industrial effluent management, waste management and enforcement of regulations for prevention and control of pollution in rivers.

1. INTRODUCTION

1.1 BACKGROUND

The Water (Prevention and Control of Pollution) Act 1974 enacted to maintain wholesomeness of aquatic resources. The Water Quality Management in India is performed under the provision of Water (Prevention and Control of Pollution) Act, 1974. The basic objective of this Act is to maintain and restore the wholesomeness of national aquatic resources by prevention and control of water pollution.

Water quality monitoring is therefore an imperative prerequisite in order to assess the extent of maintenance and restoration of water bodies. Central Pollution Control Board (CPCB) has established a network of monitoring stations on aquatic resources across the country. The monitoring of water quality initiated during 1977-78 under Global Environmental Monitoring System (GEMS) and gradually increased the network to cover all the aquatic resources in the country viz. Rivers, Lakes, Tanks, Ponds, Drains, Water Treatment Plant, Sewage Treatment Plants, coastal waters, wetlands and ground water under National Water Quality Monitoring Programme (NWMP).

The present monitoring network comprises of 4484 locations in 28 States and 7 Union Territories spread over the country (no network in Andaman and Nicobar Islands). The monitoring network covers 2108 locations on Rivers, 713 on stagnant water bodies (Lakes, Ponds and Tanks), 64 on Creeks/marine, 1235 on Wells and 364 on other water bodies (drains, canals, WTPs/STPs).

Subsequently through a wide network of water quality monitoring, water quality data is generated. During September 2018, CPCB had identified 351 Polluted river stretches in 31 States/ UTs considering water quality data for Biochemical Oxygen Demand (BOD) parameter generated in the year 2016 and 2017. Upon intervention of Hon'ble NGT, action plans were prepared by State Governments and UT Administrations for rejuvenation of 351 Polluted river stretches identified by CPCB. Concerned State/ UT Government departments are implementing the action plans and the progress is being reviewed periodically by the River Rejuvenation Committee (RRC) at State Level and Central Monitoring Committee (CMC) constituted under the Chairmanship of Secretary, Ministry of Jal Shakti at Central Level.

1.2 PURPOSE OF REPORT

The water quality database generated over a period of time indicated that rivers/ river water is not polluted or contaminated throughout the length but only at few locations wherein the self-assimilative capacity of rivers is unable to restore the water quality are polluted. These stretches/ locations on rivers are deeply impacted with various contaminants which are required to be captured and controlled.

To streamline the efforts and resource utilization for restoration of water quality to pristine level, identification of polluted river stretches was a prerequisite.

Since the year 2009, based on the river water quality monitored by State Pollution Control Boards & Pollution Control Committees, CPCB has been identifying polluted river stretches (PRS) in the country.

For identification of PRS, the water quality data for river monitoring locations with respect to Biochemical Oxygen Demand (BOD) parameter is considered. The locations/ stretches of rivers not meeting with the Primary water quality criteria for outdoor bathing for BOD i.e. more than 3 mg/L are identified as polluted locations or polluted stretches.

1.3 PROPOSED APPROACH AND METHODOLOGY

- River Water quality monitoring at identified locations is done by collecting and analysing river samples w.r.t various field observations, physico-chemical, bacteriological, Metals and Pesticide parameters on monthly basis as per The Guidelines for Water Quality Monitoring, 2017 issued by Ministry of Environment, Forest & Climate Change (MoEF & CC).
- The water quality data generated is submitted by SPCBs/ PCCs through online data entry portal namely Environmental Water Quality Data Entry System - EWQDES and stored centrally at CPCB server.
- For identification of polluted river stretches, the water quality data for river monitoring locations is reviewed and the monitoring locations non-compliant with the desired criteria for Bio-chemical Oxygen Demand (BOD) i.e. > 3.0 mg/L are identified as polluted locations. Two or more polluted locations identified on a river in a continuous sequence are considered as a stretch and defined as Polluted River Stretch.

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1.4 CRITERIA FOR IDENTIFICATION AND CLASSIFICATION OF PRS

The locations/ stretches of rivers not meeting with the Primary water quality criteria for outdoor bathing for BOD parameter i.e. more than 3 mg/L are identified as polluted locations or polluted stretches.

- **If there is a single location on river, rivulet or stream and the location is not complying to BOD, it is identified as Polluted Location.**
- **Two or more polluted locations identified on a river in a continuous sequence are considered as a stretch and defined as Polluted River Stretch.**

PRS are categorized under five Priority Classes (I to V) on the basis of maximum BOD level observed. The criteria for prioritisation of river stretches is given below:

Priority – I

- ◆ Monitoring locations exceeding BOD concentration 30.0 mg/ L

Priority – II

- ◆ Monitoring locations having BOD between 20.0 – 30.0 mg/ L

Priority – III

- ◆ Monitoring locations having BOD between 10.0 – 20.0 mg/ L

Priority – IV

- ◆ Monitoring locations having BOD between 6.0 – 10.0 mg/ L

Priority – V

- ◆ Monitoring locations having BOD between 3.0 – 6.0 mg/ L

2. STATUS OF POLLUTED RIVER STRETCHES IN INDIA

The water quality data for years 2019 and 2021 is analyzed and monitoring locations exceeding the water quality criteria are identified as polluted locations. Water quality data for the year 2020 has not been considered in the exercise as data generated in year 2020 may not reflect the actual water quality as most commercial and industrial activities were restricted due to lockdown in the country in light of COVID 19 pandemic.

Upon reviewing water quality data of 1920 locations monitored during the year 2019 and 2021, it was observed that 817 river locations were exceeding the Primary Water Quality Criteria for Outdoor Bathing for the parameter BOD i.e. more than 3 mg/L. The list of 817 river locations is given in **Annexure I**. The polluted locations in a continuous sequence were defined as polluted river stretches. Based on the assessment, 311 polluted river stretches have been identified on 279 rivers in 30 States and Union Territories. The list of 279 polluted rivers and 324 rivers on which no polluted stretches were identified are provided in **Annexure II & III** respectively. The priority wise number of river stretches are given in Table 1 below.

Table - 1: Priority wise Number of Polluted River Stretches

Priority Class	Number of polluted river Stretches
I	46
II	16
III	39
IV	65
V	145
Total	311

Based on the assessment, it is observed that, the state of Maharashtra has highest number of polluted river stretches i.e. 55, followed by Madhya Pradesh (19), Bihar (18), Kerala (18), Karnataka (17), Uttar Pradesh (17), Rajasthan (14), Gujarat (13), Manipur (13), West Bengal (13), Assam (10), Tamil Nadu (10), Himachal Pradesh (9), Jharkhand (9), Telangana (9), Uttarakhand (9), Jammu & Kashmir (8), Meghalaya (7), Odisha (7), Chhattisgarh (6), Goa (6), Punjab (5), Nagaland (4), Andhra

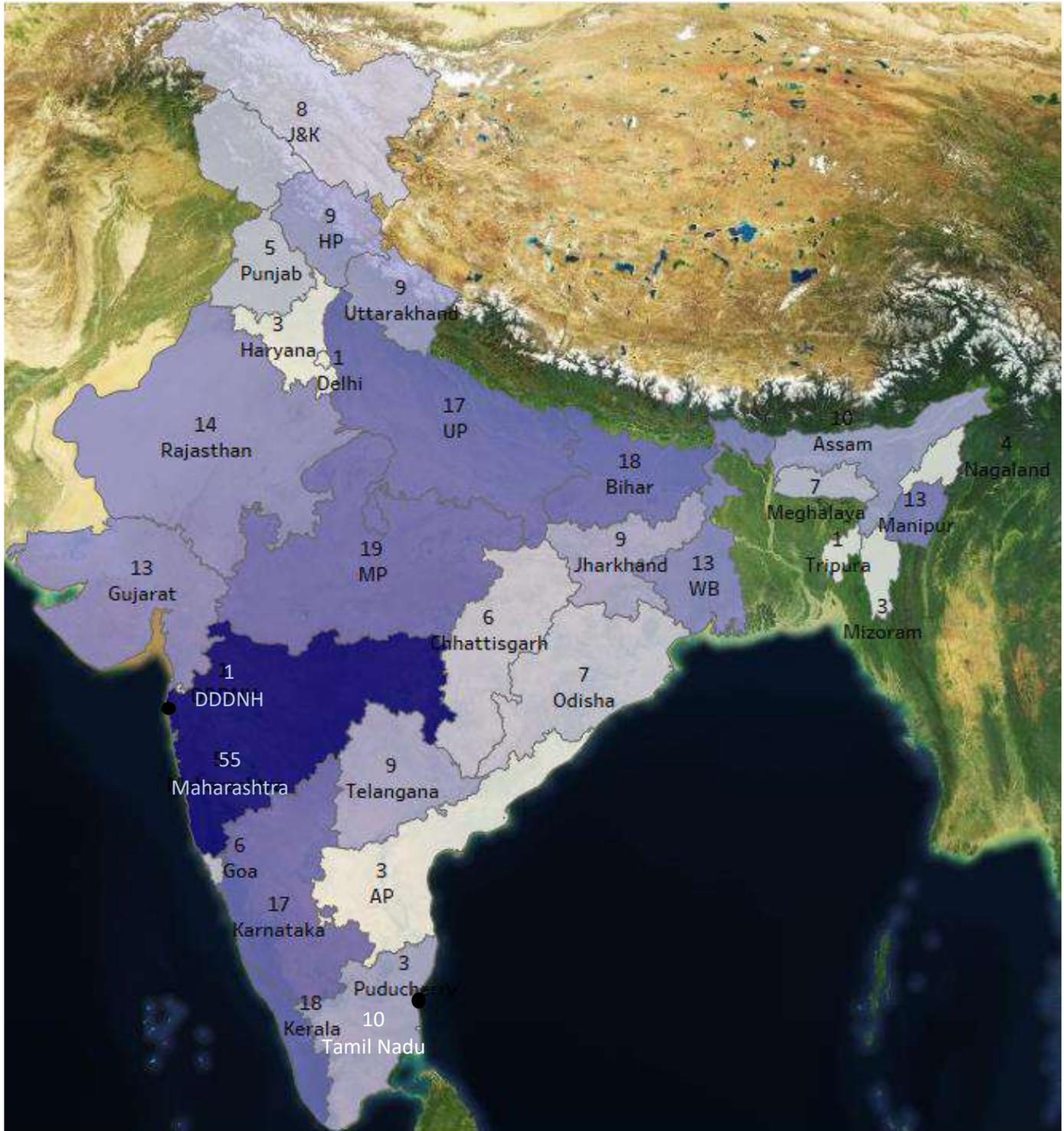
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Pradesh (3), Haryana (3), Mizoram (3), Puducherry (3), Daman and Diu, Dadra and Nagar Haveli (1), Delhi (1) and Tripura (1). State-wise & Priority wise number of PRS are given in **Table - 2**. A pictorial illustration for number of polluted river stretches identified in state-wise manner is given at **Figure - 1**.

Table – 2: State-wise & Priority wise number of Polluted River Stretches

S No.	STATE/UNION TERRITORY	PRIORITY CLASS					TOTAL No. of PRS
		I	II	III	IV	V	
1.	ANDHRA PRADESH	1			1	1	3
2.	ASSAM	1				9	10
3.	BIHAR		1	2	7	8	18
4.	CHHATTISGARH		1		2	3	6
5.	DAMAN AND DIU, DADRA AND NAGAR HAVELI			1			1
6.	DELHI	1					1
7.	GOA				1	5	6
8.	GUJARAT	6	1	1	1	4	13
9.	HARYANA	2	1				3
10.	HIMACHAL PRADESH	4			1	4	9
11.	JAMMU & KASHMIR			2	4	2	8
12.	JHARKHAND			1	2	6	9
13.	KARNATAKA	3			3	11	17
14.	KERALA			1	2	15	18
15.	MADHYA PRADESH	2		1	5	11	19
16.	MAHARASHTRA	4	5	18	17	11	55
17.	MANIPUR				2	11	13
18.	MEGHALAYA	2			1	4	7
19.	MIZORAM				2	1	3
20.	NAGALAND			1		3	4
21.	ODISHA	1			3	3	7
22.	PUDUCHERRY		1	1	1		3
23.	PUNJAB	3				2	5
24.	RAJASTHAN	2		1	4	7	14
25.	TAMIL NADU	4	1	1	1	3	10
26.	TELANGANA	1	1	2		5	9
27.	TRIPURA					1	1
28.	UTTAR PRADESH	6		1	2	8	17
29.	UTTARAKHAND	2	2	4		1	9
30.	WEST BENGAL	1	2	1	3	6	13
GRAND TOTAL		46	16	39	65	145	311

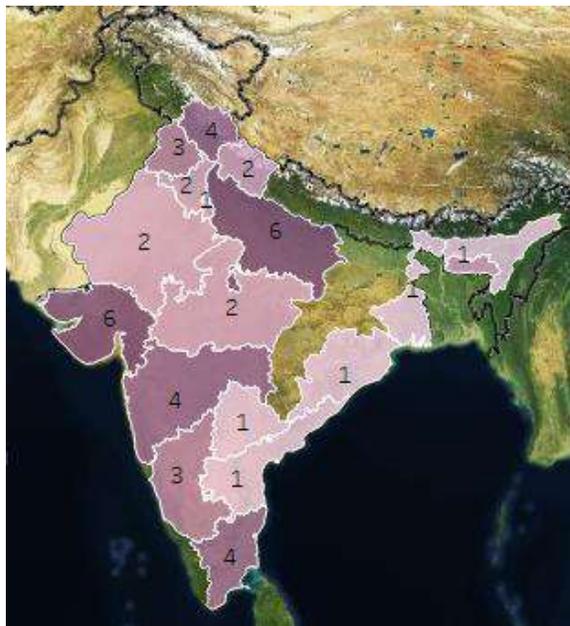
Figure 1: Number of polluted river stretches identified in States/ UTs



2.1 PRS IDENTIFIED UNDER PRIORITY CLASS – I

46 Polluted river stretches have been identified in Priority Class – I (Refer **Annexure – IV**) in 18 States/ UTs with highest number i.e. 06 in Gujarat & Uttar Pradesh; 04 in Himachal Pradesh, Maharashtra & Tamil Nadu; 03 in Karnataka & Punjab; 02 in Haryana, Madhya Pradesh, Meghalaya, Rajasthan & Uttarakhand and 01 each in Telangana, Andhra Pradesh, Assam, Delhi, West Bengal and Odisha.

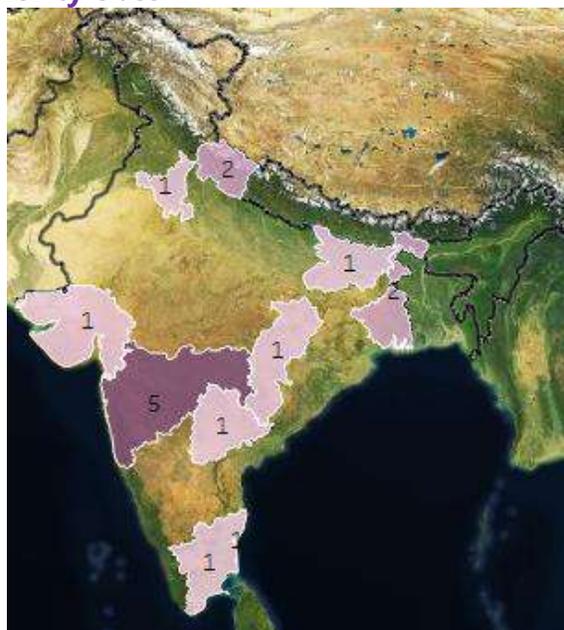
Figure 2: Number of polluted river stretches identified in States/ UTs in Priority class I



2.2 PRS IDENTIFIED UNDER PRIORITY CLASS – II

16 Polluted river stretches have been identified in Priority Class – II (Refer **Annexure – V**) in 10 States/ UTs with highest number i.e. 05 in Maharashtra; 02 in Uttarakhand & West Bengal and 01 each in Bihar, Chhattisgarh, Gujarat, Haryana, Puducherry, Tamil Nadu and Telangana. Detailed list is provided in

Figure 3: Number of polluted river stretches identified in States/ UTs in Priority class II



2.3 PRS IDENTIFIED UNDER PRIORITY CLASS – III

39 Polluted river stretches have been identified in Priority Class – III (Refer **Annexure – VI**) in 16 States/ UTs with highest number i.e. 18 in Maharashtra; 04 in Uttarakhand; 02 in Bihar, Jammu & Kashmir & Telangana and 01 each in Dadra Nagar Haveli, Gujarat, Jharkhand, Kerala, Madhya Pradesh, Nagaland, Puducherry, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

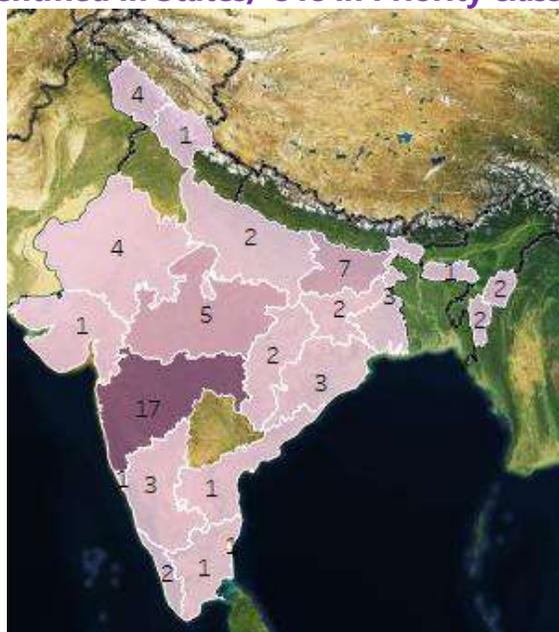
Figure 4: Number of polluted river stretches identified in States/ UTs in Priority class III



2.4 PRS IDENTIFIED UNDER PRIORITY CLASS – IV

65 Polluted river stretches have been identified in Priority Class – IV (Refer **Annexure – VII**) in 21 States/ UTs with highest number i.e. 17 in Maharashtra; 07 in Bihar; 05 in Madhya Pradesh; 04 in Jammu & Kashmir & Rajasthan; 03 in Karnataka, Odisha & West Bengal; 02 in Chhattisgarh, Jharkhand, Kerala, Manipur, Mizoram & Uttar Pradesh and 01 each in Andhra Pradesh, Goa, Gujarat, Himachal Pradesh, Meghalaya, Puducherry and Tamil Nadu.

Figure 5: Number of polluted river stretches identified in States/ UTs in Priority class IV

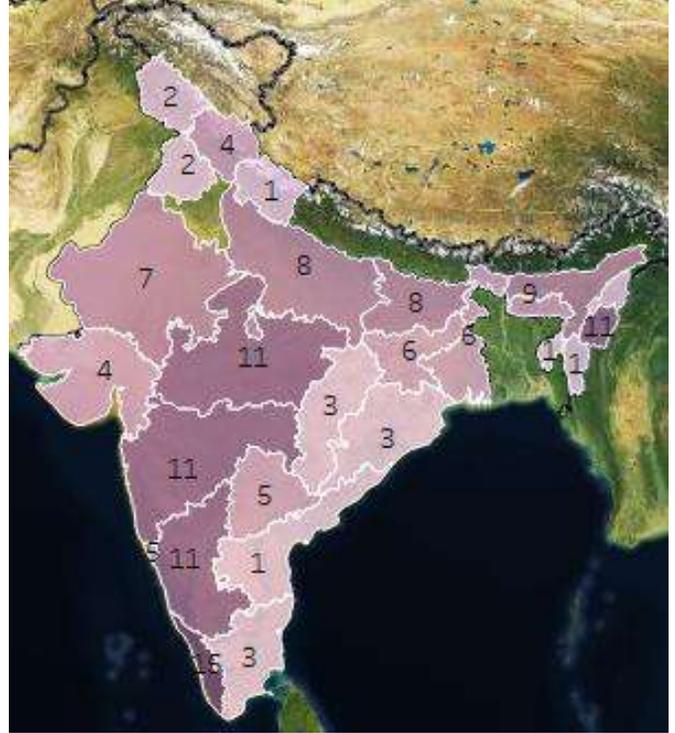


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2.5 PRS IDENTIFIED UNDER PRIORITY CLASS – V

145 Polluted river stretches have been identified in Priority Class – V (Refer **Annexure – VIII**) in 26 States/ UTs with highest number i.e. 15 in Kerala; 11 in Madhya Pradesh, Maharashtra & Manipur; 09 in Assam; 08 in Bihar & Uttar Pradesh; 07 in Rajasthan; 06 in Jharkhand & West Bengal; 05 in Goa & Telangana; 04 in Gujarat, Himachal Pradesh & Meghalaya; 03 in Chhattisgarh, Nagaland, Odisha & Tamil Nadu; 02 in Jammu & Kashmir & Punjab and 01 each in Andhra Pradesh, Mizoram, Tripura and Uttarakhand.

Figure 6: Number of polluted river stretches identified in States/ UTs in Priority class V



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3. STATE-WISE ASSESSMENT OF RIVER WATER QUALITY & IDENTIFICATION OF POLLUTED RIVER STRETCHES

3.1 WATER QUALITY OF RIVERS IN ANDHRA PRADESH

Water Quality of 16 rivers (Refer **Annexure I**) in Andhra Pradesh was monitored at 41 locations during the year 2019 and 2021, out of which, 4 locations on 3 rivers were found non-complying to the prescribed Water Quality Criteria with respect to BOD. The names of 3 polluted rivers are Gostani, Upputeru, Vasishta. Details of polluted river stretches identified are given in table below.

Table - 3: Number of Polluted River Stretches in Andhra Pradesh

S NO.	RIVER	POLLUTED RIVER STRETCH/ LOCATION	MAX BOD OBSERVED (mg/L)	PRIORITY CLASS
1.	GOSTANI	ALONG VILLAGE VENDRA	8.6	IV
2.	UPPUTERU	ALONG CHINAGOLLAPALEM VILLAGE	3.4	V
3.	VASISHTA	ALONG NARASAPURAM	58.0	I

3.2 WATER QUALITY OF RIVERS IN ARUNACHAL PRADESH

Water Quality of 03 rivers (Refer **Annexure I**) in Arunachal Pradesh was monitored at 3 locations during the year 2019 and 2021. All the monitored locations were found complying to the prescribed Water Quality Criteria with respect to BOD.

3.3 WATER QUALITY OF RIVERS IN ASSAM

Water Quality of 60 rivers (Refer **Annexure I**) in Assam was monitored at 86 locations during the year 2019 and 2021, out of which, 11 locations on 10 rivers were found non-complying to the prescribed Water Quality Criteria with respect to BOD. The names of 10 polluted rivers are Bega, Bharalu, Burhidihing, Dhansiri, Digboi, Kharsang, Kulsi, Mora Bharali, Pagldia, Tocklai. Details of polluted river stretches identified are given in table below.

Table - 4: Number of Polluted River Stretches in Assam

S NO.	RIVER	POLLUTED RIVER STRETCH/ LOCATION	MAX BOD OBSERVED(mg/L)	PRIORITY CLASS
1.	BEGA	ALONG MANGALDOI	3.9	V
2.	BHARALU	ALONG ULUBARI	76.0	I
3.	BURHIDIHING	ALONG MARGHERITA	3.6	V

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Table - 10: Number of Polluted River Stretches in Gujarat

S NO.	RIVER	POLLUTED RIVER STRETCH/ LOCATION	MAX BOD OBSERVED (mg/L)	PRIORITY CLASS
1.	AMLAKHADI	ALONG ANKLESHWAR	49.0	I
2.	BHADAR	ALONG JETPUR	258.6	I
3.	BHOGAVO	ALONG SURENDRANAGAR	6.0	V
4.	BHUKHI KHADI	ALONG VAGRA	3.9	V
5.	DAMANGANGA	ALONG KACHIGAON AND ALONG CHANOD	5.3	V
6.	DHADAR	ALONG KOTHADA	33.0	I
7.	KHARI	ALONG LALI VILLAGE	195.0	I
8.	MAHI	KOTNA TO MUJPUR	12.0	III
9.	MINDHOLA	ALONG SACHIN	28.0	II
10.	SABARMATI	RAYSAN TO VAUTHA	292.0	I
11.	SHEDHI	ALONG KHEDA	6.2	IV
12.	TAPI	ALONG NIZHAR	3.4	V
13.	VISHWAMITRI	ALONG KHALIPUR VILLAGE	38.0	I

3.10 WATER QUALITY OF RIVERS IN HARYANA

Water Quality of 3 rivers (Refer **Annexure I**) in Haryana was monitored at 22 locations during the year 2019 and 2021, out of which, 20 locations on 3 rivers were found non-complying to the prescribed Water Quality Criteria with respect to BOD. The names of 3 polluted rivers are Ghaggar, Markanda, Yamuna. Details of polluted river stretches identified are given in table below.

Table - 11: Number of Polluted River Stretches in Haryana

S NO.	RIVER	POLLUTED RIVER STRETCH/ LOCATION	MAX BOD OBSERVED (mg/L)	PRIORITY CLASS
1.	GHAGGAR	BHAGWANPUR TO SURAJPUR; ALONG KALA AMB, ALONG CHANDRAPURA, ALONG SIRSA	206.0	I
2.	MARKANDA	ALONG NARAINGARH	29.0	II
3.	YAMUNA	HATHNIKUND TO PALLA AND PALWAL TO HASANPUR	43.0	I

3.11 WATER QUALITY OF RIVERS IN HIMACHAL PRADESH

Water Quality of 37 rivers (Refer **Annexure I**) in Himachal Pradesh was monitored at 136 locations during the year 2019 and 2021, out of which, 19 locations on 9 rivers were found non-complying to the prescribed Water Quality Criteria with respect to BOD. The names of 9 polluted rivers are Ashwini

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Khad, Bald, Giri, Markanda, Pabbar, Ratta, Shikari Khad, Sirsa, Sukhana. Details of polluted river stretches identified are given in table below.

Table - 12: Number of Polluted River Stretches in Himachal Pradesh

S NO.	RIVER	POLLUTED RIVER STRETCH/ LOCATION	MAX BOD OBSERVED (mg/L)	PRIORITY CLASS
1.	ASHWINI KHAD	MATHOLI TO BHOG	80.0	I
2.	BALD	ALONG BADDI	40.0	I
3.	GIRI	ALONG YASHWANT NAGAR AND ALONG DADAHU	4.8	V
4.	MARKANDA	SALANI TO RAMPUR JATTAN	4.0	V
5.	PABBAR	ALONG SWARAKUDDU	4.6	V
6.	RATTA	ALONG NALAGARH	8.0	IV
7.	SHIKARI KHAD	ALONG ROHRU	4.6	V
8.	SIRSA	ALONG NALAGARH	40.0	I
9.	SUKHANA	ALONG PARWANOO	72.0	I

3.12 WATER QUALITY OF RIVERS IN JAMMU & KASHMIR

Water Quality of 15 rivers (Refer **Annexure I**) in Jammu & Kashmir was monitored at 58 locations during the year 2019 and 2021, out of which, 19 locations on 8 rivers were found non-complying to the prescribed Water Quality Criteria with respect to BOD. The names of 8 polluted rivers are Banganga, Basanter, Chuntkol, Devak, Gawkadal, Jhelum, Lidder, Tawi. Details of polluted river stretches identified are given in table below.

Table – 13: Number of Polluted River Stretches in Jammu & Kashmir

S NO.	RIVER	POLLUTED RIVER STRETCH/ LOCATION	MAX BOD OBSERVED (mg/L)	PRIORITY CLASS
1.	BANGANGA	ALONG KATRA	6.2	IV
2.	BASANTER	ALONG SAMBA	4.2	V
3.	CHUNTKOL	AT MAULANA AZAD BRIDGE	11.2	III
4.	DEVAK	ALONG UDHAMPUR	10.0	IV
5.	GAWKADAL	ALONG SHERGARHI	3.2	V
6.	JHELUM	SRINAGAR TO BARAMULLA	7.8	IV
7.	LIDDER	ALONG PAHALGAM	7.0	IV
8.	TAWI	ALONG JAMMU	14.0	III

4. COMPARATIVE ASSESSMENT (2018 Vs 2022)

Comparative assessment of PRS identified during assessment year 2018 vs 2022 has been carried out to assess the number of PRS identified, number of polluted rivers identified, number of datasets available and statistically analyzed, number of States & UTs having PRS. Detailed comparison of state wise number of stretches identified in each priority class is given in **Annexure IX**. Based on the comparative assessment, following observations are made.

- During the Year 2018, 351 polluted river stretches were identified on 323 rivers in the country based on analysis of water quality data of 521 rivers for the years 2016 and 2017. In present assessment, 311 polluted stretches are identified on 279 Rivers based on analysis of water quality data of 603 rivers for the years 2019 and 2021.
- Maharashtra still has the highest number of polluted river stretches in the country i.e. 55 identified in the year 2022. In Year 2018, 53 polluted river stretches were identified.
- Significant decrease in number of identified polluted river stretches has been observed in the State of Assam from 44 in year 2018 to 10 in 2022. It is pertinent to mentioned that many of the rivers identified during the year 2018 were declared as wetlands and stagnant water bodies by Assam Government, which are not considered in this exercise.
- In 13 States viz. Andhra Pradesh, Assam, Goa, Gujarat, Jammu & Kashmir, Kerala, Madhya Pradesh, Mizoram, Nagaland, Odisha, Sikkim, Tripura and West Bengal, number of identified polluted river stretches have reduced.
- Number of polluted river stretches have increased in 13 States/UTs viz. Bihar, Chhattisgarh, Haryana, Himachal Pradesh, Jharkhand, Maharashtra, Manipur, Puducherry, Punjab, Rajasthan, Tamil Nadu, Telangana and Uttar Pradesh.
- No change has been observed in number of identified polluted river stretches in 5 States/UTs viz. Daman and Diu, Dadra and Nagar Haveli (1), Delhi (1), Karnataka (17), Meghalaya 7) and Uttarakhand (9).

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Comparative assessment of water quality network and other statistics for identification of PRS during Year 2018 and 2022 is given in **Table 33**. State wise number of PRS identified during Year 2018 and 2022 is given in **Table 34**. **Figure 7** depicts graphical representation of Priority wise PRS identified during Year 2018 and 2022

Table – 33: Comparative assessment of PRS identified during Year 2018 and 2022

Year of Study	2018	2022
Year of Water Quality Data for Study	2016 & 17	2019 & 21
Number of River monitoring locations sanctioned under NWMP during the study	1533 (NWMP network of 3000)	2026 (NWMP network of 4294)
Data sets available for BOD parameter	521 rivers - 1488 locations (793 > 3mg/L)	603 rivers - 1920 locations (817 > 3mg/L)
Priority Class	Number of polluted river stretches	
I (> 30 mg/L)	45	46
II (20-30 mg/L)	16	16
III (10-20 mg/L)	43	39
IV (6-10 mg/L)	72	65
V (3-6 mg/L)	175	145
Number of Polluted River Stretches identified	351	311
Number of Rivers identified as polluted	323	279
Number of States/UTs in which polluted rivers identified	31	30*

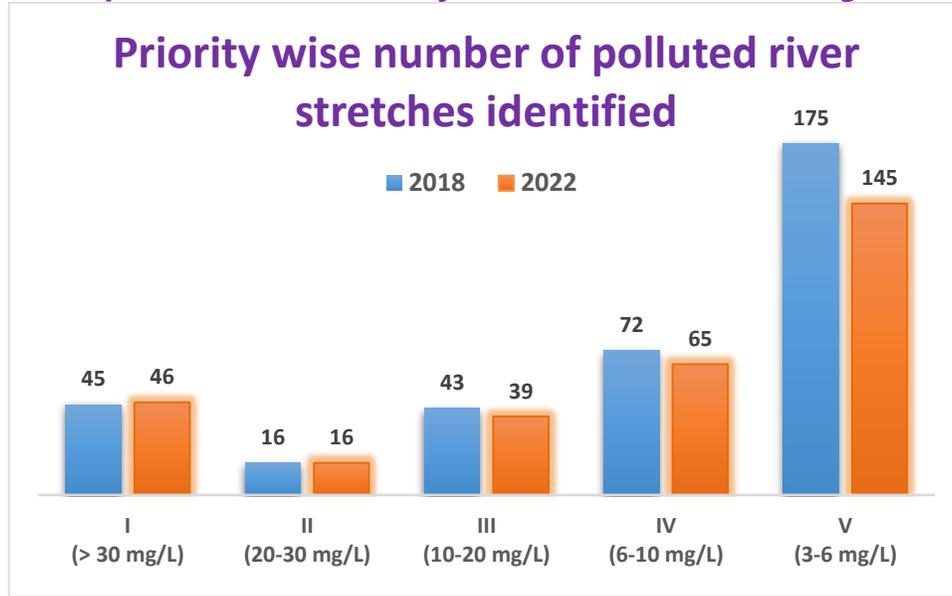
* No polluted rivers identified in Sikkim

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Table – 34: State wise number of PRS identified during Year 2018 and 2022

S No	State/UT	Number of PRS during 2022	Number of PRS during 2018
1.	ANDHRA PRADESH	3	5
2.	ASSAM	10	44
3.	BIHAR	18	6
4.	CHHATTISGARH	6	5
5.	DAMAN AND DIU, DADRA AND NAGAR HAVELI	1	1
6.	DELHI	1	1
7.	GOA	6	11
8.	GUJARAT	13	20
9.	HARYANA	3	2
10.	HIMACHAL PRADESH	9	7
11.	JAMMU & KASHMIR	8	9
12.	JHARKHAND	9	7
13.	KARNATAKA	17	17
14.	KERALA	18	21
15.	MADHYA PRADESH	19	22
16.	MAHARASHTRA	55	53
17.	MANIPUR	13	9
18.	MEGHALAYA	7	7
19.	MIZORAM	3	9
20.	NAGALAND	4	6
21.	ODISHA	7	19
22.	PUDUCHERRY	3	2
23.	PUNJAB	5	4
24.	RAJASTHAN	14	2
25.	SIKKIM	-	4
26.	TAMIL NADU	10	6
27.	TELANGANA	9	8
28.	TRIPURA	1	6
29.	UTTAR PRADESH	17	12
30.	UTTARAKHAND	9	9
31.	WEST BENGAL	13	17
GRAND TOTAL		311	351

Fig – 7: Graphical representation of Priority wise PRS identified during Year 2018 and 2022



4.1 POLLUTED RIVER STRETCHES DELISTED DUE TO SIGNIFICANT IMPROVEMENT IN WATER QUALITY

Improvement in water quality has been observed in 180 polluted river stretches identified during year 2018 w.r.t BOD parameter.

- I. 106 number of river stretches have been delisted from the previous list of polluted stretches identified in years 2019 & 21. State-wise distribution of delisted PRS is given in **Table 35**. Detailed list of Polluted River Stretches removed from the earlier list is given in **Annexure X**.

Table – 35: Number of Polluted River Stretches removed from the present list of PRS

S NO.	State/ UT	Number of River Stretches
1.	ANDHRA PRADESH	5
2.	ASSAM	22
3.	GOA	7
4.	GUJARAT	8
5.	HIMACHAL PRADESH	1
6.	JAMMU & KASHMIR	2
7.	JHARKHAND	3

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S NO.	State/ UT	Number of River Stretches
8.	KARNATAKA	4
9.	KERALA	11
10.	MADHYA PRADESH	7
11.	MAHARASHTRA	1
12.	MIZORAM	7
13.	NAGALAND	2
14.	ODISHA	10
15.	PUDUCHERRY	1
16.	PUNJAB	1
17.	SIKKIM	4
18.	TRIPURA	5
19.	UTTARAKHAND	1
20.	WEST BENGAL	4
Total		106

- II.** Improvement in water quality of 74 previously identified polluted river stretches has been observed which is reflected by shift to lower Priority Class (Refer **Table 36**). Detailed description of Polluted River Stretches is given in **Annexure – XI**.

Table – 36: Priority wise number of Polluted River Stretches where improvement is observed

Priority class identified during year 2018	Priority class identified during year 2022				Grand Total
	II	III	IV	V	
I	5	8	2	1	16
II		5	3	2	10
III			11	8	19
IV				29	29
Grand Total	5	13	16	40	74

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4.2 POLLUTED RIVER STRETCHES WHERE NO SIGNIFICANT CHANGES OBSERVED IN WATER QUALITY

No change has been observed in Priority Class of 108 polluted river stretches in both the assessment years 2018 & 2022. Out of 108, 27 are identified in P – I, 02 are identified in P – II, 08 are identified in P – III, 04 are identified in P – IV and 58 are identified in P – V class. State wise list of river stretches where no significant change in water quality observed during the year 2018 & 2022 is given in **Annexure XII.**

5. CONCLUDING REMARKS AND RECOMMENDATIONS

- Over the years, monitoring network on rivers under NWMP has been enhanced from 1533 river monitoring locations in year 2017 to 2026 river monitoring locations in year 2021.
- Decline in number of polluted river stretches are observed mainly due to collective actions taken by various stakeholders for rejuvenation of the polluted river stretches identified during the year 2018.
- Number of polluted river stretches are substantially reduced from 175 to 145 under Priority V category.
- Gradual decreasing trend is observed in number of identified PRS under Priority II (72 to 65) and Priority III (43 to 39).
- No change/ slight change in Priority I & II category of polluted river stretches indicates that further stringent actions are required for control of organic pollution from various point sources of pollution including development of infrastructure and its proper operation for treatment of wastewater before discharge into recipient water bodies.

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- Concerted efforts of Central and State Government organizations with effective public participation is required for effective Water Quality Management in India.
- Various urban centers draw water from the river to meet their requirement and almost the entire wastewater generated by these centers is disposed of into the river. It leads to deterioration of water quality and there is need to ensure treatment of entire wastewater generated. Entire urban areas need to be covered with sewerage system.
- Ecological flow shall be made mandatory in all stretches and to be ensured by respective State Authorities.
- State Government shall finalize the list of prohibited activities and restricted activities including intensive surveillance for effective enforcement for needed compliance by various point and non-point sources.

Apart from above, strong determination & strict enforcement, needed behavioral change and citizen participation will bring the restoration and availability of water resources and would ease the water stress problem.

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Annexure I

State-wise & Location wise maximum BOD value observed during year 2019 & 21

S NO	STATE	RIVER NAME	NWM P STN CODE	LOCATION	MAX BOD OBSERVED (mg/L)	
1	ANDHRA PRADESH	GOSTANI	4372	RIVER GOSTANI SAMPLE BEFORE CONFLUENCE WITH M/S DELTA PAPER MILL EFFLUENTS, VENDRA, PALAKODERU	8.6	
2		UPPUTERU	4379	RIVER UPPUTERU BEFORE CONFLUENCE WITH SEA, AT CHINAGOLLAPALEM VILLAGE, KRUTHIVENNU (M)	3.4	
3		VASISHTA	4365	RIVER VASISHTA (GODAVARI) UPSTREAM OF NARASAPURAM TOWN BEFORE CONFLUENCE OF TOWN SEWAGE	5.9	
4			4366	RIVER VASISHTA (GODAVARI) DOWNSTREAM OF NARASAPURAM TOWN AFTER CONFLUENCE OF TOWN SEWAGE	58.0	
5	ASSAM	BEGA	3765	RIVER BEGA MG ROAD, MANGALDOI	3.9	
6		BHARALU	1528	RIVER BHARALU AT GUWAHATI, ASSAM	76.0	
7		BURHIDIHING	1422	RIVER BURHIDIHING AT MARGHERITA, ASSAM	3.6	
8		DHANSIRI	30073	RIVER DHANSIRI AT BOKAJAN	3.5	
9			30074	RIVER DHANSIRI AT NUMALIGARH	3.3	
10		DIGBOI	1530	RIVER DIGBOI AT LAKHIPATHE, RESERVE FOREST, DIGBOI, ASSAM	5.2	
11		KHARSANG	2061	RIVER KHARSANG B/C WITH BURIDIHING NEAR KHARSANG (ASSAM-ARUNANCHAL BORDER), ASSAM	3.3	
12		KULSI	3810	RIVER KULSI AT CHAYGAON NEAR NH37 CROSSING	3.2	
13		MORA BHARALI	1531	RIVER MORA BHARALI AT TEZPUR, ASSAM	3.6	
14		PAGLDIA	2065	RIVER PAGLDIA NEAR NALBARI TOWN, DIST. NALBARI, ASSAM	3.4	
15		TOCKLAI	4011	RIVER TOCKLAI NEAR BRIDGE AT JORHAT	4.8	
16		BIHAR	BAGMATI	3135	RIVER BAGMATI AT DARBANGA, SAMASTIPUR ROAD BRIDGE, DARBHANGA	3.6
17			BURHI GANDAK/ SIKRAHNA	4295	RIVER BURHI GANDAK AT KHAGARIA ROAD BRIDGE, KHAGARIA	3.7
18				4300	RIVER BURHI GANDAK AT LAL BAGLA GHAT, MOTIHARI DHAKA ROAD, EAST CHAMPARAN	9.9
19	1820			RIVER SIKRAHNA AT CHANPATIYA, EAST CHAMPARAN	7.0	
20	2575			RIVER SIKRAHNA AT LAL PARSE, BITTIAH, EAST CHAMPARAN	4.0	
21	4291			RIVER SIKRAHNA LAURIA-NARKATIAGANJ ROAD BRIDGE, WEST CHAMPARAN	10.0	
22	DAHA		1821	RIVER DAHA AT SIWAN	6.0	
23			2560	RIVER DAHA D/S AT SASAMUSA, GOPALGANJ	3.7	
24			2561	RIVER DAHA AT ITWA BRIDGE, GOPALGANJ	3.9	
25			3129	RIVER DAHA AT MEERGANJ	3.5	
26			4292	RIVER DAHA U/S SASAMUSA, GOPALGANJ	3.3	
27			4397	RIVER DAHA D/S RAJENDRA ROAD BRIDE SIWAN	10.0	
28	DHOUS		1823	RIVER DHOUS AT MADHUVAPUR, MADHUBANI	5.6	
29			4405	RIVER DHOUS AT MADHWAPUR, MADHUBANI	5.6	
30	GANDAK		2568	RIVER GANDAK AT REWAGHAT, MUJAFFARPUR	3.8	
31	GANGA		1077	RIVER GANGA AT KURJI, PATNA U/S	4.0	
32			1815	RIVER GANGA AT MOKAMA (D/S)	7.9	
33			1818	RIVER GANGA AT MUNGER	3.2	
34			2551	RIVER GANGA AT BUXAR, RAMREKHAGHAT	3.3	
35		2553	RIVER GANGA AT KEWALA GHAT, FATUHA, PATNA	4.1		

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S NO	STATE	RIVER NAME	NWM P STN CODE	LOCATION	MAX BOD OBSERVED (mg/L)
116			1866	RIVER SABARMATI AT HANSAOL BRIDGE,	4.0
117			10014	RIVER SABARMATI AT AHMEDABAD U/S	4.0
118			10015	RIVER SABARMATI AT AHMEDABAD D/S	55.0
119		SHEDHI	1222	RIVER SHEDHI AT KHEDA,	6.2
120		TAPI	30045	RIVER TAPI AT NIZHAR (MAHARASHTRA GUJARAT)	3.4
121		VISHWAMITRI	3204	RIVER VISHWAMITRI DOWNSTREAM OF AT KHALIPUR VILLAGE, BEFORE MEETING JAMBUVA RIVER	38.0
122	HARYANA	GHAGGAR	1025	RIVER GHAGGAR GH-1 AT ROAD BRDG. SIRSA, DEBWALI ROAD	56.0
123			1026	RIVER GHAGGAR GH-2 AT CHANDARPUR SYPHEN	60.0
124			1884	RIVER GHAGGAR AT KALA AMB D/S MARKANDA	60.0
125			1885	RIVER GHAGGAR AT D/S OF SURAJPUR	7.5
126			1887	RIVER GHAGGAR BEFORE OTTU WEIR (BEFORE MIXING OF SATLUJ CANAL WATER)	70.0
127			30014	RIVER GHAGGAR AT PARWANOO D/S,AMRAVATI, HARYANA	13.0
128			30017	RIVER GHAGGAR AT SIRSA DABWALI ROAD (HARYANA)	19.0
129			30018	RIVER GHAGGAR AT CHANDRAPUR SIPHON (HARYANA)	206.0
130			30020	RIVER GHAGGAR AT OTTU WEIR (HARYANA)	94.0
131			MARKANDA	30007	RIVER MARKANDA AT NARAINGARH (HARYANA)
132		YAMUNA	1117	RIVER YAMUNA AT HATHNIKUND, YAMUNANAGAR	5.8
133			1119	RIVER YAMUNA AT SONEPAT	11.0
134			1496	RIVER YAMUNA AT KALANAUR, YAMUNA NAGAR	4.2
135			4914	RIVER YAMUNA AT MANGLAURA, KARNAL	7.9
136	10004		RIVER YAMUNA AT KHOJKIPUR PANIPAT	21.0	
137	10005		RIVER YAMUNA AT PALLA, SONEPAT	4.8	
138	30024		RIVER YAMUNA AT MOHENA PALWAL ROAD, HARYANA	30.0	
139	30029		RIVER YAMUNA AT SONIPAT, BAGHPAT ROAD(HARYANA)	20.0	
140	30031		RIVER YAMUNA AT HASANPUR	43.0	
141	30032		RIVER YAMUNA AT SONAULI ROAD, SHAMLI BORDER , PANIPAT (HARYANA)	10.0	
142	HIMACHAL PRADESH	ASHWINI KHAD	4428	ASHWANI KHAD U/S OF WEIR SITE OF WTP NEAR ASHWANI BRIDGE	80.0
143			4429	D/S OF ASHWANI KHAD (AFTER CONFLUENCE OF LIFT NALLAH)	14.0
144		BALD	4486	RIVER BALD D/S LANDFILLSITE AT BADDI	40.0
145		GIRI	2621	RIVER GIRI AT D/S YASHWANT NAGAR	3.3
146			3876	RIVER GIRI AFTER CONFLUENCE OF ASHWANI RIVER AT GIRIPUL, YASHWANT NAGAR	3.8
147			4442	RIVER GIRI D/S PROPOSED SITE OF SRI RENUKAJI DAM SITE NEAR BRIDGE AT DADAHU- RENUKAJI	4.8
148		MARKANDA	3862	RIVER MARKANDA D/S OF SALANI KHAD	3.2
149			3864	RIVER MARKANDA D/S OF MOGINAND NALA	4.0
150			30008	RIVER MARKANDA AT KALA AMB U/S (H.P)	3.8
151			PABBAR	2619	RIVER PABBAR AT D/S SWARAKUDDU
152		RATTA	4488	RIVER RATTA BEFORE CONF. TO RIVER SIRSA	8.0
153		SHIKARI KHAD	4431	SHIKARI KHAD BEFORE CONFLUENCE TO RIVER PABBAR NEAR HRTC ROHRU BUS STAND	4.6
154		SIRSA	1551	RIVER SIRSA U/S SITOMAJRI NALLAHGARH	4.0
155			1552	RIVER SIRSA D/S NALAGARH BRIDGE	14.0

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S NO	STATE	RIVER NAME	NWM P STN CODE	LOCATION	MAX BOD OBSERVED (mg/L)
156			1868	RIVER SIRSA AT D/S NALAGARH DISTT. SOLAN	7.2
157			4485	RIVER SIRSA U/S SANDHOLI NALLAH	9.2
158			4487	RIVER SIRSA D/S HOUSING BOARD NALLAH	40.0
159			4489	RIVER SIRSA D/S RIVER RATTA	18.5
160		SUKHANA	1870	RIVER SUKHANA AT PARWANOO, DISTT. SOLAN	72.0
161		BANGANGA	2755	RIVER BANGANGA (BATHING GHAT), KATRA,	5.2
162			2756	RIVER BANGANGA (IN FRONT OF PONY SHED NEAR REASI BRIDGE)KATRA	6.2
163		BASANTER	2752	RIVER BASANTER U/S (R.H.S) SAMBA (BELOW NH-1A BRIDGE),	4.2
164			2753	RIVER BASANTER D/S(R.H.S.) SAMBA (AT CHAK MANGA GUJJAR	3.3
165		CHUNTKOL	1307	RIVER CHUNT KOL (MAULANA AZAD BRIDGE)	11.2
166		DEVAK	2754	RIVER DEVAK UDHAMPUR(NEAR SHIV MANDIR D/S)L.H.S.	10.0
167		GAWKADAL	1306	RIVER GAWKADAL, SRG (SHERGHARI, SRG)	3.2
168			1411	RIVER JHELAM AT CHATTABAL WEIR (OUTLET	3.5
169			3274	RIVER JHELUM AT AWANTIPORA	3.5
170	JAMMU & KASHMIR	JHELUM	3276	RIVER JHELUM AT SOPORE, CONFLUENCE POINT OF WULAR LAKE	3.2
171			3277	RIVER JHELUM AT BARAMULLA D/S	3.5
172			4054	RIVER JHELUM AT PANTHACHOWK	7.8
173		LIDDER	4052	RIVER LIDDER NEAR LAVENDER PARK	7.0
174			1412	RIVER TAWI AT JAMMU U/S, (TAWI BRIDGE)	12.0
175			2744	RIVER TAWI BELOW TAWI BRIDGE	3.9
176		TAWI	2745	RIVER TAWI BAGHWATI NAGAR (2KM D/S TAWI BRIDGE	8.0
177			2746	RIVER TAWI AT BELICHARANA(4KM D/S TAWI BRIDGE)	3.2
178			4055	RIVER TAWI AT 1 KM D/S BELOW STP DISCHARGE POINT AT BHAGWATI NAGAR	6.8
179			4056	RIVER TAWI AT BALOL NALLAH, NEAR NIT COLLEGE, MIRAN SAHIB, BEFORE MIXING	14.0
180		BOKARO	2381	RIVER BOKARO AT ZARANGDIH BRIDGE	3.9
181			2380	RIVER DAMODAR AT RAMGARH ROAD BRIDGE	3.5
182		DAMODAR	3553	RIVER DAMODAR NEAR TELMUCHO BRIDGE	3.5
183			3556	RIVER DAMODAR AT CONFLUENCE OF BOKARO & DAMODAR NEAR ZARANGDIH BRIDGE, BOKARO	3.4
184		GARGA	4000	RIVER GARGA NEAR TELMUCHO BRIDGE	4.9
185		HARMU	4753	RIVER HARMU NEAR HARMU BRIDGE, HARMU, RANCHI	10.1
186			4754	RIVER HARMU BEFORE METTING TO SWARNREKHA RIVER	10.1
187	JHARKHAND	JUMAR	2396	RIVER JUMAR AT KANKE DAM	3.8
188			4085	RIVER JUMAR AT BIT MESRA, RANCHI	5.3
189		KATRI	4739	RIVER KATRI RIVER, NEAR BHATINDA FALL, AT- TETENGABAD, MOONIDIH, DHANBAD	3.6
190		KHARKHAI	4745	RIVER KHARKHAI BEFORE MEETING SWARNREKHA RIVER	8.0
191		KOINA	4747	RIVER KOINA RIVER, MANOHARPUR, W.S	3.1
192			23	RIVER SUBARNAREKHA AT RANCHI, (TATISILWAI)	5.8
193		SUBARNAREKHA	24	RIVER SUBARNAREKHA AT JAMSHEDPUR	4.8
194			49	RIVER SUBARNAREKHA AT D/S JAMSHEDPUR, (TATA NAGAR)	10.0
195			2385	RIVER SUBARNAREKHA AT NAMKUM ROAD BRIDGE	6.8

Legal/OA673/2018/NMCG/2019
National Mission for Clean Ganga
Department of Water Resources, River Development
& Ganga Rejuvenation, Ministry of Jal Shakti

1st Floor,
 Major Dhyan Chand National Stadium
 India Gate, New Delhi-110002
 Dated: 7th February, 2023

OFFICE MEMORANDUM

Subject: Minutes of the 15th meeting of Central Monitoring Committee in the NGT Matter OA No.673 of 2018 held on 10.01.2023 from 10.30 AM on-wards

A copy of Minutes of the 15th Meeting of Central Monitoring Committee in the NGT matter O.A. No. 673 of 2018 held through Video Conferencing on 10.01.2023 from 10.30 AM on-wards, under the Chairmanship of Secretary, DoWR, RD&GR, Ministry of Jal Shakti is forwarded herewith for information/ necessary action.



(D. P. Mathuria) 07.2.2023

Executive Director-Technical, NMCG
ed-technical@nmcg.nic.in

Encl: As above.

To,

1. Chief Secretary, Government of Andhra Pradesh, 1st Block, A.P Secretariat Office, Velagapudi – 522503
2. Chief Secretary, Government of Assam, Block- C, 3rd Floor, Assam Sachivalaya, Dispur - 781006, Guwahati
3. Chief Secretary, Government of Bihar, Main Secretariat, Patna – 800015
4. Chief Secretary, Government of Chhattisgarh, Mahanadi Bhawan, Mantralaya, Naya, Raipur – 492002
5. Chief Secretary, Government of Goa, Secretariat, Porvrom, Bardez, Goa – 403521
6. Chief Secretary, Government of Gujarat, 1st Block, 5th Floor, Sachivalaya, Gandhinagar – 382010
7. Chief Secretary, Government of Haryana, 4th Floor, Haryana Civil Secretariat, Sector-1, Chandigarh – 160019
8. Chief Secretary, Government of Himachal Pradesh, H P Secretariat, Shimla –171002
9. Chief Secretary, Government of Jammu & Kashmir, R. No. 2/7, 2nd Floor, Main Building, Civil Secretariat, Jammu -180001

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Minutes of the 15th meeting of the Central Monitoring Committee held on 10.01.2023 through Video Conferencing regarding 351 polluted river stretches based on the directions of Hon'ble NGT in the matter OA No. 673 of 2018

The 15th meeting of the Central Monitoring Committee (CMC) constituted by Hon'ble NGT in the matter OA No. 673 of 2018 was held through video conferencing with the States on 10.01.2023 from 10.30 AM onwards in Conference Room, NMCG under the Chairmanship of Secretary, DoWR,RD&GR, Ministry of Jal Shakti (MoJS). The list of participants of NMCG, NRCDD, MoHUA and CPCB present at the meeting is at **Annexure-I**.

II. Director General, NMCG welcomed all the participants.

In the meeting, State-wise polluted river stretches as indicated in the CPCB's latest report (2022) were discussed. It was noted that a number of river stretches have been removed from the list and there is also addition of new polluted river stretches. NGT's directions were re-iterated that the States/UTs should put in efforts to also ensure that the rivers identified as clean should be maintained as clean and their water quality status shouldn't be degraded. The States were directed to provide action taken and proposed to be taken with regard to the earlier as well as newly identified polluted river stretches. States also need to plan for projected sewage generation in the State.

III. Subsequently, State-wise discussions held are as follows:

Through a presentation, progress made by the States was highlighted and the issues related to sewage, industrial and solid waste management, etc. in the States based on the information submitted in MPRs were brought out for review.

1. Tamil Nadu

Joint Director, NRCDD informed that as per latest CPCB report (2022) the number of polluted river stretches in the State has increased from 6 to 10. There is addition of 4 river stretches – Adyar (Priority-I), Cooum (Priority-I), Amravati (Priority-V) & Palar (Priority-V) and 2 Priority-I river stretches, Cauvery and Sarabanga, are now in Priority-III and Priority-II respectively. A gap of 340.6 MLD in sewage treatment exists. 23 STPs of 634.6 MLD and 22 FSTPs of 0.515 MLD are under construction. Capacity utilization of the existing STPs is 52%. Action plan for sewage management for the year 2036 needs to be prepared by the State. 139 drains were identified as discharging into the 6 polluted river stretches for which no action has been taken. 1 CETP of 3650 KLD is under construction since long. 10 CETPs

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partially tapped. 2 major drains - Najafgarh & Shahdara are included in Interceptor Sewer Project. Remaining 3 drains (Mori Gate, Barapulla & Maharani Bagh drain) are scheduled to be tapped by August 2023. State needs to provide realistic completion timelines for the ongoing & proposed projects. State also needs to adhere strictly to the timelines for STP construction/ capacity augmentation. Timelines for New STPs at Kondli, Rithala and Okhla (Liquid Stream) which were scheduled for completion by December 2022 have been now revised to March and June 2023. STP at Sonia Vihar which is proposed to be completed by December 2023, has only achieved 4% physical progress in last 1 year. Land allotment is still pending for STP proposed at Delhi Gate, which is scheduled for completion by December 2023. Capacity augmentation of 17 STPs of 430 MLD is indicated to be completed by December 2023, but works are yet to commence.

Member Drainage, DJB informed that due to poor response, 2 packages for rehabilitation of the existing STPs could not be taken up. Rehabilitation of existing 12 STPs shall be taken up in January 2023. Sonia Vihar STP has achieved 28.23% physical progress and is expected to be completed by September 2023.

DG, NMCG directed State to expedite the ongoing STP works and ensure completion as per the committed timelines. State needs to strictly monitor the tapping works of 3 drains (Mori Gate, Barapulla & Maharani Bagh drain).

25. Himachal Pradesh

Director (Technical), NMCG informed that number of polluted river stretches in the State have increased from 7 to 9 as per the latest CPCB Report (2022). River Ashwani Khad and Sirsa are now reported to be in Priority -I. Previously identified river stretch of Beas, which was in Priority V has been removed from the list and there is addition of 3 new polluted river stretches – Bald (Priority - I), Ratta (Priority IV), Shikari Kad (Priority V). These river stretches are near to industrial towns of Himachal. During a recent visit to Himachal Pradesh, two STPs at Paonta Sahib were found to be non-complying and one STP at Paonta Sahib was found to be non-operational. It was highlighted that NMCG sanctioned a project for upgradation of two STPs at Paonta Sahib with filtration unit, but no action has been taken by the State in this regard and the STPs are non-compliant.

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ED (Tech), NMCG remarked that since past one year Himachal had reported good progress in terms of status of the sewerage and industrial projects as well as water quality of the rivers. However, the data indicated by CPCB seems to be worrisome.

Member Secretary, Himachal Pradesh Pollution Control Board informed that some of the newly identified river stretches are non-perennial rivers and are tributaries of the previously identified polluted river stretches. It was informed that State had already submitted its representation to CPCB with regard to the draft report of CPCB on polluted river stretches (2022). In the representation, State had requested that just one deviation in parameter in 2 years should not be taken into account while identifying the polluted river stretches and requested CPCB to reconsider the report. The water quality of rivers in higher priority also came down in recent year monitoring. Further, it was informed that HPPCB has taken regulatory action against the State Jal Shakti Department for ensuring compliance of the STPs in the State. Timelines with regard to CETP at Paonta Sahib will be established once confirmation from Department of Pharmaceuticals is received. HPPCB is in touch with the Department for expediting the works.

Engineer-in-Chief (Jal Shakti Department), Himachal Pradesh informed that damaged pipeline of Paonta Sahib Zone III STP has been repaired. Measures are being taken for ensuring compliance of the non-complying STPs in the State.

ED (Tech), NMCG directed that State Jal Shakti Department to ensure that Central funds are appropriately utilized, as during the visit the STPs at Paonta Sahib were found to be lacking the filtration units for which funds have been sanctioned by NMCG. Further, CPCB may look into the representation made by the States with regard to the latest polluted river stretches report of CPCB.

26. Madhya Pradesh

Director (Technical), NMCG informed that the total sewage generation in the State is 2183.65 MLD. 53 STPs of total 1227.99 MLD capacity are now operational, 2 new STPs of 52.5 MLD capacity have been completed since last CMC meeting. At present gap in sewage treatment capacity in the State is 955.66 MLD. 52 STPs of 528.79 MLD are under construction, of which 3 STPs of 84 MLD are under trial run and 7 STPs of 35.05 MLD are under proposal/tender stage. However, proposal for 234 MLD STPs [Indore (75 new +120 MLD replacement), Ujjain-22 MLD and Nagda-17 MLD] is under consideration in NMCG,

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Minutes of the 16th meeting of the Central Monitoring Committee held on 12.05.2023 through Video Conferencing regarding 351 polluted river stretches based on directions of Hon'ble NGT in the matter OA No. 673 of 2018

The 16th meeting of Central Monitoring Committee (CMC) constituted by Hon'ble NGT in OA No. 673 of 2018 was held through Video Conferencing with the States/ Union Territories on 12.05.2023 from 10:00 AM onwards in the Conference Room, NMCG under the chairmanship of Secretary, D/o WR, RD & GR, Ministry of Jal Shakti (MoJS). The list of participants of NMCG, NRCD, MoHUA and CPCB present in the meeting is at *Annexure – I*.

II. Director General, NMCG welcomed all the participants.

He reiterated the directions of Hon'ble NGT in the matter & the periodic review by CMC of status of implementation of STPs/ CETPs, management of sewage in State/ UTs, solid waste management interventions, status of existing STPs with regard to their functioning & compliance, action taken to address the issue of polluted river stretches, management of pollution in coastal areas, re-use of treated water/ generating wealth from waste and initiatives taken on sedimentation policy. Further, it was also highlighted that apart from status of implementation of STPs/ CETPs in the States/ UTs, priority focus should be on implementation of action plans towards cleaning of polluted river stretches (PRS) identified by CPCB.

III. Subsequently, State-wise discussions held are as follows:

Through a presentation, progress made by the States/ UTs were highlighted and the issues pertaining to sewage, industrial and solid waste management, etc. in the States/ UTs based on the information submitted in the monthly progress reports (MPRs) were brought out for review.

1. Tamil Nadu:

Joint Director, NRCD informed that the number of Polluted River Stretches (PRS) has increased from 6 to 10 from 2018 to 2022. River Cooum is the newly identified polluted river stretch under Priority I having BOD more than 300 mg/l. Water quality of Thirumanimuthar & Vasishta river remains in Priority I along Salem (downstream of Sago river) and the probable reason was industrial effluent being discharged from Sago industrial area into the river. River water quality has improved in Bhavani, Cauvery & Sarabanga rivers, whereas water quality has deteriorated in Tambiraparani river.

Against the total sewage generation of 3938 MLD (6421 MLD – as reported by CPCB), 2172 MLD of sewage is being treated through 99 STPs having capacity utilization at 49% only. Additionally, 0.92 MLD is being treated through 32 number of FSTPs. Thus, a gap in treatment capacity of 370 MLD still exists. 15 STPs of 436

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response with receipt of single tenders, which are being processed & being placed before the Board.

CEO, DJB informed regarding poor bidder response that the issue being faced is due to adoption of Govt. mandated HAM model, with 40% upfront payment & the balance 60% spread out in 10 years O&M.

DG, NMCG informed that Telangana State is taking up 31 projects of about 1253 MLD capacity under HAM Model and they are receiving good response. Even NMCG is also getting good response with 16-19 bidders for HAM based STP projects in Meerut.

CEO, DJB highlighted that poor bidder response is due to Sovereign Guarantee mandate, which is being given by the States & Central Government but the same cannot be given in case of a Delhi, being a UT. The issue is being taken up with State Government in view of poor response being received in HAM model. The issue is also being discussed with the potential bidders for early resolution by assuring the fund flow under HAM model.

Member Secretary, DPCC responded that since these industries are existing in non-conforming areas so they are not allowed to operate & considered as illegal. Considering their huge existence in non-conforming areas, the local bodies need to enforce their removal from these non-conforming areas. Even in MC Mehta case in Supreme Court, the onus on these industries is reported passed on to ULBs, but after detailed discussions & the fact that the pollution from these industries is unabated, Hon'ble LG of Delhi in the last SLWM meeting passed the directions for joint inspection of these industries by DPCC & other concerned departments. To start with, the joint inspection teams have started inspections of dyeing industries and are sealing them on the spot. It was further requested that in the next meeting, concerned ULBs may also be requested to be present.

DG, NMCG directed that pollution from any source to the rivers, whether from conforming or non-conforming industrial clusters, should be stopped.

ED (Technical), NMCG requested DPCC to share information regarding the industries sealed by the Joint Inspection teams, so that we are able to create a record of it.

CEO, DJB informed that the tapping of some drains is complete and for the remaining drains, including the recently identified drains, work is in process & entire exercise will be completed within the given timelines.

25. Himachal Pradesh

Director (Technical), NMCG informed that the number of polluted river stretches have increased from 7 to 9. The major concern is that the number of stretches under Priority I have increased from 1 to 4, despite completion of some projects during this period. As per water quality report of 2023 submitted by State, out of 7 identified

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polluted river stretches, only 1 stretch has BOD>10 mg/l and 5 stretches have BOD<3 mg/l which is in contrast with CPCB report.

ED(Technical), NMCG highlighted the issue of river Sirsa which was categorized as polluting Punjab but the State version is that except 1 village of Himachal Pradesh, the entire pollution in river Sirsa comes from Haryana. State was requested to respond to the issue of Sirsa river in addition to other critical issues raised earlier.

Member Secretary, HPSPCB informed that State differs from the assessment made by CPCB indicating increase in number of polluted river stretches from 7 to 9 and increase of Priority I stretches from 1 to 4. State has already represented to Chairman SPCB regarding this assessment, as State has already done required compliances for CETPs, Biodiversity Parks, Plantation & Solid waste processing facilities etc., and in addition Nallagarh STP is also functional. As per State assessment, some of the stretches reported to be Priority I should be in Priority V. Similarly, the BOD of >40 mg/l as reported by CPCB, is never indicated in State assessment. Also, Bald & Ratta (tributaries of Sirsa river) & Shikari Khad (tributary of Pabbar River) are already included in State Action Plans of these rivers, so State doesn't agree with inclusion of these stretches in 2022 PRS list. Regarding Sirsa river, it was submitted that despite considerable improvement observed by the State, it has been shifted from Priority III to Priority I vis-à-vis 2018 & 2022 report of CPCB. In view of these submissions, the State has requested for re-assessment of the stretches by representatives of SPCB & CPCB and the response to the representation is awaited.

Director (Technical), NMCG requested SPCB to reconcile the data with CPCB, as the stretches in Priority I are reportedly increased from 1 to 4, against contrary submission by the State.

DG, NMCG directed that State should submit detailed action plan with timelines for the polluted river stretches, especially those under Priority I, within 2 weeks' time.

26. Madhya Pradesh:

Director (Technical) informed that number of polluted river stretches have reduced from 22 to 19. 7 river stretches (Kolar, Choupan, Katni, Simar, Kshipra, Sone & Gohad) were delisted and 4 river stretches (Hiran, Johila, Mahi & Wardha) have been identified. The water quality has been improved in 4 river stretches, but water quality of river Chambal & Khan still remains under Priority I. For river Chambal, a project in Nagda is under consideration in NMCG.

Presently, against the estimated sewage generation of 2184 MLD, treatment facility exists for 1283 MLD being treated through 55 STPs, thereby leaving a gap in treatment facility of 1000 MLD. 48 STPs of 425 MLD are under construction. Additionally, 5 STPs of 220 MLD at Indore and Ujjain have been sanctioned under Namami Gange which are under tendering. During last meeting, State had informed

Minutes of the meeting held on 1st November 2023 at HP Secretariat, Shimla (H.P.) at 3:00 PM under the Chairmanship of Sh. Prabodh Saxena, Chief Secretary to the Government of Himachal Pradesh to review Revised Action Plan formulated for Polluted River Stretches, Priority-I in compliance to directions issued by Hon'ble National Green Tribunal in matter O.A. No. 673 /2018 & Central Monitoring Committee.

A meeting was held on 1st November, 2023 at HP Secretariat, Shimla (H.P.) at 3:00 PM, under the Chairmanship of Sh. Prabodh Saxena, Chief Secretary to the Government of Himachal Pradesh to review Revised Action Plan formulated for Polluted River Stretches, Priority-I in compliance to directions issued by Hon'ble National Green Tribunal in matter O.A. No. 673 /2018 & Central Monitoring Committee. The List of Officials who attended the meeting is enclosed as **Annexure-I**.

At the outset, it was apprised to the house that "Draft Report on Polluted River Stretches for Restoration of Water Quality, August 2022" was shared by CPCB. Following rivers have been proposed to be categorized as polluted river stretches in the State of Himachal Pradesh: -

S NO.	RIVER	POLLUTED RIVER STRETCH/ LOCATION	MAX BOD OBSERVED 2019 & 2021	PRIORITY CLASS
1	Ashwini Khad	Matholi To Bhog	80	I (Earlier Cat-V)
2	Balad	Along Baddi	40	I (New addition)
3	Sirsa	Along Nalagarh	40	I (Earlier Cat-III)
4	Sukhana	Along Parwanoo	72	I Category unchanged
5	Ratta	Along Nalagarh	8	IV (New addition)
6	Markanda	Salani To Rampur Jattan	4	V (Earlier Cat-II)
7	Pabbar	Along Swarakuddu	4.6	V Category unchanged
8	Giri	Along Yashwant Nagar And Along Dadahu	4.8	V Category unchanged
9	Shikari Khad	Along Rohru	4.6	V (New addition)
	Beas river	Kullu, Mandi, Hamirpur, Kangra	The river stretch has been now excluded from the PRS	

In the meeting of Central Monitoring Committee constituted by Hon'ble NGT vide order in OA No. 673 of 2018 held under the Chairmanship of Secretary, DoWR, RD&GR, Ministry of Jal Shakti on 12.05.2023, it was directed that *State should submit detailed action plan with timelines for the polluted river stretches, especially those under Priority I.*

In view of the directions issued by CMC, State Board has formulated an action plan for the rivers have been proposed to be categorized as polluted river stretches **Priority-I**. Thereafter, Er. Chandan Kr. Singh gave a detailed presentation on the proposed action plan.

After detailed deliberation and discussions, following directions were issued: -

1. The action plan formulated was approved which is appended as Annexure-A. It should be sent to the Central Pollution Control Board and Ministry of Jal Shakti, GoI.
2. Pr. Secretary, Urban Development shall review the progress of the Action Plan formulated for the polluted river stretch Ashwani river.



3. CEO, BBNDA shall also look into ~~the~~ ²²⁵ issues related to both the river stretches Sirsa, Balad and shall review their progress of implementation of the Action Plans formulated for these stretches.
4. BBNDA shall conduct an extensive 15-day drive against the unauthorized tankers engaged in illegal discharge of sewage in river Sirsa and Balad alongwith stakeholder Departments. Thereafter such drive shall be conducted bi-yearly.
5. JSV shall pursue the matter of funding for the construction of 2nd STP in Parwanoo (catchment of Sukhna Nallah) with Secretary, Urban Development.
6. BBNDA shall submit the proposal of the construction of Bioremediation/Phytoremediation in the catchment of River Sirsa to Department of Environment Science and Technology (DEST). DEST shall explore the funding under Corporate Environment Responsibility. BBNDA should explore the Possibility of CETP at Nalagarh.

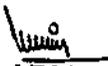
The meeting ended with a vote of thanks to and from the Chair.

[This has approval of Worthy Chief Secretary]


(Sat Pal Dhiman) 10-11-2023
Additional Secretary (EST & CC) to the
Government of Himachal Pradesh
10-11-2023.

File No. STE-E(3)-3/2020-L Dated: Shimla-171002, the
Copy forwarded to the following for information r:

1. The Additional Chief Secretary (Forest) to the GoHP, HP Secretariat, Shimla.
2. The Additional Chief Secretary (Industries) to the GoHP, HP Secretariat, Shimla.
3. The Principal Secretary (UD) to the GoHP, HP Secretariat, Shimla.
4. The Principal Secretary (PWD) to the GoHP, HP Secretariat, Shimla.
5. The Secretary (RD) to the GoHP, HP Secretariat, Shimla.
6. The Pr. Chief Conservator of Forests, Himachal Pradesh, Shimla.
7. The Secretary (Jal Shakti Vibhag), to the GoHP, HP Secretariat, Shimla.
8. The Deputy Commissioner(s), District Shimla & Solan.
9. All the Deputy Commissioners (H.P).
10. The Director, Industries, HP Shimla.
11. The Director, Health & Family Welfare Services, Shimla-171009.
12. The Director, Transport, HP Shimla-171003.
13. The Director, Rural Development, HP Shimla.
14. The Director, Department of Environment, Science Technology & CC HP Shimla.
15. The Member Secretary, H.P. State Pollution Control Board, Shimla.
16. The Director, Urban Development, Taland Shimla-171002.
17. The Chief Executive Officer, Baddi Barotiwala Nalagarh Development Authority, Major District Road 7, Industrial Park Phase , Jharmajri, District Solan, Barotiwala, Himachal Pradesh 174103
18. The Engineer-in Chief, Jal Shakti Vibhag, Shimla.
19. The CEO, HIMUDA, HP Shimla
20. The CEO-cum-Director, Baddi Infrastructure # 0 EPIP-PHASE-1, Jharmajri, Tehsil Baddi, Solan, HP 174103
21. The Commissioner, Municipal Corporation, Shimla.
22. The Managing Director, Shimla Jal Prabandhan Nigam Limited (SJPNL), Shimla.


(Sat Pal Dhiman) 10-11-2023
Additional Secretary (EST & CC) to the
Government of Himachal Pradesh

Annexure-I

The following officers were present in the meeting:

<u>Sr.</u>	<u>Name</u>	<u>Designation</u>
1.	Shri Rajiv Kumar	PCCF(WL)
2.	Shri DC Ra08766a	Director, Env.Sci. Tech.&CC
3.	Shri Sanjeev Kaul	Enc-JSV
4.	Shri Lalit Jain	CEO, BBNDA
5.	Shri Satpal Dhiman	Addl. Secretary (EST&CC)
6.	Shri Bhupender Kumar Attri	Commissioner, MC Shimla
7.	Shri Parveen Gupta	Addl. Director , EST&CC
8.	Dr. Suresh Chand Attri	Chief Scientific Officer, EST&CC
9.	Shri Inder Singh Uttam	SE, Enc,JSV Shimla
10.	Shri Anil Mehta	CE(D&W) JSV
11.	Shri Jagan Thakur	Addl. Director , UD
12.	Shri Chandan Singh	Executive Engineer, HPPCB
13.	Shri Pawan Kumar	AEE, HPPCB
14.	Shri Rekesh Prasher	EE-cum-Nodal Officer(NGT)
15.	Shri Deepak Dogra	AEE, HPPCB
16.	Dr. Manum Sharma	Environment Officer, EST&CC
17.	Ms. Namata Sharma	Environment Officer, EST&CC
18.	Shri Shail Chaudhar	JEE, HPPCB

Action Plan for Rejuvenation of Sukhna Nallah

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Action Plan with timelines including the organization/agency responsible for its implementation for Rejuvenation of Sukhna Nallah in compliance with Hon'ble NGT order in O.A. 673 of 2018

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
I	Industrial Effluent Management			
(a)	<p>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.</p> <ul style="list-style-type: none"> Regular inspections as per schedule notified. 	HPSPCB	Continuous activity.	<ul style="list-style-type: none"> Completed <p>Total 56 no's of water Polluting industries located at the stretch of Sukhna Nallah. All the units are being regularly inspected by HPPSPCB RO Parwanoo. Actions are initiated as and when violations are observed in the units.</p>
(b)	<p>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.</p> <ul style="list-style-type: none"> To ensure all units have valid consent. 	HPSPCB	Continuous activity.	All the industries have obtained consent to operate. Applications for further renewal of 14 units are under process.
(c)	<p>Actions against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards.</p> <ul style="list-style-type: none"> Routine inspections. 	HPSPCB	Continuous activity.	Power Disconnection of 01 number of units not complying with provisions of Water Act, 1974 have been initiated.

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
(d)	Prohibition of Burning of any kind of waste including agro residue. <ul style="list-style-type: none"> • Complete ban on Open Burning and littering. • Installation of CCTV cameras at SWM site Parwanoo and at 05 No. of hotspot locations. 	MC Parwanoo and HPSPCB	31.12.2023	Directions have been issued to the EO MC Parwanoo and advisory has also been issued to the industries through The President Industries Association Parwanoo (PIA) in this regard. Regular Challaning drives such as Plastic uses, Littering etc. are being organized and challans were issued against defaulting units for non-compliance of the provisions of SWM Rules 2016 as per HP Non-Biodegradable Garbage Control Act.
(e)	Estimation of industrial effluent generation. <ul style="list-style-type: none"> • Inventorization of all water polluting industries and known-point sources. 	State Govt., Deptt. of Industries, District Administration	Continuous Activity	All the water polluting industries have installed necessary PCD's for treatment of waste water. Estimation of quantum of effluent generation in Parwanoo area has already been completed.
(f)	Setting up of Solid Waste Management Site. <ol style="list-style-type: none"> i. 100% Source Segregation of solid waste. ii. Installation of weigh bridge at SWM site Sect-5. iii. Installation of Fire Hydrant and firefighting equipment's at SWM site Sect-05. iv. Extension of shed for RDF storage and loading and unloading shed. v. Setting up of own Material Recovery Facility and Composting facility 	Executive Officer, MC Parwanoo	i. 90 days. ii. 31.12.23 iii. 31.03.24 iv. 31.03.24 v. 31.03.24	In Parwanoo Town, MC Parwanoo has signed MOU with M/s JBR Technologies Pvt. Ltd for disposal of Solid waste.

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
(g)	Conversion of industrial units to ZLD.	HPSPCB	31.03.2024	<p>Currently 05 Number of red category units are meeting Zero Liquid Discharge i.e.</p> <ol style="list-style-type: none"> 1. M/s Electrowave Electronics 2. M/s Daljeet Electroplating 3. M/s Premier Electroplating 4. M/s Him Metal Processing 5. M/s Himachal Fastener
II	Domestic Sewage Management			
(a)	<p>Area wise estimation of total population, water requirement and sewage generation.</p> <ul style="list-style-type: none"> • Installation of remaining 01 STP of capacity 01 MLD (out of 02 proposed) is under Process at Tipra. 	HIMUDA, JSV, Urban Development, Rural Development Department	31.03.2024	<p>As per Census 2011, the 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.</p> <p>As per the information provided by the HIMUDA Parwanoo the water supplied is about 2.5 MLD and the Sewage Load of Parwanoo comes around about 02 MLD.</p> <p>In Parwanoo Town 02 No. of 01 MLD, STP's are proposed to be installed. Out of which 01 number has been installed and is operational at Sector-2 Parwanoo. Remaining 01 No. STP is under process.</p>
(d)	<p>Repair/Improvement of existing phyto-remediation system installed in Semtal Nallah.</p> <ul style="list-style-type: none"> • To repair the root zone bed and improvement in design to improve its efficiency. 	MC Parwanoo	31.03.2024	<p>01 No. of Phyto-remediation system was installed in Semtal Nallah for in-situ treatment.</p> <p>Due to heavy rains the working and root zone bed got disturbed.</p>

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
III	Ground Water Management			
(a)	Sampling of Tube wells, Bore wells, Hand Pumps.	JSV and HPSPCB	Continuous Activity	Monthly 03 No. of samples are collected to check ground water quality in Parwanoo Town. All the samples are complying with the standards.
IV	Miscellaneous			
(a)	Regular monitoring and sampling of water quality of Sukhna Nallah and various drains on monthly basis.	HPSPCB	Continuous Activity	10 No's of Sample have been collected from on the stretch of Sukhna Nallah and its tributaries every Month.
(b)	Detection and removal of encroachment on forest land	Dept. of Forest	Continuous activity	<p>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.</p> <p>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.</p>
(c)	Impact of water pollution on health of public by organizing Health camp.	State Health Deptt.	Continuous Activity	Health camps are being regularly organized in Sukhna Catchment to check water borne diseases.
(d)	Involvement of Civil Society <ol style="list-style-type: none"> i. 01 Public Awareness Drive a month. ii. Installation of LED/Digital display boards for public advisories. 	MC Parwanoo	<ol style="list-style-type: none"> i. Continuous Activity ii. 31.03.2024 	Cleanliness drives are being regularly organized in Parwanoo town by involving various Stake Holders, Institutions, Industrial Units of Parwanoo, and agencies.

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
(e)	Complaints redressal system	HPSPCB	Continuous Activity	There are complaint redressal systems available for filing complaints like E-samadhan, CM Seva Sankalp, Him Pragati, 24x7 helpline of HPSPCB etc.
(f)	Prevention of solid waste dumping in water bodies. <ul style="list-style-type: none"> • Installation of solid waste catch-nets at 05 locations. 	MC Parwanoo	31.03.2024	Currently routine inspections are conducted in Parwanoo area.

**Action Plan for Rejuvenation of
River Sirsa, Baddi- Nalagarh,
District Solan H.P.**

Action Plan with timelines (Short, Medium and Long Term Plan) including the organization/agency responsible for Rejuvenation of River Sirsa, Baddi- Nalagarh, District Solan H.P.

1. Industrial Sewage Management:-

Sr. No.	Action Points	Responsible Agency	Timeline for completion of action plan	Remarks
(a)	Inventorization of the Water Polluting Industries in the catchment of River Sirsa 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	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	Continuous Activity	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 is taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Actions against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	Continuous Activity	Inspection and Sampling of unit is conducted on regular basis and action is initiated against the defaulting units as per relevant provisions of Water Act, 1974 and Air Act, 1981
(d)	Prohibition of Disposal of Municipal Solid Waste, Plastic Waste, Bio-medical Waste, Hazardous Waste and Burning of any kind of Solid Waste.	BBNDA Municipal Council Baddi, Municipal Council, Nalagarh, District Administration	Continuous Activity	-
(e)	Improvement in functioning of existing CETP at Baddi w.r.t connecting the near about areas with Conveyance Pipeline	JSV, Baddi Infrastructure (SVP)- CETP, Department of Industries		Household Sewerage Connections Total Connections 5492 (3744 DPR + 1748 afterwards), 4684 connection released. The A/A & ES for construction of Sewerage scheme to Baddi Town in Tehsil Baddi District Solan have been accorded on

				dated 02.09.2023 amounting to Rs. 37.0971 Crore under “Special Assistance to the State for Capital Expenditure 2023-24”.
(f)	Conducting Surprise inspections and Water Audit to reduce the Gap in Effluent generation and Treatment with CETP at Baddi.	HPSPCB	Continuous Activity	-
(g)	Detection of leakages in conveyance pipelines of CETP, Baddi.	HPSPCB, Baddi Infrastructure	Continuous Activity	-
(h)	Detection of leakages in sewage pipeline	JSV	Continuous Activity	-
(i)	Identification of industries falling in the catchment Zone of CETP, Baddi and not connected with CETP and Action to be taken thereafter.	HPSPCB	Completed	-
(j)	Proposal for improvement in functioning of CETP by modification in treatment process to improve the discharge effluent quality.	Baddi Infrastructure	May 2025	3 MLD Effluent Refractory Management & TDS Reduction in in the CETP is proposed and studies are being carried out.
(k)	Installation of Real Time Online Effluent Monitoring System on category 17 units.	HPSPCB	Completed	-
(l)	Sludge Management from Industrial Effluent Treatment.	HPSPCB		Sludge generated is being sent to SSWML Dabhota
(m)	Setting up & operation of a Solid Waste Management facility at Kenduwal, Baddi	State Govt., Deptt. of Industries, District Administration, BBNDA and Deptt. of Urban Development	Completed	

2. Domestic Sewage Management

(a)	Area-wise estimation of total population, water requirement, and sewage generation of Baddi-Nalagarh Area.	BBNDA, J.S.V., Department of Rural Development, District Administration, Statical Department	31.12.2023	-
(b)	Measurement of Flow of Drains, Pollution Load contributing to River Sirsa.	J.S.V. & HPSPCB	Continuous process	-
(c)	Execution of Project Proposal for Sewage Management through State of Art-Technology for Sewage Treatment Plant at Nalagarh.	J.S.V.	Completed	-
(d)	Installation of continuous Real Time Water Quality Monitoring Station on River Sirsa.	J.S.V.	Completed	-
(e)	Sewage Management for Industrial Areas of Baddi, Jharmajri, Lodhimajra, Davni, & Thana.	HPSIDC, DIC	Completed	-
(f)	Sewage/Septage management for Rural Areas with low cost treatment technologies along with Construction of drains and cleaning thereof	Rural Development/Block Development Office, Nalagarh.	31.03.2024	-
(g)	Identification of Un-authorized Jhuggis in the BBN area and management of Solid waste/sewage management and lifting of Jhuggis/Slum dwellers along the catchment of River Sirsa and its rivulets. Identification bulk sewage generator i.e. rental properties for migrated labor in the BBN area.	BBNDA, J.S.V., And MC baddi and nalagarh	31.12.2023	-
(h)	Implementation of phyto remediation project in the Sandholi Nallah and Housing Board Nallah w.r.t. Hotspot of Water Contamination : Sandholi Nallah, Housing Board Nallah and Un-authorized Jhuggis in the catchment	District Administration/ HPSPCB	31.03.2024	Work to be executed by Indorama India limited and Morepen Laboratories Limited w.r.t. Condition imposed in the Environmental Clearance granted from SEIAA.

3. Ground Water Management

(a)	Sampling of Tube wells, Bore wells, Hand Pumps in BBN area.	J.S.V., HPSPCB	Continuous activity	-
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(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Baddi Nalagarh Area	J.S.V.	Continuous activity	-
(c)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	J.S.V., HP GWA	Continuous activity	-
(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	J.S.V., HP GWA	Completed	-
(e)	To conduct periodic surprise inspection of the industries to rule-out any forceful injection of industrial effluents into ground water sources	HPSPCB	Continuous activity	-
(f)	All the industries should be directed to obtain NOC from HPGWA/ CGWA and action against the units in operation without obtaining NOC from PGWA/ CGWA.	J.S.V.	Continuous activity	-
(g)	Remedial measures for de-contamination of Highly Polluted Ground Water resources within Jurisdiction of Baddi – Nalagarh Area.	J.S.V. & HPSPCB	Not identified	-

4. Miscellaneous

(a)	Regular monitoring and sampling of water quality of River Sirsa and various drains on monthly basis.	HPSPCB	Continuous activity	-
(b)	Impact of water pollution on health of public by organizing Health camp	State Health Deptt.	Every 3 Month	-
(c)	Plantation in Flood Plain Zone, Setting up of Bio-diversity Parks	Forest Department		-
(d)	Checking Encroachment in FPZ of River Sirsa by Notifying the Flood plain Area.	District Local Administration/ BBNDA/ J.S.V.		-
(e)	Setting up of website for public participation.	HPSPCB	Completed.	-
(f)	Monitoring of the Executing the Action Plans	BBNDA, HPSPCB	Continuous activity	-
(g)	Cleanliness Drive along the Stretch of River Sirsa	HPSPCB, BBNDA, Ind. Deptt, Urban Local Body Rural Development, Industries Association and other stakeholders.	Continuous activity	-

(h)	Identification and regulation of unauthorized tankers engaged in illegal discharge of sewage in river/nallahs	RTO Nalagarh, Police, BBND, MC Baddi, MC Nalagarh, HPSPCB, Distt. Administration	31.12.23 and thereafter continuous	
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5. Other Aspects as NGT Order dated 20.09.2018 and 19.12.2018

(a)	Rain Water Harvesting/ Ground Water Recharge aspects	J.S.V.		10 Sites identified, DPR preparation is under process. Implementation is subject to the availability of funds from the Central Government.
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**Action Plan for Rejuvenation of
Balad Khad
(Non perennial water Body),
Tehsil Baddi, District Solan, H.P.**

Action Plan with timelines (Short, Medium and Long Term Plan) including the organization/agency responsible for Rejuvenation of Balad Khad(Non perennial water Body), Tehsil Baddi, District Solan, H.P.

1. Industrial Sewage Management:-

Sr. No.	Action Points	Responsible Agency	Time Line for completion of action plan	Remarks
(a)	Inventorization of the Water Polluting Industries in the catchment of Balad Khad 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	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	Continuous Activity	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 is taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Actions against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	Continuous Activity	Inspection and Sampling of unit is conducted on regular basis and action is initiated against the defaulting units as per relevant provisions of Water Act, 1974 and Air Act, 1981
(d)	Prohibition of Disposal of Municipal Solid Waste, Plastic Waste, Bio-medical Waste, Hazardous Waste and Burning of any kind of Solid Waste.	BBNDA Municipal Council Baddi, District Administration	Continuous Activity	-
(e)	Improvement in functioning of existing CETP at Baddi w.r.t connecting the near about areas with Conveyance Pipeline	JSV, Baddi Infrastructure (SVP)- CETP, Department of Industries		Household Sewerage Connections Total Connections 5492 (3744 DPR + 1748 afterwards), 4684 connection released. The A/A & ES for construction of Sewerage scheme to Baddi Town in Tehsil Baddi District Solan have been accorded on dated 02.09.2023

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				amounting to Rs. 37.0971 Crore under “Special Assistance to the State for Capital Expenditure 2023-24”.
(f)	Conducting Surprise inspections and Water Audit to reduce the Gap in Effluent generation and Treatment with CETP at Baddi.	HPSPCB	Continuous Activity	-
(g)	Detection of leakages in conveyance pipelines of CETP, Baddi.	HPSPCB, Baddi Infrastructure	Continuous Activity	-
(h)	Detection of leakages in Sewage pipeline	JSV	Continuous activity	
(i)	Identification of industries falling in the catchment Zone of CETP, Baddi and not connected with CETP and Action to be taken thereafter.	HPSPCB	Completed	-
(j)	Installation of Real Time Online Effluent Monitoring System on category 17 units.	HPSPCB	Completed	-
(k)	Sludge Management from Industrial Effluent Treatment.	HPSPCB	Sludge generated is being sent to SSWML Dabhota	-

2. Domestic Sewage Management

(a)	Area-wise estimation of total population, water requirement, and sewage generation of Balad Catchment Area.	BBNDA, J.S.V., Department of Rural Development, District Administration, Stastical Department	31.12.2023	-
(c)	Measurement of Flow of Drains, Pollution Load contributing to Balad Khad.	J.S.V. & HPSPCB	Continuous process	-
(d)	Proper design, execution of sewerage Lines to be incorporated in proposed CETP at Baddi.	J.S.V., Industry Department		-
(e)	Sewage Management for Industrial Areas of Baddi, EPIP Phase-I and II Jharmajri of DIC, Hilltop Jhramajri and HIMUDA industrial area at Bhatolikalan.	DIC and HIMUDA	Completed	-
(f)	Sewage/Septage management for Rural Areas with low cost treatment technologies along with Construction of drains and cleaning thereof	Rural Development/Block Development Office, Nalagarh.	31.03.2024	-

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(g)	Identification of Un-authorized Jhuggis in the Balad area and management of Solid waste/sewage management and lifting of Jhuggis/Slum dwellers along the catchment of Balad Khad and its rivulets. Identification bulk sewage generator i.e. rental properties for migrated labor in the BBN area.	BBNDA, J.S.V., And MC Baddi.	31.12.2023	-
(h)	Hotspot of Water Contamination: Jharmajri, Kunjhal, Kotla Nallah and Un-authorized Jhuggis in the Balad catchment.	BBNDA, J.S.V., And MC Baddi.	Continuous activity	Hotspot Identified.

3. Ground Water Management

(a)	Sampling of Tube wells Bore wells, Hand Pumps in BBN area.	J.S.V. , HPSPCB	Continuous activity	-
(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Baddi Area	J.S.V.	Continuous activity	-
(C)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	J.S.V. , HP GWA	Continuous activity	-
(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	J.S.V. , HP GWA	Completed	-
(e)	To conduct periodic surprise inspection of the industries to rule-out any forceful injection of industrial effluents into ground water sources	HPSPCB	Continuous activity	-
(f)	All the industries should be directed to obtain NOC from HPGWA/ CGWA and action against the units in operation without obtaining NOC from PGWA/ CGWA.	J.S.V	Continuous activity	-
(g)	Remedial measures for de-contamination of Highly Polluted Ground Water resources within Jurisdiction of Baddi – Nalagarh Area.	J.S.V. HPSPCB	&Not identified	-

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4. Miscellaneous

(a)	Regular monitoring and sampling of water quality of Balad Khad.	HPSPCB	Continuous activity	-
(b)	Plantation in Flood Plain Zone, Setting up of Bio-diversity Parks	Forest Department		-
(c)	Checking Encroachment in FPZ of Balad Khad by Notifying the Flood plain Area.	District Local Administration/ BBNDA/ JSV		-
(d)	Setting up of website for public participation.	HPSPCB	Completed.	-
(e)	Monitoring of the Executing the Action Plans.	BBNDA, HPSPCB	Continuous activity	-
(f)	Cleanliness Drive along the Stretch of Balad Khad.	HPSPCB, BBNDA, Ind. Deptt, Urban Local Body Rural Development, Industries Association and other stakeholders.	Continuous activity	-
(g)	Identification and regulation of un authorized the tankers engaged in illegal discharge of sewage in river/nallahs	RTO Nalagarh, Police, BBNDA, MC Baddi, MC Nalagarh, HPSPCB, Distt. Administration	31.12.23 and thereafter continuous	

5. Other Aspects as NGT Order dated 20.09.2018 and 19.12.2018

(a)	Rain Water Harvesting/ Ground Water Recharge aspects	J.S.V.		10 Sites identified, DPR preparation is under process. Implementation is subject to the availability of funds from the Central Government.
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Action Plan for Rejuvenation of Ashwani Khad.

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Action Plan with timelines including the organization/agency responsible for its implementation for Rejuvenation of Ashwani Khad.

1. Domestic Sewage Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Area wise estimation of total population, water requirement and sewage generation.	SJNPL	Completed	Data regarding total population has been taken by SJNPL from Census 2011 and the projected waste water calculations has been done taking into account the decadal growth rate of the area.
2.	Connectivity of left out areas through conveyance pipeline to existing common sewage treatment Plants (STPs) operational along the stretch of Ashwani	SJNPL	Continuous Activity	Area under common STPs is continuously increasing and more no. of households are being provided the facility of connectivity through common STPs.
3.	Upgradation of existing Sewage Treatment Plants (STPs)	SJNPL	STP Malyana:- 31.07.2023 STP Lalpani: 30.11.2023 STP Dhalli:- 31.07.2023	<p>STP Malyana:</p> <ul style="list-style-type: none"> • Work has been completed <p>STP Lalpani:</p> <ul style="list-style-type: none"> • 94% work completed. • Building components completed. • Primary treatment unit has been completed. • Retrofitting of existing UASB tank to SBR basin-II is in progress. • Work of SBR Basin-I in progress after court stay got vacated on 21.1.23. <p>STP Dhalli:</p> <ul style="list-style-type: none"> • Work has been completed.
4.	Sewage Treatment Plants (STPs) proposed.	SJNPL	31.12.2024	There is 1 No. of Common STP proposed in the catchment of River Ashwani i.e. STP Panthaghati (3.1 MLD)

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5.	Setting up of Faecal Sludge Treatment Plant (FSTP)	SJPNL	Already Completed	
6.	Channelization of Lift Nallah	SJPNL	31.03.2024	<ul style="list-style-type: none"> Channelization of lift nallah and its landscaping from Indira Gandhi Sports Complex to Lalpani bridge is under progress which will help in collection of solid waste dumped along the nallah.
7.	Installation of Real Time Continuous Effluent Monitoring Stations at outlet of STPs.	SJPNL	31.12.2023	Real time continuous effluent monitoring stations are to be set up at outlets of all the STPs.

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2. Industrial Effluent Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Inventorization of the water polluting Industries and Hotels in the catchment of Ashwani Khad.	HPSPCB	Completed	There are 9 water polluting industries and approx. 166 hotels situated in the catchment of Ashwani Khad.
2.	Action against the identified industries/hotels which are not connected with common STPs or who have not installed requisite PCDs i.e. ETPs/STPs or whose treated effluent is not meeting the prescribed standards.	HPSPCB	Continuous Activity	

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3. Ground Water Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Sampling of Bore Wells and Hand Pumps from area falling under the catchment of Ashwani Khad.	HPSPCB, SJPNL & JSV	Continuous Activity	HPSPCB is carrying out sampling of one hand pump falling under the catchment of Ashwani Khad on monthly basis.
2.	Sampling and analysis of drinking water supply schemes from area falling under the catchment of Ashwani Khad.	HPSPCB, SJPNL & JSV	Continuous Activity	HPSPCB is carrying out sampling of three drinking water supply schemes falling under the catchment of Ashwani Khad on monthly basis.
3.	Sealing of contaminated hand pumps found to be unfit for drinking purpose by the public.	HPSPCB, MC Shimla, SJPNL & JSV	Continuous Activity	

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4. Surface Water Quality Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Regular monitoring and sampling of water quality of Ashwani Khad and its tributaries on monthly basis.	HPSPCB	Continuous Activity	HPSPCB is monitoring the water quality of Ashwani Khad and its tributaries at 8 locations on monthly basis and 2 additional locations on quarterly basis.
2.	Hotspots of water contamination.	MC Shimla, & SJPNL	Completed.	Already Identified. 1. Krishna Nagar area downstream Lift at Shimla City contributes the BOD load to the Lift Nallah and degrades the water quality of Ashwani Khad. 2. STPs (dhalli, Lalpani and Malyana)
3.	Installation of continuous Real Time Water Quality Monitoring Station at Ashwani Khad.	SJPNL		At exit point
4.	Regular checking of muck dumping in catchment of Ashwani.	Forest department, Police and Local bodies	Continuous Activity	

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5. Solid Waste Management:-

Sr. No.	Action points For villages / blocks/ town municipalities / City corporations	Responsible agencies	Timeline for completion of action plan	Remarks
1.	Arrangement for door to door collection.	MC Shimla	31.12.2023	Door to door collection has been started in all the 34 wards of MC Shimla. Collected waste is being transported in segregated form in separate compartmentalized vehicles.
2.	Wet-waste Management: Facility (i.e.) for central Bio- methanation/ Composting of wet waste.	MC Shimla	31.12.2023	MC Shimla has provided 1 MT/day bio-methnation plant at Lalpani. Also 5 TPD composting plant is to be installed near IGMC at old incinerator premises.
3.	Dry-Waste Management: Material Recovery for dry-waste fraction.	MC Shimla	31.12.2023	MC Shimla has provided a Material Recovery Facility at Bhariyal.
4.	Waste to Energy Plant	MC Shimla	Completed.	MC Shimla has provided a waste to energy plant at Bhariyal where mixed solid waste having calorific value more than 1500 Kcal is converted into RDF (Re-derived Fuel) which in turn is used to generate electricity.
5.	Disposal of inert and non-recyclable wastes: Sanitary Landfill	MC Shimla	31.12.2023	MC Shimla has provided sanitary land fill site at Bhariyal for disposal of inert waste.
6.	Remediation of historic / legacy dumpsite	MC Shimla	Completed.	MC Shimla has bio-remediated the legacy waste site at 'Darni Ka Bagicha'. In rest of the

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				ULBs, there is no legacy waste sites.
7.	Authorization of Waste Pickers	MC Shimla	Completed.	MC Shimla has authorized 144 waste pickers.
8.	Preparation of own by-laws to comply with SWM Rules 2016.	MC Shimla	Completed.	Shimla has framed their own by laws to comply with Solid Waste Management Rules, 2016.
9.	Regular Cleaning Drives and Mass Awareness Programs	MC Shimla, Rural local bodies, HPSPCB	Continuous Activity	

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6. Miscellaneous:-

Sr. No.	Action points For villages / blocks/ town municipalities / City corporations	Responsible agencies	Timeline for completion of action plan	Remarks
1.	Complaints redressal system	HPSPCB	Completed.	There are several complaint redressal systems available for filing complaints like E-samadhan, CM Seva Sankalp, Him Pragati, 24x7 helpline of HPSPCB etc.
2.	Plantation activity in the catchment of Ashwani Khad	Forest department, Local bodies and HPSPCB	Continuous activity	
3.	Proposal for improving the water quality of Ashwani Khad by installing various components, for the rejuvenation of water sources by improving the purity of water of Natural Nallahs by Phytoid Treatment at Ashwani Khad, Sanjauli-Malyana-Chamyana Khad, Shimla project.	SJPNL		The matter has been submitted to Finance Department and approval is awaited.

No. STE-E(3)2530-loose
 Government of Himachal Pradesh
 Department of Environment, Science Technology & Climate Change

Annexure R-16

From

The Chief Secretary to the
 Government of Himachal Pradesh

To

1. The Secretary,
 Department of Water Resources, RD&GR, Ministry of Jal Shakti,
 Government of India, New Delhi-110003.

2. The Member Secretary,
 Central Pollution Control Board,
 Ministry of Environment, Forest and Climate Change,
 Government of India, New Delhi-110003.

Dated: Shimla-2, the 7th December, 2023.

Subject: Submission of the Action Plan for rejuvenation of the polluted river stretches.

Sir,

I am directed to refer to the subject cited above and to say that as per the "Draft Report on Polluted River Stretches for Restoration of Water Quality, August 2022" shared by CPCB, following rivers have been proposed to be categorized as polluted river stretches *Priority-I* in the State of Himachal Pradesh: -

Sr. No.	River	Polluted River	Max BOD Observed 2019 & 2021	Priority Class
1.	Ashwini Khad	Matholi To Bhog	80	I (Earlier Cat-V)
2.	Bald	Along Baddi	40	I (New addition)
3.	Sirsa	Along Nalagarh	40	I (Earlier Cat-III)
4.	Sukhana	Along Parwanoo	72	I Category unchanged

However, in the meeting of Central Monitoring Committee constituted by Hon'ble NGT vide order in OA No. 673 of 2018 held under the Chairmanship of Secretary, DoWR, RD&GR, Ministry of Jal Shakti on 12.05.2023, it has been directed that State should submit detailed action plan with timelines for the polluted river Stretches, especially those under *Priority-I*.

In this regard, the State Pollution Control Board has prepared Action Plan for the above mentioned river stretches, *Priority-I* in compliance to directions issued by Hon'ble National Green Tribunal in the matter of OA No. 673/2018. A copy

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of Action Plan duly approved by the Government is enclosed herewith for taking further necessary action. It is requested that the Action Plan may be taken on record in compliance to the order passed by the Hon'ble NGT in OA No. 673/2018.

Yours faithfully,


(Satpal Dhiman)

Additional Secretary (Env. Sci. Tech.&CC) to the
Government of Himachal Pradesh
Phone No. 0177-2621874

Endst. No. As above

Dated: Shimla-2

-12-2023.

Copy is forwarded to the Member Secretary, HPPCB, Shimla-171009
for favour of information.


Additional Secretary (Env. Sci. Tech.&CC) to the
Government of Himachal Pradesh

Action Plan for Rejuvenation of Ashwani Khad.

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Action Plan with timelines including the organization/agency responsible for its implementation for Rejuvenation of Ashwani Khad.

1. Domestic Sewage Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Area wise estimation of total population, water requirement and sewage generation.	SJNPL	Completed	Data regarding total population has been taken by SJNPL from Census 2011 and the projected waste water calculations has been done taking into account the decadal growth rate of the area.
2.	Connectivity of left out areas through conveyance pipeline to existing common sewage treatment Plants (STPs) operational along the stretch of Ashwani	SJNPL	Continuous Activity	Area under common STPs is continuously increasing and more no. of households are being provided the facility of connectivity through common STPs.
3.	Upgradation of existing Sewage Treatment Plants (STPs)	SJNPL	STP Malyana:- 31.07.2023 STP Lalpani: 30.11.2023 STP Dhalli:- 31.07.2023	<p>STP Malyana:</p> <ul style="list-style-type: none"> • Work has been completed <p>STP Lalpani:</p> <ul style="list-style-type: none"> • 94% work completed. • Building components completed. • Primary treatment unit has been completed. • Retrofitting of existing UASB tank to SBR basin-II is in progress. • Work of SBR Basin-I in progress after court stay got vacated on 21.1.23. <p>STP Dhalli:</p> <ul style="list-style-type: none"> • Work has been completed.
4.	Sewage Treatment Plants (STPs) proposed.	SJNPL	31.12.2024	There is 1 No. of Common STP proposed in the catchment of River Ashwani i.e. STP Panthaghati (3.1 MLD)

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5.	Setting up of Faecal Sludge Treatment Plant (FSTP)	SJPNL	Already Completed	
6.	Channelization of Lift Nallah	SJPNL	31.03.2024	<ul style="list-style-type: none"> Channelization of lift nallah and its landscaping from Indira Gandhi Sports Complex to Lalpani bridge is under progress which will help in collection of solid waste dumped along the nallah.
7.	Installation of Real Time Continuous Effluent Monitoring Stations at outlet of STPs.	SJPNL	31.12.2023	Real time continuous effluent monitoring stations are to be set up at outlets of all the STPs.

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2. Industrial Effluent Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Inventorization of the water polluting Industries and Hotels in the catchment of Ashwani Khad.	HPSPCB	Completed	There are 9 water polluting industries and approx. 166 hotels situated in the catchment of Ashwani Khad.
2.	Action against the identified industries/hotels which are not connected with common STPs or who have not installed requisite PCDs i.e. ETPs/STPs or whose treated effluent is not meeting the prescribed standards.	HPSPCB	Continuous Activity	

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3. Ground Water Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Sampling of Bore Wells and Hand Pumps from area falling under the catchment of Ashwani Khad.	HPSPCB, SJPNL & JSV	Continuous Activity	HPSPCB is carrying out sampling of one hand pump falling under the catchment of Ashwani Khad on monthly basis.
2.	Sampling and analysis of drinking water supply schemes from area falling under the catchment of Ashwani Khad.	HPSPCB, SJPNL & JSV	Continuous Activity	HPSPCB is carrying out sampling of three drinking water supply schemes falling under the catchment of Ashwani Khad on monthly basis.
3.	Sealing of contaminated hand pumps found to be unfit for drinking purpose by the public.	HPSPCB, MC Shimla, SJPNL & JSV	Continuous Activity	

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4. Surface Water Quality Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Regular monitoring and sampling of water quality of Ashwani Khad and its tributaries on monthly basis.	HPSPCB	Continuous Activity	HPSPCB is monitoring the water quality of Ashwani Khad and its tributaries at 8 locations on monthly basis and 2 additional locations on quarterly basis.
2.	Hotspots of water contamination.	MC Shimla, & SJPNL	Completed.	Already Identified. 1. Krishna Nagar area downstream Lift at Shimla City contributes the BOD load to the Lift Nallah and degrades the water quality of Ashwani Khad. 2. STPs (dhalli, Lalpani and Malyana)
3.	Installation of continuous Real Time Water Quality Monitoring Station at Ashwani Khad.	SJPNL		At exit point
4.	Regular checking of muck dumping in catchment of Ashwani.	Forest department, Police and Local bodies	Continuous Activity	

5. Solid Waste Management:-

Sr. No.	Action points For villages / blocks/ town municipalities / City corporations	Responsible agencies	Timeline for completion of action plan	Remarks
1.	Arrangement for door to door collection.	MC Shimla	31.12.2023	Door to door collection has been started in all the 34 wards of MC Shimla. Collected waste is being transported in segregated form in separate compartmentalized vehicles.
2.	Wet-waste Management: Facility (i.e.) for central Bio- methanation/ Composting of wet waste.	MC Shimla	31.12.2023	MC Shimla has provided 1 MT/day bio-methnation plant at Lalpani. Also 5 TPD composting plant is to be installed near IGMC at old incinerator premises.
3.	Dry-Waste Management: Material Recovery for dry-waste fraction.	MC Shimla	31.12.2023	MC Shimla has provided a Material Recovery Facility at Bhariyal.
4.	Waste to Energy Plant	MC Shimla	Completed.	MC Shimla has provided a waste to energy plant at Bhariyal where mixed solid waste having calorific value more than 1500 Kcal is converted into RDF (Re-derived Fuel) which in turn is used to generate electricity.
5.	Disposal of inert and non-recyclable wastes: Sanitary Landfill	MC Shimla	31.12.2023	MC Shimla has provided sanitary land fill site at Bhariyal for disposal of inert waste.
6.	Remediation of historic / legacy dumpsite	MC Shimla	Completed.	MC Shimla has bio-remediated the legacy waste site at 'Darni Ka Bagicha'. In rest of the

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				ULBs, there is no legacy waste sites.
7.	Authorization of Waste Pickers	MC Shimla	Completed.	MC Shimla has authorized 144 waste pickers.
8.	Preparation of own by-laws to comply with SWM Rules 2016.	MC Shimla	Completed.	Shimla has framed their own by laws to comply with Solid Waste Management Rules, 2016.
9.	Regular Cleaning Drives and Mass Awareness Programs	MC Shimla, Rural local bodies, HPSPCB	Continuous Activity	

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6. Miscellaneous:-

Sr. No.	Action points For villages / blocks/ town municipalities / City corporations	Responsible agencies	Timeline for completion of action plan	Remarks
1.	Complaints redressal system	HPSPCB	Completed.	There are several complaint redressal systems available for filing complaints like E-samadhan, CM Seva Sankalp, Him Pragati, 24x7 helpline of HPSPCB etc.
2.	Plantation activity in the catchment of Ashwani Khad	Forest department, Local bodies and HPSPCB	Continuous activity	
3.	Proposal for improving the water quality of Ashwani Khad by installing various components, for the rejuvenation of water sources by improving the purity of water of Natural Nallahs by Phytoid Treatment at Ashwani Khad, Sanjauli-Malyana-Chamyana Khad, Shimla project.	SJPNL		The matter has been submitted to Finance Department and approval is awaited.

**Action Plan for Rejuvenation of
Balad Khad
(Non perennial water Body),
Tehsil Baddi, District Solan, H.P.**

Action Plan with timelines (Short, Medium and Long Term Plan) including the organization/agency responsible for Rejuvenation of Balad Khad(Non perennial water Body), Tehsil Baddi, District Solan, H.P.

1. Industrial Sewage Management:-

Sr. No.	Action Points	Responsible Agency	Time Line for completion of action plan	Remarks
(a)	Inventorization of the Water Polluting Industries in the catchment of Balad Khad 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	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	Continuous Activity	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 is taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Actions against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	Continuous Activity	Inspection and Sampling of unit is conducted on regular basis and action is initiated against the defaulting units as per relevant provisions of Water Act, 1974 and Air Act, 1981
(d)	Prohibition of Disposal of Municipal Solid Waste, Plastic Waste, Bio-medical Waste, Hazardous Waste and Burning of any kind of Solid Waste.	BBNDA Municipal Council Baddi, District Administration	Continuous Activity	-
(e)	Improvement in functioning of existing CETP at Baddi w.r.t connecting the near about areas with Conveyance Pipeline	JSV, Baddi Infrastructure (SVP)- CETP, Department of Industries		Household Sewerage Connections Total Connections 5492 (3744 DPR + 1748 afterwards), 4684 connection released. The A/A & ES for construction of Sewerage scheme to Baddi Town in Tehsil Baddi District Solan have been accorded on dated 02.09.2023

				amounting to Rs. 37.0971 Crore under “Special Assistance to the State for Capital Expenditure 2023-24”.
(f)	Conducting Surprise inspections and Water Audit to reduce the Gap in Effluent generation and Treatment with CETP at Baddi.	HPSPCB	Continuous Activity	-
(g)	Detection of leakages in conveyance pipelines of CETP, Baddi.	HPSPCB, Baddi Infrastructure	Continuous Activity	-
(h)	Detection of leakages in Sewage pipeline	JSV	Continuous activity	
(i)	Identification of industries falling in the catchment Zone of CETP, Baddi and not connected with CETP and Action to be taken thereafter.	HPSPCB	Completed	-
(j)	Installation of Real Time Online Effluent Monitoring System on category 17 units.	HPSPCB	Completed	-
(k)	Sludge Management from Industrial Effluent Treatment.	HPSPCB	Sludge generated is being sent to SSWML Dabhota	-

2. Domestic Sewage Management

(a)	Area-wise estimation of total population, water requirement, and sewage generation of Balad Catchment Area.	BBNDA, J.S.V., Department of Rural Development, District Administration, Stastical Department	31.12.2023	-
(c)	Measurement of Flow of Drains, Pollution Load contributing to Balad Khad.	J.S.V. & HPSPCB	Continuous process	-
(d)	Proper design, execution of sewerage Lines to be incorporated in proposed CETP at Baddi.	J.S.V., Industry Department		-
(e)	Sewage Management for Industrial Areas of Baddi, EPIP Phase-I and II Jharmajri of DIC, Hilltop Jhramajri and HIMUDA industrial area at Bhatolikalan.	DIC and HIMUDA	Completed	-
(f)	Sewage/Septage management for Rural Areas with low cost treatment technologies along with Construction of drains and cleaning thereof	Rural Development/Block Development Office, Nalagarh.	31.03.2024	-

(g)	Identification of Un-authorized Jhuggis in the Balad area and management of Solid waste/sewage management and lifting of Jhuggis/Slum dwellers along the catchment of Balad Khad and its rivulets. Identification bulk sewage generator i.e. rental properties for migrated labor in the BBN area.	BBNDA, J.S.V., And MC Baddi.	31.12.2023	-
(h)	Hotspot of Water Contamination: Jharmajri, Kunjhal, Kotla Nallah and Un-authorized Jhuggis in the Balad catchment.	BBNDA, J.S.V., And MC Baddi.	Continuous activity	Hotspot Identified.

3. Ground Water Management

(a)	Sampling of Tube wells Bore wells, Hand Pumps in BBN area.	J.S.V. , HPSPCB	Continuous activity	-
(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Baddi Area	J.S.V.	Continuous activity	-
(C)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	J.S.V. , HP GWA	Continuous activity	-
(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	J.S.V. , HP GWA	Completed	-
(e)	To conduct periodic surprise inspection of the industries to rule-out any forceful injection of industrial effluents into ground water sources	HPSPCB	Continuous activity	-
(f)	All the industries should be directed to obtain NOC from HPGWA/ CGWA and action against the units in operation without obtaining NOC from PGWA/ CGWA.	J.S.V	Continuous activity	-
(g)	Remedial measures for de-contamination of Highly Polluted Ground Water resources within Jurisdiction of Baddi – Nalagarh Area.	J.S.V. HPSPCB	&Not identified	-

4. Miscellaneous

(a)	Regular monitoring and sampling of water quality of Balad Khad.	HPSPCB	Continuous activity	-
(b)	Plantation in Flood Plain Zone, Setting up of Bio-diversity Parks	Forest Department		-
(c)	Checking Encroachment in FPZ of Balad Khad by Notifying the Flood plain Area.	District Local Administration/ BBNDA/ JSV		-
(d)	Setting up of website for public participation.	HPSPCB	Completed.	-
(e)	Monitoring of the Executing the Action Plans.	BBNDA, HPSPCB	Continuous activity	-
(f)	Cleanliness Drive along the Stretch of Balad Khad.	HPSPCB, BBNDA, Ind. Deptt, Urban Local Body Rural Development, Industries Association and other stakeholders.	Continuous activity	-
(g)	Identification and regulation of un authorized the tankers engaged in illegal discharge of sewage in river/nallahs	RTO Nalagarh, Police, BBNDA, MC Baddi, MC Nalagarh, HPSPCB, Distt. Administration	31.12.23 and thereafter continuous	

5. Other Aspects as NGT Order dated 20.09.2018 and 19.12.2018

(a)	Rain Water Harvesting/ Ground Water Recharge aspects	J.S.V.		10 Sites identified, DPR preparation is under process. Implementation is subject to the availability of funds from the Central Government.
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**Action Plan for Rejuvenation of
River Sirsa, Baddi- Nalagarh,
District Solan H.P.**

Action Plan with timelines (Short, Medium and Long Term Plan) including the organization/agency responsible for Rejuvenation of River Sirsa, Baddi- Nalagarh, District Solan H.P.

1. Industrial Sewage Management:-

Sr. No.	Action Points	Responsible Agency	Timeline for completion of action plan	Remarks
(a)	Inventorization of the Water Polluting Industries in the catchment of River Sirsa 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	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	Continuous Activity	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 is taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Actions against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	Continuous Activity	Inspection and Sampling of unit is conducted on regular basis and action is initiated against the defaulting units as per relevant provisions of Water Act, 1974 and Air Act, 1981
(d)	Prohibition of Disposal of Municipal Solid Waste, Plastic Waste, Bio-medical Waste, Hazardous Waste and Burning of any kind of Solid Waste.	BBNDA Municipal Council Baddi, Municipal Council, Nalagarh, District Administration	Continuous Activity	-
(e)	Improvement in functioning of existing CETP at Baddi w.r.t connecting the near about areas with Conveyance Pipeline	JSV, Baddi Infrastructure (SVP)-CETP, Department of Industries		Household Sewerage Connections Total Connections 5492 (3744 DPR + 1748 afterwards), 4684 connection released. The A/A & ES for construction of Sewerage scheme to Baddi Town in Tehsil Baddi District Solan have been accorded on

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				dated 02.09.2023 amounting to Rs. 37.0971 Crore under “Special Assistance to the State for Capital Expenditure 2023-24”.
(f)	Conducting Surprise inspections and Water Audit to reduce the Gap in Effluent generation and Treatment with CETP at Baddi.	HPSPCB	Continuous Activity	-
(g)	Detection of leakages in conveyance pipelines of CETP, Baddi.	HPSPCB, Baddi Infrastructure	Continuous Activity	-
(h)	Detection of leakages in sewage pipeline	JSV	Continuous Activity	-
(i)	Identification of industries falling in the catchment Zone of CETP, Baddi and not connected with CETP and Action to be taken thereafter.	HPSPCB	Completed	-
(j)	Proposal for improvement in functioning of CETP by modification in treatment process to improve the discharge effluent quality.	Baddi Infrastructure	May 2025	3 MLD Effluent Refractory Management & TDS Reduction in the CETP is proposed and studies are being carried out.
(k)	Installation of Real Time Online Effluent Monitoring System on category 17 units.	HPSPCB	Completed	-
(l)	Sludge Management from Industrial Effluent Treatment.	HPSPCB		Sludge generated is being sent to SSWML Dabhota
(m)	Setting up & operation of a Solid Waste Management facility at Kenduwal, Baddi	State Govt., Deptt. of Industries, District Administration, BBNDA and Deptt. of Urban Development	Completed	

2. Domestic Sewage Management

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(a)	Area-wise estimation of total population, water requirement, and sewage generation of Baddi-Nalagarh Area.	BBNDA, J.S.V., Department of Rural Development, District Administration, Statical Department	31.12.2023	-
(b)	Measurement of Flow of Drains, Pollution Load contributing to River Sirsa.	J.S.V. & HPSPCB	Continuous process	-
(c)	Execution of Project Proposal for Sewage Management through State of Art-Technology for Sewage Treatment Plant at Nalagarh.	J.S.V.	Completed	-
(d)	Installation of continuous Real Time Water Quality Monitoring Station on River Sirsa.	J.S.V.	Completed	-
(e)	Sewage Management for Industrial Areas of Baddi, Jharmajri, Lodhimajra, Davni, & Thana.	HPSIDC, DIC	Completed	-
(f)	Sewage/Septage management for Rural Areas with low cost treatment technologies along with Construction of drains and cleaning thereof	Rural Development/Block Development Office, Nalagarh.	31.03.2024	-
(g)	Identification of Un-authorized Jhuggis in the BBN area and management of Solid waste/sewage management and lifting of Jhuggis/Slum dwellers along the catchment of River Sirsa and its rivulets. Identification bulk sewage generator i.e. rental properties for migrated labor in the BBN area.	BBNDA, J.S.V., And MC baddi and nalagarh	31.12.2023	-
(h)	Implementation of phyto remediation project in the Sandholi Nallah and Housing Board Nallah w.r.t. Hotspot of Water Contamination : Sandholi Nallah, Housing Board Nallah and Un-authorized Jhuggis in the catchment	District Administration/ HPSPCB	31.03.2024	Work to be executed by Indorama India limited and Morepen Laboratories Limited w.r.t. Condition imposed in the Environmental Clearance granted from SEIAA.

3. Ground Water Management

(a)	Sampling of Tube wells, Bore wells, Hand Pumps in BBN area.	J.S.V., HPSPCB	Continuous activity	-
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(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Baddi Nalagarh Area	J.S.V.	Continuous activity	-
(c)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	J.S.V., HP GWA	Continuous activity	-
(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	J.S.V., HP GWA	Completed	-
(e)	To conduct periodic surprise inspection of the industries to rule-out any forceful injection of industrial effluents into ground water sources	HPSPCB	Continuous activity	-
(f)	All the industries should be directed to obtain NOC from HPGWA/ CGWA and action against the units in operation without obtaining NOC from PGWA/ CGWA.	J.S.V.	Continuous activity	-
(g)	Remedial measures for de-contamination of Highly Polluted Ground Water resources within Jurisdiction of Baddi – Nalagarh Area.	J.S.V. & HPSPCB	Not identified	-

4. Miscellaneous

(a)	Regular monitoring and sampling of water quality of River Sirsa and various drains on monthly basis.	HPSPCB	Continuous activity	-
(b)	Impact of water pollution on health of public by organizing Health camp	State Health Deptt.	Every 3 Month	-
(c)	Plantation in Flood Plain Zone, Setting up of Bio-diversity Parks	Forest Department		-
(d)	Checking Encroachment in FPZ of River Sirsa by Notifying the Flood plain Area.	District Local Administration/ BBNDA/ J.S.V.		-
(e)	Setting up of website for public participation.	HPSPCB	Completed.	-
(f)	Monitoring of the Executing the Action Plans	BBNDA, HPSPCB	Continuous activity	-
(g)	Cleanliness Drive along the Stretch of River Sirsa	HPSPCB, BBNDA, Ind. Deptt, Urban Local Body Rural Development, Industries Association and other stakeholders.	Continuous activity	-

(h)	Identification and regulation of unauthorized tankers engaged in illegal discharge of sewage in river/nallahs	RTO Nalagarh, Police, BBND, MC Baddi, MC Nalagarh, HPSPCB, Distt. Administration	31.12.23 and thereafter continuous	
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5. Other Aspects as NGT Order dated 20.09.2018 and 19.12.2018

(a)	Rain Water Harvesting/ Ground Water Recharge aspects	J.S.V.		10 Sites identified, DPR preparation is under process. Implementation is subject to the availability of funds from the Central Government.
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Action Plan for Rejuvenation of Sukhna Nallah

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Action Plan with timelines including the organization/agency responsible for its implementation for Rejuvenation of Sukhna Nallah in compliance with Hon'ble NGT order in O.A. 673 of 2018

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
I	Industrial Effluent Management			
(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. <ul style="list-style-type: none"> • Regular inspections as per schedule notified. 	HPSPCB	Continuous activity.	<ul style="list-style-type: none"> • Completed Total 56 no's of water Polluting industries located at the stretch of Sukhna Nallah. All the units are being regularly inspected by HPPSPCB RO Parwanoo. Actions are initiated as and when violations are observed in the units.
(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. <ul style="list-style-type: none"> • To ensure all units have valid consent. 	HPSPCB	Continuous activity.	All the industries have obtained consent to operate. Applications for further renewal of 14 units are under process.
(c)	Actions against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards. <ul style="list-style-type: none"> • Routine inspections. 	HPSPCB	Continuous activity.	Power Disconnection of 01 number of units not complying with provisions of Water Act, 1974 have been initiated.

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
(d)	Prohibition of Burning of any kind of waste including agro residue. <ul style="list-style-type: none"> • Complete ban on Open Burning and littering. • Installation of CCTV cameras at SWM site Parwanoo and at 05 No. of hotspot locations. 	MC Parwanoo and HPSPCB	31.12.2023	Directions have been issued to the EO MC Parwanoo and advisory has also been issued to the industries through The President Industries Association Parwanoo (PIA) in this regard. Regular Challaning drives such as Plastic uses, Littering etc. are being organized and challans were issued against defaulting units for non-compliance of the provisions of SWM Rules 2016 as per HP Non-Biodegradable Garbage Control Act.
(e)	Estimation of industrial effluent generation. <ul style="list-style-type: none"> • Inventorization of all water polluting industries and known-point sources. 	State Govt., Deptt. of Industries, District Administration	Continuous Activity	All the water polluting industries have installed necessary PCD's for treatment of waste water. Estimation of quantum of effluent generation in Parwanoo area has already been completed.
(f)	Setting up of Solid Waste Management Site. <ol style="list-style-type: none"> i. 100% Source Segregation of solid waste. ii. Installation of weigh bridge at SWM site Sect-5. iii. Installation of Fire Hydrant and firefighting equipment's at SWM site Sect-05. iv. Extension of shed for RDF storage and loading and unloading shed. v. Setting up of own Material Recovery Facility and Composting facility 	Executive Officer, MC Parwanoo	i. 90 days. ii. 31.12.23 iii. 31.03.24 iv. 31.03.24 v. 31.03.24	In Parwanoo Town, MC Parwanoo has signed MOU with M/s JBR Technologies Pvt. Ltd for disposal of Solid waste.

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
(g)	Conversion of industrial units to ZLD.	HPSPCB	31.03.2024	<p>Currently 05 Number of red category units are meeting Zero Liquid Discharge i.e.</p> <ol style="list-style-type: none"> 1. M/s Electrowave Electronics 2. M/s Daljeet Electroplating 3. M/s Premier Electroplating 4. M/s Him Metal Processing 5. M/s Himachal Fastener
II	Domestic Sewage Management			
(a)	<p>Area wise estimation of total population, water requirement and sewage generation.</p> <ul style="list-style-type: none"> • Installation of remaining 01 STP of capacity 01 MLD (out of 02 proposed) is under Process at Tipra. 	HIMUDA, JSV, Urban Development, Rural Development Department	31.03.2024	<p>As per Census 2011, the 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.</p> <p>As per the information provided by the HIMUDA Parwanoo the water supplied is about 2.5 MLD and the Sewage Load of Parwanoo comes around about 02 MLD.</p> <p>In Parwanoo Town 02 No. of 01 MLD, STP's are proposed to be installed. Out of which 01 number has been installed and is operational at Sector-2 Parwanoo. Remaining 01 No. STP is under process.</p>
(d)	<p>Repair/Improvement of existing phyto-remediation system installed in Semtal Nallah.</p> <ul style="list-style-type: none"> • To repair the root zone bed and improvement in design to improve its efficiency. 	MC Parwanoo	31.03.2024	<p>01 No. of Phyto-remediation system was installed in Semtal Nallah for in-situ treatment.</p> <p>Due to heavy rains the working and root zone bed got disturbed.</p>

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
III	Ground Water Management			
(a)	Sampling of Tube wells, Bore wells, Hand Pumps.	JSV and HPSPCB	Continuous Activity	Monthly 03 No. of samples are collected to check ground water quality in Parwanoo Town. All the samples are complying with the standards.
IV	Miscellaneous			
(a)	Regular monitoring and sampling of water quality of Sukhna Nallah and various drains on monthly basis.	HPSPCB	Continuous Activity	10 No's of Sample have been collected from on the stretch of Sukhna Nallah and its tributaries every Month.
(b)	Detection and removal of encroachment on forest land	Dept. of Forest	Continuous activity	<p>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.</p> <p>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.</p>
(c)	Impact of water pollution on health of public by organizing Health camp.	State Health Deptt.	Continuous Activity	Health camps are being regularly organized in Sukhna Catchment to check water borne diseases.
(d)	Involvement of Civil Society <ol style="list-style-type: none"> i. 01 Public Awareness Drive a month. ii. Installation of LED/Digital display boards for public advisories. 	MC Parwanoo	<ol style="list-style-type: none"> i. Continuous Activity ii. 31.03.2024 	Cleanliness drives are being regularly organized in Parwanoo town by involving various Stake Holders, Institutions, Industrial Units of Parwanoo, and agencies.

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
(e)	Complaints redressal system	HPSPCB	Continuous Activity	There are complaint redressal systems available for filing complaints like E-samadhan, CM Seva Sankalp, Him Pragati, 24x7 helpline of HPSPCB etc.
(f)	Prevention of solid waste dumping in water bodies. <ul style="list-style-type: none"><li>• Installation of solid waste catch-nets at 05 locations.	MC Parwanoo	31.03.2024	Currently routine inspections are conducted in Parwanoo area.

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**Action Plan for Rejuvenation of
Ashwani Khad.**

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Action Plan with timelines including the organization/agency responsible for its implementation for Rejuvenation of Ashwani Khad.

1. Domestic Sewage Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Area wise estimation of total population, water requirement and sewage generation.	SJNPL	Completed	Data regarding total population has been taken by SJNPL from Census 2011 and the projected waste water calculations has been done taking into account the decadal growth rate of the area.
2.	Connectivity of left out areas through conveyance pipeline to existing common sewage treatment Plants (STPs) operational along the stretch of Ashwani	SJNPL	Continuous Activity	Area under common STPs is continuously increasing and more no. of households are being provided the facility of connectivity through common STPs.
3.	Upgradation of existing Sewage Treatment Plants (STPs)	SJNPL	STP Malyana:- 31.07.2023 STP Lalpani: 30.11.2023 STP Dhalli:- 31.07.2023	<p>STP Malyana:</p> <ul style="list-style-type: none"> • Work has been completed <p>STP Lalpani:</p> <ul style="list-style-type: none"> • 94% work completed. • Building components completed. • Primary treatment unit has been completed. • Retrofitting of existing UASB tank to SBR basin-II is in progress. • Work of SBR Basin-I in progress after court stay got vacated on 21.1.23. <p>STP Dhalli:</p> <ul style="list-style-type: none"> • Work has been completed.
4.	Sewage Treatment Plants (STPs) proposed.	SJNPL	31.12.2024	There is 1 No. of Common STP proposed in the catchment of River Ashwani i.e. STP Panthaghati (3.1 MLD)

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5.	Setting up of Faecal Sludge Treatment Plant (FSTP)	SJPNL	Already Completed	
6.	Channelization of Lift Nallah	SJPNL	31.03.2024	<ul style="list-style-type: none">• Channelization of lift nallah and its landscaping from Indira Gandhi Sports Complex to Lalpani bridge is under progress which will help in collection of solid waste dumped along the nallah.
7.	Installation of Real Time Continuous Effluent Monitoring Stations at outlet of STPs.	SJPNL	31.12.2023	Real time continuous effluent monitoring stations are to be set up at outlets of all the STPs.

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2. Industrial Effluent Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Inventorization of the water polluting Industries and Hotels in the catchment of Ashwani Khad.	HPSPCB	Completed	There are 9 water polluting industries and approx. 166 hotels situated in the catchment of Ashwani Khad.
2.	Action against the identified industries/hotels which are not connected with common STPs or who have not installed requisite PCDs i.e. ETPs/STPs or whose treated effluent is not meeting the prescribed standards.	HPSPCB	Continuous Activity	

3. Ground Water Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Sampling of Bore Wells and Hand Pumps from area falling under the catchment of Ashwani Khad.	HPSPCB, SJPNL & JSV	Continuous Activity	HPSPCB is carrying out sampling of one hand pump falling under the catchment of Ashwani Khad on monthly basis.
2.	Sampling and analysis of drinking water supply schemes from area falling under the catchment of Ashwani Khad.	HPSPCB, SJPNL & JSV	Continuous Activity	HPSPCB is carrying out sampling of three drinking water supply schemes falling under the catchment of Ashwani Khad on monthly basis.
3.	Sealing of contaminated hand pumps found to be unfit for drinking purpose by the public.	HPSPCB, MC Shimla, SJPNL & JSV	Continuous Activity	

4. Surface Water Quality Management:-

Sr. No.	Action points	Responsible agency	Timeline for completion of action plan	Remarks
1.	Regular monitoring and sampling of water quality of Ashwani Khad and its tributaries on monthly basis.	HPSPCB	Continuous Activity	HPSPCB is monitoring the water quality of Ashwani Khad and its tributaries at 8 locations on monthly basis and 2 additional locations on quarterly basis.
2.	Hotspots of water contamination.	MC Shimla, & SJPNL	Completed.	Already Identified. 1. Krishna Nagar area downstream Lift at Shimla City contributes the BOD load to the Lift Nallah and degrades the water quality of Ashwani Khad. 2. STPs (dhalli, Lalpani and Malyana)
3.	Installation of continuous Real Time Water Quality Monitoring Station at Ashwani Khad.	SJPNL		At exit point
4.	Regular checking of muck dumping in catchment of Ashwani.	Forest department, Police and Local bodies	Continuous Activity	

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5. Solid Waste Management:-

Sr. No.	Action points For villages / blocks/ town municipalities / City corporations	Responsible agencies	Timeline for completion of action plan	Remarks
1.	Arrangement for door to door collection.	MC Shimla	31.12.2023	Door to door collection has been started in all the 34 wards of MC Shimla. Collected waste is being transported in segregated form in separate compartmentalized vehicles.
2.	Wet-waste Management: Facility (i.e.) for central Bio- methanation/ Composting of wet waste.	MC Shimla	31.12.2023	MC Shimla has provided 1 MT/day bio-methnation plant at Lalpani. Also 5 TPD composting plant is to be installed near IGMC at old incinerator premises.
3.	Dry-Waste Management: Material Recovery for dry-waste fraction.	MC Shimla	31.12.2023	MC Shimla has provided a Material Recovery Facility at Bhariyal.
4.	Waste to Energy Plant	MC Shimla	Completed.	MC Shimla has provided a waste to energy plant at Bhariyal where mixed solid waste having calorific value more than 1500 Kcal is converted into RDF (Re-derived Fuel) which in turn is used to generate electricity.
5.	Disposal of inert and non-recyclable wastes: Sanitary Landfill	MC Shimla	31.12.2023	MC Shimla has provided sanitary land fill site at Bhariyal for disposal of inert waste.
6.	Remediation of historic / legacy dumpsite	MC Shimla	Completed.	MC Shimla has bio-remediated the legacy waste site at 'Darni Ka Bagicha'. In rest of the

				ULBs, there is no legacy waste sites.
7.	Authorization of Waste Pickers	MC Shimla	Completed.	MC Shimla has authorized 144 waste pickers.
8.	Preparation of own by-laws to comply with SWM Rules 2016.	MC Shimla	Completed.	Shimla has framed their own by laws to comply with Solid Waste Management Rules, 2016.
9.	Regular Cleaning Drives and Mass Awareness Programs	MC Shimla, Rural local bodies, HPSPCB	Continuous Activity	

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6. Miscellaneous:-

Sr. No.	Action points For villages / blocks/ town municipalities / City corporations	Responsible agencies	Timeline for completion of action plan	Remarks
1.	Complaints redressal system	HPSPCB	Completed.	There are several complaint redressal systems available for filing complaints like E-samadhan, CM Seva Sankalp, Him Pragati, 24x7 helpline of HPSPCB etc.
2.	Plantation activity in the catchment of Ashwani Khad	Forest department, Local bodies and HPSPCB	Continuous activity	
3.	Proposal for improving the water quality of Ashwani Khad by installing various components, for the rejuvenation of water sources by improving the purity of water of Natural Nallahs by Phytoid Treatment at Ashwani Khad, Sanjauli-Malyana-Chamyana Khad, Shimla project.	SJPNL		The matter has been submitted to Finance Department and approval is awaited.

Annexure ²⁹⁰ R-22

ANNEXURE-R-13

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**Action Plan for Rejuvenation of
Sukhna Nallah**

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Action Plan with timelines including the organization/agency responsible for its implementation for Rejuvenation of Sukhna Nallah in compliance with Hon'ble NGT order in O.A. 673 of 2018

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
I	Industrial Effluent Management			
(a)	Inventorization of the water polluting industries in the catchment of Sukhna Nalchannah 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. <ul style="list-style-type: none"> • Regular inspections as per schedule notified. 	HPSPCB	Continuous activity.	<ul style="list-style-type: none"> • Completed Total 56 no's of water Polluting industries located at the stretch of Sukhna Nallah. All the units are being regularly inspected by HPPSPCB RO Parwanoo. Actions are initiated as and when violations are observed in the units.
(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. <ul style="list-style-type: none"> • To ensure all units have valid consent. 	HPSPCB	Continuous activity.	All the industries have obtained consent to operate. Applications for further renewal of 14 units are under process.
(c)	Actions against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards. <ul style="list-style-type: none"> • Routine inspections. 	HPSPCB	Continuous activity.	Power Disconnection of 01 number of units not complying with provisions of Water Act, 1974 have been initiated.

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Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
(d)	Prohibition of Burning of any kind of waste including agro residue. <ul style="list-style-type: none"> • Complete ban on Open Burning and littering. • Installation of CCTV cameras at SWM site Parwanoo and at 05 No. of hotspot locations. 	MC Parwanoo and HPSPCB	31.12.2023	Directions have been issued to the EO MC Parwanoo and advisory has also been issued to the industries through The President Industries Association Parwanoo (PIA) in this regard. Regular Challaning drives such as Plastic uses, Littering etc. are being organized and challans were issued against defaulting units for non-compliance of the provisions of SWM Rules 2016 as per HP Non-Biodegradable Garbage Control Act.
(e)	Estimation of industrial effluent generation. <ul style="list-style-type: none"> • Inventorization of all water polluting industries and known-point sources. 	State Govt., Deptt. of Industries, District Administration	Continuous Activity	All the water polluting industries have installed necessary PCD's for treatment of waste water. Estimation of quantum of effluent generation in Parwanoo area has already been completed.
(f)	Setting up of Solid Waste Management Site. <ol style="list-style-type: none"> i. 100% Source Segregation of solid waste. ii. Installation of weigh bridge at SWM site Sect-5. iii. Installation of Fire Hydrant and firefighting equipment's at SWM site Sect-05. iv. Extension of shed for RDF storage and loading and unloading shed. v. Setting up of own Material Recovery Facility and Composting facility 	Executive Officer, MC Parwanoo	i. 90 days. ii. 31.12.23 iii. 31.03.24 iv. 31.03.24 v. 31.03.24	In Parwanoo Town, MC Parwanoo has signed MOU with M/s JBR Technologies Pvt. Ltd for disposal of Solid waste.

Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
(g)	Conversion of industrial units to ZLD.	HPSPCB	31.03.2024	<p>Currently 05 Number of red category units are meeting Zero Liquid Discharge i.e.</p> <ol style="list-style-type: none"> 1. M/s Electrowave Electronics 2. M/s Daljeet Electroplating 3. M/s Premier Electroplating 4. M/s Him Metal Processing 5. M/s Himachal Fastener
II Domestic Sewage Management				
(a)	<p>Area wise estimation of total population, water requirement and sewage generation.</p> <ul style="list-style-type: none"> • Installation of remaining 01 STP of capacity 01 MLD (out of 02 proposed) is under Process at Tipra. 	HIMUDA, JSV, Urban Development, Rural Development Department	31.03.2024	<p>As per Census 2011, the 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.</p> <p>As per the information provided by the HIMUDA Parwanoo the water supplied is about 2.5 MLD and the Sewage Load of Parwanoo comes around about 02 MLD.</p> <p>In Parwanoo Town 02 No. of 01 MLD, STP's are proposed to be installed. Out of which 01 number has been installed and is operational at Sector-2 Parwanoo. Remaining 01 No. STP is under process.</p>
(d)	<p>Repair/Improvement of existing phyto-remediation system installed in Semtal Nallah.</p> <ul style="list-style-type: none"> • To repair the root zone bed and improvement in design to improve its efficiency. 	MC Parwanoo	31.03.2024	<p>01 No. of Phyto-remediation system was installed in Semtal Nallah for in-situ treatment.</p> <p>Due to heavy rains the working and root zone bed got disturbed.</p>

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Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
III	Ground Water Management			
(a)	Sampling of Tube wells, Bore wells, Hand Pumps.	JSV and HPSPCB	Continuous Activity	Monthly 03 No. of samples are collected to check ground water quality in Parwanoo Town. All the samples are complying with the standards.
IV	Miscellaneous			
(a)	Regular monitoring and sampling of water quality of Sukhna Nallah and various drains on monthly basis.	HPSPCB	Continuous Activity	10 No's of Sample have been collected from on the stretch of Sukhna Nallah and its tributaries every Month.
(b)	Detection and removal of encroachment on forest land	Dept. of Forest	Continuous activity	<p>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.</p> <p>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.</p>
(c)	Impact of water pollution on health of public by organizing Health camp.	State Health Deptt.	Continuous Activity	Health camps are being regularly organized in Sukhna Catchment to check water borne diseases.
(d)	Involvement of Civil Society <ol style="list-style-type: none"> i. 01 Public Awareness Drive a month. ii. Installation of LED/Digital display boards for public advisories. 	MC Parwanoo	<ol style="list-style-type: none"> i. Continuous Activity ii. 31.03.2024 	Cleanliness drives are being regularly organized in Parwanoo town by involving various Stake Holders, Institutions, Industrial Units of Parwanoo, and agencies.

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Sr. No.	Action taken Points for Rejuvenation of Sukhna Nallah	Agency Responsible for Execution of Task	Timeline	Remarks
(e)	Complaints redressal system	HPSPCB	Continuous Activity	There are complaint redressal systems available for filing complaints like E-samadhan, CM Seva Sankalp, Him Pragati, 24x7 helpline of HPSPCB etc.
(f)	Prevention of solid waste dumping in water bodies. <ul style="list-style-type: none">• Installation of solid waste catch-nets at 05 locations.	MC Parwanoo	31.03.2024	Currently routine inspections are conducted in Parwanoo area.

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Annexure R-23

ANNEXURE-R-16

**Action Plan for Rejuvenation of
River Sirsa, Baddi- Nalagarh,
District Solan H.P.**

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Action Plan with timelines (Short, Medium and Long Term Plan) including the organization/agency responsible for Rejuvenation of River Sirsa, Baddi- Nalagarh, District Solan H.P.

1. Industrial Sewage Management:-

Sr. No.	Action Points	Responsible Agency	Timeline for completion of action plan	Remarks
(a)	Inventorization of the Water Polluting Industries in the catchment of River Sirsa 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	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	Continuous Activity	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 is taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Actions against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	Continuous Activity	Inspection and Sampling of unit is conducted on regular basis and action is initiated against the defaulting units as per relevant provisions of Water Act, 1974 and Air Act, 1981
(d)	Prohibition of Disposal of Municipal Solid Waste, Plastic Waste, Bio-medical Waste, Hazardous Waste and Burning of any kind of Solid Waste.	BBNDA Municipal Council Baddi, Municipal Council, Nalagarh, District Administration	Continuous Activity	-
(e)	Improvement in functioning of existing CETP at Baddi w.r.t connecting the near about areas with Conveyance Pipeline	JSV, Baddi Infrastructure (SVP)- CETP, Department of Industries		Household Sewerage Connections Total Connections 5492 (3744 DPR + 1748 afterwards), 4684 connection released. The A/A & ES for construction of Sewerage scheme to Baddi Town in Tehsil Baddi District Solan have been accorded on

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				dated 02.09.2023 amounting to Rs. 37.0971 Crore under "Special Assistance to the State for Capital Expenditure 2023-24".
(f)	Conducting Surprise inspections and Water Audit to reduce the Gap in Effluent generation and Treatment with CETP at Baddi.	HPSPCB	Continuous Activity	
(g)	Detection of leakages in conveyance pipelines of CETP, Baddi.	HPSPCB, Baddi Infrastructure	Continuous Activity	
(h)	Detection of leakages in sewage pipeline	JSV	Continuous Activity	
(i)	Identification of industries falling in the catchment Zone of CETP, Baddi and not connected with CETP and Action to be taken thereafter.	HPSPCB	Completed	
(j)	Proposal for improvement in functioning of CETP by modification in treatment process to improve the discharge effluent quality.	Baddi Infrastructure	May 2025	3 MLD Effluent Refractory Management & TDS Reduction in the CETP is proposed and studies are being carried out.
(k)	Installation of Real Time Online Effluent Monitoring System on category 17 units.	HPSPCB	Completed	
(l)	Sludge Management from Industrial Effluent Treatment.	HPSPCB		Sludge generated is being sent to SSWML Dabhota
(m)	Setting up & operation of a Solid Waste Management facility at Kenduwal, Baddi	State Govt., Deptt. of Industries, District Administration, BBNDA and Deptt. of Urban Development	Completed	

2. Domestic Sewage Management

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(a)	Area-wise estimation of total population, water requirement, and sewage generation of Baddi-Nalagarh Area.	BBNDA, J.S.V., Department of Rural Development, District Administration, Statcal Department	31.12.2023	-
Annexure				
(b)	Measurement of Flow of Drains, Pollution Load contributing to River Sirsa.	J.S.V. & HPSPCB	Continuous process	-
(c)	Execution of Project Proposal for Sewage Management through State of Art-Technology for Sewage Treatment Plant at Nalagarh.	J.S.V.	Completed	-
(d)	Installation of continuous Real Time Water Quality Monitoring Station on River Sirsa.	J.S.V.	Completed	-
(e)	Sewage Management for Industrial Areas of Baddi, Jharmajri, Lodhimajra, Davni, & Thana.	HPSIDC, DIC	Completed	-
(f)	Sewage/Septage management for Rural Areas with low cost treatment technologies along with Construction of drains and cleaning thereof	Rural Development/ Block Development Office, Nalagarh.	31.03.2024	-
(g)	Identification of Un-authorized Jhuggis in the BBN area and management of Solid waste/sewage management and lifting of Jhuggis/Slum dwellers along the catchment of River Sirsa and its rivulets. Identification bulk sewage generator i.e. rental properties for migrated labor in the BBN area.	BBNDA, J.S.V., And MC baddi anad nalagarh	31.12.2023	-
(h)	Implementation of phyto remediation project in the Sandholi Nallah and Housing Board Nallah w.r.t. Hotspot of Water Contamination : Sandholi Nallah, Housing Board Nallah and Un-authorized Jhuggis in the catchment	District Administration/ HPSPCB	31.03.2024	Work to be executed by Indorama India limited and Morepen Laboratories Limited w.r.t. Condition imposed in the Environmental Clearance granted from SEIAA.

3. Ground Water Management

(a)	Sampling of Tube wells, Bore wells, Hand Pumps in BBN area.	J.S.V., HPSPCB	Continuous activity	-
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(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Baddi Nalagarh Area	J.S.V.	Continuous activity	-
(c)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	J.S.V., HP GWA	Continuous activity	-
(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	J.S.V., HP GWA	Completed	-
(e)	To conduct periodic surprise inspection of the industries to rule-out any forceful injection of industrial effluents into ground water sources	HPSPCB	Continuous activity	-
(f)	All the industries should be directed to obtain NOC from HPGWA/ CGWA and action against the units in operation without obtaining NOC from PGWA/ CGWA.	J.S.V.	Continuous activity	-
(g)	Remedial measures for de-contamination of Highly Polluted Ground Water resources within Jurisdiction of Baddi – Nalagarh Area.	J.S.V. & HPSPCB	Not identified	-

4. Miscellaneous

(a)	Regular monitoring and sampling of water quality of River Sirsa and various drains on monthly basis.	HPSPCB	Continuous activity	-
(b)	Impact of water pollution on health of public by organizing Health camp	State Health Deptt.	Every 3 Month	-
(c)	Plantation in Flood Plain Zone, Setting up of Bio-diversity Parks	Forest Department		-
(d)	Checking Encroachment in FPZ of River Sirsa by Notifying the Flood plain Area.	District Local Administration/ BBNDA/ J.S.V.		-
(e)	Setting up of website for public participation.	HPSPCB	Completed.	-
(f)	Monitoring of the Executing the Action Plans	BBNDA, HPSPCB	Continuous activity	-
(g)	Cleanliness Drive along the Stretch of River Sirsa	HPSPCB, BBNDA, Ind. Deptt, Urban Local Body Rural Development, Industries Association and other stakeholders.	Continuous activity	-

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(h)	Identification and regulation of un authorized the tankers engaged in illegal discharge of sewage in river/nallahs	RTO Nalagarh, Police, BBNDA, MC Baddi, MC Nalagarh, HPSPCB, Distt. Administration	31.12.23 and thereafter continuous	
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8. Other Aspects as NGT Order dated 20.09.2018 and 19.12.2018

(a)	Rain Water Harvesting/ Ground Water Recharge aspects	J.S.V.		10 Sites identified, DPR preparation is under process. Implementation is subject to the availability of funds from the Central Government.
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Annexure R-24

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ANNEXURE R-15

**Action Plan for Rejuvenation of
Balad Khad
(Non perennial water Body),
Tehsil Baddi, District Solan, H.P.**

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Action Plan with timelines (Short, Medium and Long Term Plan) including the organization/agency respons for Rejuvenation of Balad Khad(Non perennial water Body), Tehsil Baddi, District Solan, H.P.

1. Industrial Sewage Management:-

Sr. No.	Action Points	Responsible Agency	Time Line for completion of action plan	Remarks
(a)	Inventorization of the Water Polluting Industries in the catchment of Balad Khad 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	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	Continuous Activity	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 is taken against any unit found operating without mandatory consent of the HPSPCB.
(c)	Actions against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards.	HPSPCB	Continuous Activity	Inspection and Sampling of unit is conducted on regular basis and action is initiated against the defaulting units as per relevant provisions of Water Act, 1974 and Air Act, 1981
(d)	Prohibition of Disposal of Municipal Solid Waste, Plastic Waste, Bio-medical Waste, Hazardous Waste and Burning of any kind of Solid Waste.	BBNDA Municipal Council Baddi, District Administration	Continuous Activity	-
(e)	Improvement in functioning of existing CETP at Baddi w.r.t connecting the near about areas with Conveyance Pipeline	JSV, Baddi Infrastructure (SVP)- CETP, Department of Industries		Household Sewerage Connections Total Connections 5492 (3744 DPR + 1748 afterwards), 4684 connection released. The A/A & ES for construction of Sewerage scheme to Baddi Town in Tehsil Baddi District Solan have been accorded on dated 02.09.2023

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				amounting to Rs. 37.0971 Crore under "Special Assistance to the State for Capital Expenditure 2023-24".
(f)	Conducting Surprise inspections and Water Audit to reduce the Gap in Effluent generation and Treatment with CETP at Baddi.	HPSPCB	Continuous Activity	-
(g)	Detection of leakages in conveyance pipelines of CETP, Baddi.	HPSPCB, Baddi Infrastructure	Continuous Activity	-
(h)	Detection of leakages in Sewage pipeline	JSV	Continuous activity	-
(i)	Identification of industries falling in the catchment Zone of CETP, Baddi and not connected with CETP and Action to be taken thereafter.	HPSPCB	Completed	-
(j)	Installation of Real Time Online Effluent Monitoring System on category 17 units.	HPSPCB	Completed	-
(k)	Sludge Management from Industrial Effluent Treatment.	HPSPCB	Sludge generated is being sent to SSWML Dabhota	-

2. Domestic Sewage Management

(a)	Area-wise estimation of total population, water requirement, and sewage generation of Balad Catchment Area.	BBNDA, J.S.V., Department of Rural Development, District Administration, Statistical Department	31.12.2023	-
(c)	Measurement of Flow of Drains, Pollution Load contributing to Balad Khad.	J.S.V. & HPSPCB	Continuous process	-
(d)	Proper design, execution of sewerage Lines to be incorporated in proposed CETP at Baddi.	J.S.V., Industry Department		-
(e)	Sewage Management for Industrial Areas of Baddi, EPIP Phase-I and II Jharmajri of DIC, Hilltop Jharmajri and HIMUDA industrial area at Bhatolikalan.	DIC and HIMUDA	Completed	-
(f)	Sewage/Septage management for Rural Areas with low cost treatment technologies along with Construction of drains and cleaning thereof	Rural Development/ Block Development Office, Nalagarh.	31.03.2024	-

(g)	Identification of Un-authorized Jhuggis in the Balad area and management of Solid waste/sewage management and lifting of Jhuggis/Slum dwellers along the catchment of Balad Khad and its rivulets. Identification bulk sewage generator i.e. rental properties for migrated labor in the BBN area.	BBNDA, J.S.V., And MC Baddi.	31.12.2023	-
(h)	Hotspot of Water Contamination: Jharmajri, Kunjhal, Kotla Nallah and Un-authorized Jhuggis in the Balad catchment.	BBNDA, J.S.V., And MC Baddi.	Continuous activity	Hotspot Identified.

3. Ground Water Management

(a)	Sampling of Tube wells Bore wells, Hand Pumps in BBN area.	J.S.V. , HPSPCB	Continuous activity	-
(b)	Sampling and analysis of Drinking Water Supply Schemes in and around Baddi Area	J.S.V.	Continuous activity	-
(c)	Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public.	J.S.V. , HP GWA	Continuous activity	-
(d)	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas.	J.S.V. , HP GWA	Completed	-
(e)	To conduct periodic surprise inspection of the industries to rule-out any forceful injection of industrial effluents into ground water sources	HPSPCB	Continuous activity	-
(f)	All the industries should be directed to obtain NOC from HPGWA/ CGWA and action against the units in operation without obtaining NOC from PGWA/ CGWA.	J.S.V	Continuous activity	-
(g)	Remedial measures for de-contamination of Highly Polluted Ground Water resources within Jurisdiction of Baddi ~ Nalagarh Area.	J.S.V. HPSPCB	&Not identified	-

4. Miscellaneous

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(a)	Regular monitoring and sampling of water quality of Balad Khad.	HPSPCB	Continuous activity	-
(b)	Plantation in Flood Plain Zone, Setting up of Bio-diversity Parks	Forest Department		-
(c)	Checking Encroachment in FPZ of Balad Khad by Notifying the Flood plain Area.	District Local Administration/ BBNDA/ JSV		-
(d)	Setting up of website for public participation.	HPSPCB	Completed.	-
(e)	Monitoring of the Executing the Action Plans.	BBNDA, HPSPCB	Continuous activity	-
(f)	Cleanliness Drive along the Stretch of Balad Khad.	HPSPCB, BBNDA, Ind. Deptt, Urban Local Body Rural Development, Industries Association and other stakeholders.	Continuous activity	-
(g)	Identification and regulation of un authorized the tankers engaged in illegal discharge of sewage in river/nallahs	RTO Nalagarh, Police, BBNDA, MC Baddi, MC Nalagarh, HPSPCB, Distt. Administration	31.12.23 and thereafter continuous	

5. Other Aspects as NGT Order dated 20.09.2018 and 19.12.2018

(a)	Rain Water Harvesting/ Ground Water Recharge aspects	J.S.V.		10 Sites identified, DPR preparation is under process. Implementation is subject to the availability of funds from the Central Government.
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Annexure R-25

ANNEXURE R-16

**River Markanda at Kala Amb,
District –Sirmour, H.P**

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Sr. No.	Work proposed for Execution (In the Catchment Area)	Organization Responsible	Status
1.	Kala Amb and Moginand Area: Laying of Sewerage Network and Pre-treatment of Sewage	Jai Shakti Vibhag	So far, 20500 m pipe stand laid (including HIMUDA) and the work of balance 1145 m is in progress. The work is expected to be completed by March, 2024 keeping in view of excessive damages caused by heavy rains subject to availability of funds.
	Trilokpur Area: Laying of Sewerage Network & Setting up of Sewage Treatment Plants.		The work of STP has been completed and trial run has also successfully done. Out of 8500 m 8000 m sewer network has already been laid. The overall work is completed except the work of sewer line which is required to be passed through Nallah near Jai Bharat factory which is in progress.
	Installation of Continuous Water Quality Monitoring Station		The instrument was earlier installed however due to heavy rainfall in the same got damaged
2.	Kala Amb Area: Proposal for setting up of CETP	HP State Industrial Development Corporation, Department of industries	Construction work of CETP Kala Amb stand completed and Machinery and Equipments have also been installed.
3.	Proposal for setting up of Solid Waste Management Facility	Special Area Development Authority, Kala Amb, District Administration	Completed
4.	Plantation Proposal	Forest Department	Completed
5.	Phytoremediation proposal on Jattanwala Nallah	JSV	Damages sustained during monsoon which could not be restored due to stiff resistance by local people as well as Industry who allege damage to their property due to resultant diversion of flow. The restoration of Phytoremediation is under process. Plantation has been done both on upstream and downstream of the Plant.

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Annexure R-26

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ANNEXURE - R - 17

**River Giri at Sainj, District- Shimla
HP**

191 310

Sr. No.	Work proposed for Execution (In the Catchment Area)	Organization Responsible	Status
1.	Installation of three STPs in these areas i.e. one at Theog and two at Kotkhai	Jal Shakti Vibhag	<p><u>STP Kotkhai (Zone 2nd and 3rd)</u> STP Zone II and III completed & commissioned.</p> <p>Household Sewerage Connections : At present department has sanctioned 91 Nos. connections out of 143 Nos. total connections. Total 68 connections released (i.e. Private =54 Nos. & Govt.=14 Nos.) with 301 Nos. toilet seats out of 578 Nos. toilet seats .</p> <p><u>STP Theog</u> As per provisions of estimate 1 No. STP and 2 nos. septic tanks were to be constructed in Theog town. Though STP has been constructed and commissioned but beneficiary of the area did not allow the construction of these septic tanks. Now an alternate proposal of compact sewerage Treatment Plant based on RMBR (Reverse Membrane Bio Reactor) technology is proposed for which land has been identified and tendering process initiated. In addition to this a separate sewer line along the Theog bypass road having length of 2200 m has also proposed to be laid to cover part of left out area of Theog town which will cover approximately 300 household. Tender have been floated for the same. The STP is commissioned and functional. Total connections to be provided :- 1088 Connections sanctioned :- 48 Connections released :- 16 Releasing of connections is in progress as per demand. Laying work of DI pipes (in Theog by pass road phase 2nd) is in progress. Connections of that area shall be released after completion of laying work and connectivity).</p>

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2.	Plantation Over 10 Hectare Forest Land In The Polluted River And Flood Plains Within The Jurisdiction Of Theog Forest Division In District Shimla, HP	Forest Department	Completed

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Annexure R-27

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ANNEXURE - R - 18

River Pabbar

124 313

Sr. No.	Work proposed for Execution (In the catchment Area)	Organization Responsible	Status
1.	Plantation over 10 hectare forest land in the polluted giri river stretches and flood plains within the jurisdiction of theog forest division in district shimla, hp	Forest Department	Completed
2.	Solid Waste Management in MC Rohru, NP Jubbal and nearby areas	Urban Development	<p style="text-align: center;">Jubbal-</p> <ul style="list-style-type: none"> • MRF facility has already been set up in Jubbal. • Process of purchasing shredder is under process through GeM portal. • Wet waste disposed in composting pits and also provided to the locals having cattles. Some time provided to dairy farm. <p style="text-align: center;">Rohru-</p> <ul style="list-style-type: none"> • FCA case of solid waste management is pending at regional office (copy attached). • Two sites have been identified for temporary management of waste and letter has also been written to the Vice Chairman, Shri Bhima Kali Ji Temple Trust and private party regarding the same and response for the same is awaited. • Work order has been placed for shredder in MC Rohru. • Wet waste is being provided to the gau sadan and also being disposed in temporary composting pits near new bus stand.

WATER QUALITY STATUS OF RIVER SIRSA DURING JANUARY TO DECEMBER 2023

January 2023										February 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sirsa U/s Sitomajri Nalla	1551	8.14	6.4	2.5	21	70	B	Satisfactory	7.99	6.4	2.4	27	540	C	Satisfactory
2	River Sirsa U/s Sandholi Nallah	4485	7.98	6.4	1.7	9	47	A	Satisfactory	7.81	6.0	3.8	33	920	C	Non-Satisfactory
3	River Sirsa D/s Nalagarh Bridge	1552	7.80	6.9	2.8	8	94	B	Satisfactory	7.95	6.8	2.6	21	540	C	Satisfactory
4	River Sirsa D/s Housing Board Nalla	4487	8.01	5.6	12.0	>1600	>1600	C	Non-Satisfactory	7.82	5.5	9.0	>1600	>1600	C	Non-Satisfactory
5	River Sirsa D/s Nalagarh Town	1868	8.07	7.1	2.4	12	49	B	Satisfactory	7.84	6.5	2.0	17	350	B	Satisfactory
6	River Sirsa D/s River Ratta	4489	7.92	6.4	3.2	17	140	C	Non-Satisfactory	7.87	7.0	3.0	46	920	C	Non-Satisfactory
March 2023										April 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sirsa U/s Sitomajri Nalla	1551	7.78	5.8	7.2	920	1600	C	Non-Satisfactory	7.94	6.9	2.2	33	540	C	Satisfactory
2	River Sirsa U/s Sandholi Nallah	4485	7.59	7.1	2.4	21	350	B	Satisfactory	8.05	6.1	2.5	46	540	C	Satisfactory
3	River Sirsa D/s Nalagarh Bridge	1552	7.32	7.1	2.0	11	350	B	Satisfactory	7.68	6.1	6.0	920	>1600	C	Non-Satisfactory
4	River Sirsa D/s Housing Board Nalla	4487	7.69	5.9	6.6	540	1600	C	Non-Satisfactory	7.6	6.2	5.2	540	1600.00	C	Non-Satisfactory
5	River Sirsa D/s Nalagarh Town	1868	7.97	6.9	2.5	33	920	C	Satisfactory	8.14	6.6	2.4	33	540	C	Satisfactory
6	River Sirsa D/s River Ratta	4489	7.73	7.1	2.8	21	920	C	Satisfactory	7.77	5.2	5.6	540	>1600	C	Non-Satisfactory

May 2023										June 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sirsa U/s Sitomajri Nalla	1551	7.60	7.1	1.6	12	170	B	Satisfactory	7.70	6.8	0.4	5	39	A	Satisfactory
2	River Sirsa U/s Sandholi Nallah	4485	7.79	6.9	1.9	7	220	B	Satisfactory	7.74	6.6	1.0	9	350	B	Satisfactory
3	River Sirsa D/s Nalagarh Bridge	1552	7.88	6.9	2.0	9	350	B	Satisfactory	7.76	6.8	0.8	12	170	B	Satisfactory
4	River Sirsa D/s Housing Board Nalla	4487	7.9	5.7	4.8	110	920.00	C	Non-Satisfactory	7.68	6.1	1.4	33	540	C	Satisfactory
5	River Sirsa D/s Nalagarh Town	1868	7.76	6.4	1.4	7	140	B	Satisfactory	7.80	6.9	0.5	6.8	170	B	Satisfactory
6	River Sirsa D/s River Ratta	4489	7.71	6.5	4.9	140	1600	C	Non-Satisfactory	7.89	6.6	0.4	4	33	A	Satisfactory
July 2023										August 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sirsa U/s Sitomajri Nalla	1551	7.89	7.1	0.2	2	26	A	Satisfactory	8.22	6.9	1.0	12	350	B	Satisfactory
2	River Sirsa U/s Sandholi Nallah	4485	7.84	6.9	0.3	4	34	A	Satisfactory	8.23	6.9	0.5	4	170	B	Satisfactory
3	River Sirsa D/s Nalagarh Bridge	1552	7.71	7.1	0.4	4	39	A	Satisfactory	8.11	6.7	0.4	4.5	21	A	Satisfactory
4	River Sirsa D/s Housing Board Nalla	4487	7.75	6.7	0.6	7	39	A	Satisfactory	8.24	6.3	0.3	9.2	350	B	Satisfactory
5	River Sirsa D/s Nalagarh Town	1868	7.92	7.1	0.3	2	26	A	Satisfactory	8.13	6.9	0.8	4	34	A	Satisfactory
6	River Sirsa D/s River Ratta	4489	7.72	6.9	0.5	11	210	B	Satisfactory	8.26	6.8	0.3	9.2	140	B	Satisfactory

September 2023										October 2023						
Sr. No.	Name of location	Sation Cod	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sirsa U/s Sitomajri Nalla	1551	8.00	7.1	1.2	70	540	C	Satisfactory	7.44	6.4	0.8	12	170	B	Satisfactory
2	River Sirsa U/s Sandholi Nallah	4485	7.85	6.8	0.6	6.8	350	B	Satisfactory	7.63	6.7	1.0	9.2	220	B	Satisfactory
3	River Sirsa D/s Nalagarh Bridge	1552	7.89	6.8	1.8	350	>1600	C	Non-Satisfactory	7.71	5.5	2.0	12	350	B	Satisfactory
4	River Sirsa D/s Housing Board Nalla	4487	7.76	6.9	2.1	1600	>1600	C	Non-Satisfactory	7.76	3.0	2.9	140	920	C	Satisfactory
5	River Sirsa D/s Nalagarh Town	1868	7.85	6.7	1.5	140	>1600	C	Non-Satisfactory	7.12	3.4	2.2	10	540	C	Satisfactory
6	River Sirsa D/s River Ratta	4489	7.90	6.4	0.9	110	920	C	Satisfactory	7.69	5.5	2.8	110	920	C	Satisfactory

November 2023										December 2023						
Sr. No.	Name of location	Sation Cod	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sirsa U/s Sitomajri Nalla	1551	7.67	6.8	0.3	4.5	49	A	Satisfactory	7.65	5.8	1.2	6.8	540	C	Satisfactory
2	River Sirsa U/s Sandholi Nallah	4485	7.72	6.1	0.8	24	540	C	Satisfactory	7.50	6.2	1.6	4.5	540	C	Satisfactory
3	River Sirsa D/s Nalagarh Bridge	1552	7.74	6.2	2.8	110	>1600	C	Non-Satisfactory	7.75	6.0	2.4	110	920	C	Satisfactory
4	River Sirsa D/s Housing Board Nalla	4487	7.70	5.2	4.4	920	>1600	C	Non-Satisfactory	7.59	4.9	16.0	>1600	>1600	C	Non-Satisfactory
5	River Sirsa D/s Nalagarh Town	1868	7.78	5.9	1.2	24	540	C	Satisfactory	7.58	6.1	3.9	540	>1600	C	Non-Satisfactory
6	River Sirsa D/s River Ratta	4489	7.93	5.8	4.0	540	>1600	C	Non-Satisfactory	7.71	5.7	1.6	5	140	B	Satisfactory

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WATER QUALITY STATUS OF RIVER SUKHNA DURING JANUARY TO DECEMBER 2023																
January 2023										February 2023						
Sr. No.	Name of location	Sation Cod	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sukhna at Parwanoo	1870	7.89	6.2	1.8	8	70	B	Satisfactory	7.81	6.10	1.2	33	540	C	Satisfactory
March 2023										April 2023						
Sr. No.	Name of location	Sation Cod	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sukhna at Parwanoo	1870	7.60	5.9	12.0	1600	>1600	C	Non-Satisfactory	7.92	5.8	1.5	70	540	C	Satisfactory
May 2023										June 2023						
Sr. No.	Name of location	Sation Cod	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sukhna at Parwanoo	1870	8.09	5.90	3.0	49	920	C	Satisfactory	7.73	5.8	10.0	920	>1600	C	Non-Satisfactory
July 2023										August 2023						
Sr. No.	Name of location	Sation Cod	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sukhna at Parwanoo	1870	7.76	5.7	0.1	2	21	A	Satisfactory	8.23	8.7	0.2	4	34	A	Satisfactory
Septembet 2023										October 2023						
Sr. No.	Name of location	Sation Cod	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sukhna at Parwanoo	1870	8.28	7.7	0.3	6.8	220	B	Satisfactory	7.35	7.2	12.0	>1600	>1600	C	Non-Satisfactory
November 2023										December 2023						
Sr. No.	Name of location	Sation Cod	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Sukhna at Parwanoo	1870	7.74	4.3	26.0	>1600	>1600	C	Non-Satisfactory	8.04	7	2.2	24	540	C	Satisfactory

WATER QUALITY STATUS OF ASHWANI KHAD DURING JANUARY TO DECEMBER 2019

January 2023										February 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Ashwani Khad U/s Yashwant Nagar	2620	8.16	7.8	0.1	5	32	A	Satisfactory	7.90	7.9	0.4	5	33	A	Satisfactory
2	U/s of weir site of WTP near Ashwani Khad.	4428	8.01	7.8	1.4	110	540	C	Satisfactory	7.57	7.8	1.2	70	350	B	Satisfactory
3	D/s Ashwani Khad after confl of lift nalaha	4429	8.02	7.7	1.9	220	920	C	Satisfactory	7.71	7.6	1.3	110	540	B	Satisfactory
4	Lift Nala before conf. to Ashwani Khad near Dogrha bridge	4430	7.9	7.5	2.1	350	1600	C	Satisfactory	7.38	7.4	2.2	170	920	C	Satisfactory
5	Ashwani Khad D/S Vill Sadhupul	4461	7.91	9.5	0.3	14	49.0	A	Satisfactory	7.31	7.4	0.2	2	24.0	A	Satisfactory
6	Ashwani Khad @ Sadhupul (U/S Bridge Towards Chail)	4479	8.10	9.3	0.2	11	46.0	A	Satisfactory	7.34	7.8	0.8	4	46.0	A	Satisfactory
March 2023										April 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Ashwani Khad U/s Yashwant Nagar	2620	7.76	8.1	1.4	21	540	C	Satisfactory	8.11	7.6	0.1	2	21	A	Satisfactory
2	U/s of weir site of WTP near Ashwani Khad.	4428	7.75	7.2	1.0	49	240	B	Satisfactory	7.45	7.6	1.5	170	540	C	Satisfactory
3	D/s Ashwani Khad after confl of lift nalaha	4429	7.68	6.9	1.2	79	350	B	Satisfactory	8.28	7.5	BDL	26	140	B	Satisfactory
4	Lift Nala before conf. to Ashwani Khad near Dogrha bridge	4430	7.91	6.4	12.0	220	1600	C	Non-Satisfactory	7.56	7.4	BDL	6.8	17	A	Satisfactory
5	Ashwani Khad D/S Vill Sadhupul	4461	7.89	7.2	0.9	4	220.0	B	Satisfactory	7.65	7.0	0.4	4.5	79.0	B	Satisfactory
6	Ashwani Khad @ Sadhupul (U/S Bridge Towards Chail)	4479	7.94	6.8	1.0	7	170.0	B	Satisfactory	7.62	6.8	0.4	7	63.0	B	Satisfactory

May 2023										June 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Ashwani Khad U/s Yashwant Nagar	2620	8.48	7.8	0.4	4	34	A	Satisfactory	8.18	8.0	0.4	2	26	A	Satisfactory
2	U/s of weir site of WTP near Ashwani Khad.	4428	8.23	7.8	BDL	17	1600	C	Satisfactory	8.23	7.2	2.8	21	540	C	Satisfactory
3	D/s Ashwani Khad after confl of lift nallaha	4429	8.24	7.6	2.0	9.2	920	C	Satisfactory	8.24	7.4	4.2	79	920	C	Non-Satisfactory
4	Lift Nala before conf. to Ashwani Khad near Dogrha bridge	4430	8.23	7.4	2.4	17	1600	C	Satisfactory	8.26	7.1	9.5	220	1600	C	Non-Satisfactory
5	Ashwani Khad D/S Vill Sadhupul	4461	7.72	7.5	0.4	4.5	39.0	A	Satisfactory	7.70	7.7	0.6	6.8	39	A	Satisfactory
6	Ashwani Khad @ Sadhupul (U/S Bridge Towards Chail)	4479	7.69	7.5	1.0	11	170	B	Satisfactory	8.04	7.6	0.2	4.5	26	A	Satisfactory
July 2023										August 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	T.C. MPN /100ml	F.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Ashwani Khad U/s Yashwant Nagar	2620	7.98	7.8	0.5	4	39	A	Satisfactory	8.11	7.8	0.2	4	47	A	Satisfactory
2	U/s of weir site of WTP near Ashwani Khad.	4428	7.96	8.9	0.4	2	26	A	Satisfactory	7.48	7.3	BDL	94	920	C	Satisfactory
3	D/s Ashwani Khad after confl of lift nallaha	4429	7.79	7.1	1.1	17	350	B	Satisfactory	7.71	7.1	1.3	140	1600	C	Satisfactory
4	Lift Nala before conf. to Ashwani Khad near Dogrha bridge	4430	5.92	7.0	1.5	20	1600	C	Satisfactory	7.79	7.2	2.4	220	1600	C	Satisfactory
5	Ashwani Khad D/S Vill Sadhupul	4461	7.71	7.5	0.4	2	21	A	Satisfactory	8.17	8.2	0.3	4	47	A	Satisfactory
6	Ashwani Khad @ Sadhupul (U/S Bridge Towards Chail)	4479	7.72	7.2	0.3	2	34	A	Satisfactory	8.06	7.8	0.6	11	130	B	Satisfactory

WATER QUALITY STATUS OF ASHWANI KHAD DURING SEPTEMBER TO DECEMBER 2023

September 2023										October 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Ashwani Khad U/s Yashwant Nagar	2620	8.12	7.8	0.4	9.2	350	B	Satisfactory	8.44	6.7	0.3	4.5	39	A	Satisfactory
2	U/s of weir site of WTP near Ashwani Khad.	4428	7.61	6.9	2.8	21	1600	C	Satisfactory	7.38	7.5	BDL	47	350	B	Satisfactory
3	D/s Ashwani Khad after conflu of lift nallaha	4429	7.41	7.1	1.4	17	350	B	Satisfactory	7.17	7.4	BDL	540	1600	C	Satisfactory
4	Lift Nala before conf. to Ashwani Khad near Dogrha bridge	4430	7.61	6.9	2.8	21	1600	C	Satisfactory	7.29	7.6	10.6	40	920	C	Non-Satisfactory
5	Ashwani Khad D/S Vill Sadhupul	4461	7.18	7.5	0.2	9.2	140	B	Satisfactory	7.92	6.7	0.2	2	34	A	Satisfactory
6	Ashwani Khad @ Sadhupul (U/S Bridge Towards Chail)	4479	7.10	7.8	0.3	4.5	220	B	Satisfactory	7.53	7.9	0.2	4	34	A	Satisfactory
November 2023										December 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Ashwani Khad U/s Yashwant Nagar	2620	7.98	7.8	0.3	4.0	39	B	Satisfactory	8.20	8.5	0.4	4	39	A	Satisfactory
2	U/s of weir site of WTP near Ashwani Khad.	4428	7.32	8.2	3.1	33	350	C	Non-Satisfactory	7.74	8.7	1.8	7.8	70	B	Satisfactory
3	D/s Ashwani Khad after conflu of lift nallaha	4429	6.78	7.6	6.6	47	1600	C	Non-Satisfactory	7.17	8.2	6.8	21	350	B	Non-Satisfactory
4	Lift Nala before conf. to Ashwani Khad near Dogrha bridge	4430	6.58	6.8	8.0	79	1600	C	Non-Satisfactory	7.33	8.1	9.5	170	1600	C	Non-Satisfactory
5	Ashwani Khad D/S Vill Sadhupul	4461	7.64	11.0	0.2	4.5	49	A	Satisfactory	7.48	6.9	0.6	4	110	B	Satisfactory
6	Ashwani Khad @ Sadhupul (U/S Bridge Towards Chail)	4479	7.58	10.0	0.3	4.5	39	A	Satisfactory	7.58	6.2	1	5	140	B	Satisfactory

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WATER QUALITY STATUS OF RIVER BALD DURING JANUARY TO DECEMBER 2023																
January 2023										February 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Bald D/s Land fill site at Baddi	4486	7.53	6.1	24.0	>1600	>1600	C	Non-Satisfactory	7.89	4.0	2.8	40	920	C	Satisfactory
March 2023										April 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Bald D/s Land fill site at Baddi	4486	7.40	6.4	5.8	170	920	C	Non-Satisfactory	7.63	5.6	2.4	33	540	c	Satisfactory
May 2023										June 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Bald D/s Land fill site at Baddi	4486	7.54	5.9	10.2	>1600	>1600	C	Non-Satisfactory	7.18	5.9	1.8	94	920	C	Satisfactory
July 2023										August 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Bald D/s Land fill site at Baddi	4486	7.99	6.8	0.2	<1.8	12	A	Satisfactory	7.98	7.6	1.4	6.8	170	B	Satisfactory
September 2023										October 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Bald D/s Land fill site at Baddi	4486	7.97	6.8	1.2	350	1600	C	Satisfactory	7.28	5.9	0.9	12	220	B	Satisfactory
November 2023										December 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Bald D/s Land fill site at Baddi	4486	7.65	6.4	0.8	39	540	C	Satisfactory	8.06	6.5	0.2	4	34	A	Satisfactory

WATER QUALITY STATUS OF RIVER RATTA DURING JANUARY TO DECEMBER 2023																
January 2023										February 2023						
Sr. No.	Name of location	Station Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Ratta before Conf. to River Sirsa	4488	7.67	5.7	2.3	13	94	B	Satisfactory	7.60	6.1	10.0	>1600	>1600	C	Non-Satisfactory
March 2023										April 2023						
Sr. No.	Name of location	Station Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Ratta before Conf. to River Sirsa	4488	7.73	7.1	2.8	21	920	C	Satisfactory	-	-	-	-	-	-	-
May 2023										June 2023						
Sr. No.	Name of location	Station Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Ratta before Conf. to River Sirsa	4488	-	-	-	-	-	-	-	7.44	6.9	2.5	130	920	C	Satisfactory
July 2023										August 2023						
Sr. No.	Name of location	Station Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Ratta before Conf. to River Sirsa	4488	7.74	6.9	0.4	10	140	B	Satisfactory	7.96	7.1	0.9	4.5	34	A	Satisfactory
September 2023										October 2023						
Sr. No.	Name of location	Station Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Ratta before Conf. to River Sirsa	4488	7.98	6.9	1.2	110	920	C	Satisfactory	7.52	5.9	3.0	110	920	C	Non-Satisfactory
November 2023										December 2023						
Sr. No.	Name of location	Station Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Ratta before Conf. to River Sirsa	4488	7.76	6.0	1.6	24	920	C	Satisfactory	7.75	6	2.1	24	540	C	Satisfactory

WATER QUALITY STATUS OF RIVER GIRI DURING JANUARY TO DECEMBER 2023

January 2023										February 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Giri River D/s Yashwant Nagar	2621	8.20	8.5	0.1	7.8	34	A	Satisfactory	7.91	8.5	0.2	2	32.0	A	Satisfactory
2	River Giri U/s CCI mines	2622	7.94	8.3	1.8	32	94	B	Satisfactory	8.18	8.0	1.7	34.0	94.0	B	Satisfactory
3	River Giri D/s Sataun	2623	7.97	8.1	2.6	49	350	B	Satisfactory	7.86	8.0	2.1	40.0	140.0	B	Satisfactory
4	Giri River at Village Maryaog after confluence of R, giri and Ashwani	3876	8.33	8.8	0.5	11	110	B	Satisfactory	7.93	8.8	0.4	4.5	33.0	A	Satisfactory
5	River Giri D/s Rajgarh Town	4027	7.65	7.8	BDL	14	220	B	Satisfactory	7.80	8.4	2.0	49.0	170.0	B	Satisfactory
6	River Giri D/s Kalgidhar Trust, Baru Sahib	4028	8.29	7.9	2.0	33	280	B	Satisfactory	7.79	8.2	2.1	49.0	220.0	B	Satisfactory
7	River Giri U/S Chailla	4427	7.65	7.8	BDL	14	220	B	Satisfactory	7.55	7.8	BDL	14	140	B	Satisfactory
8	River Giri at Kotkhai	5292	7.70	8.0	BDL	24	220	B	Satisfactory	7.72	7.8	BDL	14	39	A	Satisfactory
March 2023										April 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Giri River D/s Yashwant Nagar	2621	7.72	8.7	0.9	4	130	B	Satisfactory	7.83	7.8	0.2	4	26	A	Satisfactory
2	River Giri U/s CCI mines	2622	7.97	8.6	1.9	22	130	B	Satisfactory	8.15	8.0	1.2	39	94	B	Satisfactory
3	River Giri D/s Sataun	2623	7.98	8.2	2.4	46	220	B	Satisfactory	8.08	7.9	1.5	70	140	B	Satisfactory
4	Giri River at Village Maryaog after confluence of R, giri and Ashwani	3876	7.94	8.9	0.7	4	130	B	Satisfactory	7.98	8.5	0.2	5	27	A	Satisfactory
5	River Giri D/s Rajgarh Town	4027	8.37	7.9	2.0	40	220	B	Satisfactory	8.31	8.2	1.7	70	220	B	Satisfactory
6	River Giri D/s Kalgidhar Trust, Baru Sahib	4028	8.20	7.8	1.9	39	170	B	Satisfactory	8.30	8.1	1.5	49	170	B	Satisfactory
7	River Giri U/S Chailla	4427	7.7	7.6	BDL	14	70	B	Satisfactory	7.44	7.5	BDL	9	33	A	Satisfactory
8	River Giri at Kotkhai	5292	7.5	7.3	BDL	17	47	A	Satisfactory	7.76	7.9	BDL	<1.8	9.2	A	Satisfactory

May 2023										June 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Giri River D/s Yashwant Nagar	2621	8.35	8.8	0.2	2	33	A	Satisfactory	8.16	8.5	0.2	<1.8	21	A	Satisfactory
2	River Giri U/s CCI mines	2622	8.15	8.0	1.0	26	94	B	Satisfactory	8.14	7.9	1.0	39	140	B	Satisfactory
3	River Giri D/s Sataun	2623	8.06	7.9	1.3	40	170	B	Satisfactory	8.16	7.8	1.3	46	280	B	Satisfactory
4	Giri River at Village Maryaog after confluence of R, giri and Ashwani	3876	8.32	8.5	0.1	2	26	A	Satisfactory	8.06	8.3	0.1	<1.8	12	A	Satisfactory
5	River Giri D/s Rajgarh Town	4027	8.25	8.0	1.4	34	140	B	Satisfactory	8.26	7.9	1.4	49	220	B	Satisfactory
6	River Giri D/s Kalgidhar Trust, Baru Sahib	4028	8.19	7.9	1.5	33	130	B	Satisfactory	8.35	7.7	1.3	46	170	B	Satisfactory
7	River Giri U/S Chaila	4427	7.88	7.6	BDL	12	140	B	Satisfactory	7.86	7.4	BDL	26	140	B	Satisfactory
8	River Giri at Kotkhai	5292	7.94	7.7	BDL	17	70	B	Satisfactory	8.02	7.9	BDL	6.8	47	B	Satisfactory
July 2023										August 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Giri River D/s Yashwant Nagar	2621	7.93	8.2	0.4	2	21	A	Satisfactory	8.02	7.1	0.2	6.8	49	A	Satisfactory
2	River Giri U/s CCI mines	2622	7.31	7.5	2.6	70	280	B	Satisfactory	8.05	6.5	2.3	39	140	B	Satisfactory
3	River Giri D/s Sataun	2623	8.08	7.5	2.8	130	350	B	Satisfactory	7.94	6.5	3.2	94	350	B	Non-Satisfactory
4	Giri River at Village Maryaog after confluence of R, giri and Ashwani	3876	7.96	8.9	0.4	2	26	A	Satisfactory	8.02	7.6	0.4	5	39	A	Satisfactory
5	River Giri D/s Rajgarh Town	4027	7.97	7.9	2.8	110	240	B	Satisfactory	8.14	8.1	2.1	49	280	B	Satisfactory
6	River Giri D/s Kalgidhar Trust, Baru Sahib	4028	7.64	7.7	2.1	130	280	B	Satisfactory	8.03	8.0	2.2	79	350	B	Satisfactory
7	River Giri U/S Chaila	4427	7.23	7.6	BDL	14	70	B	Satisfactory	7.74	7.7	BDL	14	47	A	Satisfactory
8	River Giri at Kotkhai	5292	7.19	7.8	BDL	14	140	B	Satisfactory	7.83	8.0	BDL	12	920	C	Satisfactory

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WATER QUALITY STATUS OF RIVER DURING SEPTEMBER TO DECEMBER 2023

September 2023										October 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Giri River D/s Yashwant Nagar	2621	8.16	7.9	0.2	4.5	140	B	Satisfactory	8.36	6.7	0.2	4	39	A	Satisfactory
2	River Giri U/s CCI mines	2622	7.83	7.5	1.0	21	94	B	Satisfactory	8.24	8.0	1.0	26	70	B	Satisfactory
3	River Giri D/s Sataun	2623	7.95	7.5	1.2	33	170	B	Satisfactory	8.15	8.2	1.5	33	170	B	Satisfactory
4	Giri River at Village Maryaog after confluence of R, giri and Ashwani	3876	8.18	7.6	0.2	4	220	B	Satisfactory	7.53	7.9	0.2	4	34	A	Satisfactory
5	River Giri D/s Rajgarh Town	4027	8.19	7.9	2.0	26	140	B	Satisfactory	8.33	7.8	1.5	27	150	B	Satisfactory
6	River Giri D/s Kalgidhar Trust, Baru Sahib	4028	8.23	7.8	1.6	34	130	B	Satisfactory	8.32	7.8	1.3	26	140	B	Satisfactory
7	River Giri U/S Chailla	4427	8.01	7.6	BDL	4.5	170	B	Satisfactory	7.89	7.6	BDL	22	220	B	Satisfactory
8	River Giri at Kotkhai	5292	7.59	7.8	BDL	11	70	B	Satisfactory	7.98	7.9	BDL	220	1600	C	Satisfactory
November 2023										December 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Giri River D/s Yashwant Nagar	2621	8.14	7.9	0.2	2	26	A	Satisfactory	8.18	8.8	0.2	2	26	A	Satisfactory
2	River Giri U/s CCI mines	2622	8.03	8.6	1.1	13	33	A	Satisfactory	7.69	8.6	1.0	22	70	B	Satisfactory
3	River Giri D/s Sataun	2623	7.93	8.4	1.1	33	140	B	Satisfactory	8.26	8.5	1.1	33	110	B	Satisfactory
4	Giri River at Village Maryaog after confluence of R, giri and Ashwani	3876	8.16	7.6	0.1	2	26	A	Satisfactory	8.12	9.3	0.1	2	26	A	Satisfactory
5	River Giri D/s Rajgarh Town	4027	8.26	7.9	1.2	22	130	B	Satisfactory	8.24	7.9	1.8	23	220	B	Satisfactory
6	River Giri D/s Kalgidhar Trust, Baru Sahib	4028	8.27	7.8	1.1	32	140	B	Satisfactory	8.08	7.8	1.2	70	170	B	Satisfactory
7	River Giri U/S Chailla	4427	8.08	8.3	BDL	22	170	B	Satisfactory	7.41	8.1	BDL	4	17	A	Satisfactory
8	River Giri at Kotkhai	5292	7.82	8.4	BDL	17	94	B	Satisfactory	7.83	9.0	BDL	110	540	C	Satisfactory

WATER QUALITY STATUS OF RIVER MARKANDA DURING JANUARY TO SEPTEMBER 2023

January 2023										February 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Markanda at Paonta Sahib	1871	7.8	8.8	1.90	40	220	B	Satisfactory	7.25	8.5	2.7	70	350	B	Satisfactory
2	River Markanda U/s Kala Amb	2624	8.05	8.7	2.3	130	350	B	Satisfactory	7.92	8.4	2.6	94	350	B	Satisfactory
3	River Markanda D/s Kala Amb	2625	8.01	8.9	2.4	170	280	B	Satisfactory	7.97	8.3	2.7	94	430	B	Satisfactory
4	Markanda R. D/s of Salani Khad	3862	7.99	8.8	2.1	94	280	B	Satisfactory	7.95	8.4	2.6	70	350	B	Satisfactory
5	Markanda R. D/s of Moginand Nallah	3864	7.86	8.8	2.4	70	350	B	Satisfactory	7.85	8.3	2.8	170	540	B	Satisfactory
March 2023										April 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Markanda at Paonta Sahib	1871	8.09	8.0	2.3	170	350	B	Satisfactory	7.88	7.8	2.1	46	280	B	Satisfactory
2	River Markanda U/s Kala Amb	2624	8.12	7.9	2.5	280	430	B	Satisfactory	8.07	7.7	2.5	170	350	B	Satisfactory
3	River Markanda D/s Kala Amb	2625	7.94	7.7	2.7	350	540	B	Satisfactory	7.96	7.6	2.7	280	540	C	Satisfactory
4	Markanda R. D/s of Salani Khad	3862	8.02	7.9	2.2	130	350	B	Satisfactory	7.90	7.6	2.8	240	920	C	Satisfactory
5	Markanda R. D/s of Moginand Nallah	3864	8.13	7.8	2.6	220	540	B	Satisfactory	7.99	7.7	2.0	79	280	B	Satisfactory

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May 2023										June 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Markanda at Paonta Sahib	1871	8.13	7.5	1.9	46.0	350.0	B	Satisfactory	6.95	7.6	1.2	40	220	B	Satisfactory
2	River Markanda U/s Kala Amb	2624	8.26	7.6	2.3	110.0	280.0	B	Satisfactory	7.81	7.4	1.6	70	280	B	Satisfactory
3	River Markanda D/s Kala Amb	2625	8.20	7.5	2.4	170.0	350.0	B	Satisfactory	7.90	7.2	1.8	140	350	B	Satisfactory
4	Markanda R. D/s of Salani Khad	3862	8.02	7.6	1.9	94.0	220.0	B	Satisfactory	7.71	7.2	1.4	46	280	B	Satisfactory
5	Markanda R. D/s of Moginand Nallah	3864	8.06	7.4	2.4	170.0	540.0	B	Satisfactory	7.93	7.3	2.0	110	350	B	Satisfactory
July 2023										August 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Markanda at Paonta Sahib	1871	7.72	7.5	1.8	70	240	B	Satisfactory	8.02	7.6	1.6	33	220	B	Satisfactory
2	River Markanda U/s Kala Amb	2624	7.95	7.4	2.0	110	350	B	Satisfactory	8.16	7.4	2.7	94	280	B	Satisfactory
3	River Markanda D/s Kala Amb	2625	7.49	7.3	2.1	150	540	B	Satisfactory	8.21	7.4	2.8	140	350	B	Satisfactory
4	Markanda R. D/s of Salani Khad	3862	7.51	7.6	2.0	94	350	B	Satisfactory	8.11	7.5	1.8	46	220	B	Satisfactory
5	Markanda R. D/s of Moginand Nallah	3864	7.36	7.4	1.9	150	920	B	Satisfactory	8.25	7.5	2.7	130	350	B	Satisfactory

WATER QUALITY STATUS OF RIVER MARKANDA DURING SEPTEMBER TO DECEMBER 2023																
September 2023										October 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	T.C. MPN /100ml	F.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Markanda at Paonta Sahib	1871	8.03	7.7	1.2	150	33	B	Satisfactory	8.10	7.9	1.2	46	220	B	Satisfactory
2	River Markanda U/s Kala Amb	2624	7.96	7.6	1.8	280	94	B	Satisfactory	8.15	8.2	1.5	33	170	B	Satisfactory
3	River Markanda D/s Kala Amb	2625	7.99	7.6	1.9	350	110	B	Satisfactory	7.36	7.7	1.9	130	540	C	Satisfactory
4	Markanda R. D/s of Salani Khad	3862	8.05	7.6	1.3	210	40	B	Satisfactory	7.27	7.9	1.3	79	220	B	Satisfactory
5	Markanda R. D/s of Moginand Nallah	3864	8.08	7.5	2.0	350	110	B	Satisfactory	7.99	7.8	1.7	240	920	C	Satisfactory
November 2023										December 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	T.C. MPN /100ml	F.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Markanda at Paonta Sahib	1871	8.12	8.1	1.0	33	170	B	Satisfactory	7.87	8.0	1.0	32	140	B	Satisfactory
2	River Markanda U/s Kala Amb	2624	7.95	7.9	1.5	47	220	B	Satisfactory	7.60	7.8	1.3	40	280	B	Satisfactory
3	River Markanda D/s Kala Amb	2625	8.26	7.8	1.6	47	220	B	Satisfactory	8.31	7.8	1.6	46	350	B	Satisfactory
4	Markanda R. D/s of Salani Khad	3862	7.90	7.9	1.2	33	140	B	Satisfactory	8.06	8.1	1.2	46	220	B	Satisfactory
5	Markanda R. D/s of Moginand Nallah	3864	6.81	7.8	1.5	130	350	B	Satisfactory	7.94	8.0	1.2	220	920	C	Satisfactory

WATER QUALITY STATUS OF SHIKRI KHAD DURING JANUARY TO DECEMBER 2023

January 2023										February 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Shikari Khad before Conf. to R. Pabbar near HRTC Bus Stand Rohru	4431	7.6	7.8	BDL	22	240	A	Satisfactory	7.58	7.6	BDL	17	110	A	Satisfactory
March 2023										April 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Shikari Khad before Conf. to R. Pabbar near HRTC Bus Stand Rohru	4431	7.63	8.0	BDL	27	170	B	Satisfactory	7.88	7.6	BDL	14	140	B	Satisfactory
May 2023										June 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Shikari Khad before Conf. to R. Pabbar near HRTC Bus Stand Rohru	4431	7.87	7.4	BDL	14	70	B	Satisfactory	7.56	7.0	BDL	11	140	B	Satisfactory
July 2023										August 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Shikari Khad before Conf. to R. Pabbar near HRTC Bus Stand Rohru	4431	8.29	7.3	BDL	17	920	C	Satisfactory	7.47	7.4	BDL	220	1600	C	Satisfactory
September 2023										October 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Shikari Khad before Conf. to R. Pabbar near HRTC Bus Stand Rohru	4431	7.66	7.6	BDL	110	11	A	Satisfactory	8.33	7.8	BDL	22	110	B	Satisfactory
November 2023										December 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	Shikari Khad before Conf. to R. Pabbar near HRTC Bus Stand Rohru	4431	7.82	7.9	BDL	33	350	B	Satisfactory	7.96	8.0	BDL	6.8	34	A	Satisfactory

WATER QUALITY STATUS OF RIVER PABBAR DURING JANUARY TO DECEMBER 2023

January 2023										February 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Pabbar U/s Dhambari	2617	7.32	8.8	BDL	17	170	B	Satisfactory	7.84	8.9	BDL	17	47	A	Satisfactory
2	River Pabbar U/s Rohru	2618	7.43	8.7	BDL	21	110	B	Satisfactory	7.74	8.2	BDL	9	46	A	Satisfactory
3	River Pabbar at Snail D/s of TRT of Swara Kuddu	2619	7.6	8.5	BDL	21	220	B	Satisfactory	7.62	8.0	BDL	14	70	B	Satisfactory
4	River Pabbar U/s Hatkoti	4039	7.54	8.2	BDL	14	140	B	Satisfactory	7.67	7.3	BDL	8	32	A	Satisfactory
March 2023										April 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Pabbar U/s Dhambari	2617	7.96	8	BDL	14	47	A	Satisfactory	7.63	8.6	BDL	<1.8	9.2	A	Satisfactory
2	River Pabbar U/s Rohru	2618	7.79	8.0	BDL	17	94	B	Satisfactory	7.76	8.5	BDL	<1.8	4.5	A	Satisfactory
3	River Pabbar at Snail D/s of TRT of Swara Kuddu	2619	7.68	8.0	BDL	14	70	B	Satisfactory	7.75	8.1	BDL	6.8	26	A	Satisfactory
4	River Pabbar U/s Hatkoti	4039	7.74	7.9	BDL	11	40	A	Satisfactory	7.73	8.0	BDL	6.8	11	A	Satisfactory

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May 2023										June 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Pabbar U/s Dhambari	2617	7.96	8.4	BDL	17	220	B	Satisfactory	7.48	8.2	BDL	17	130	B	Satisfactory
2	River Pabbar U/s Rohru	2618	7.94	8.0	BDL	6.8	170	B	Satisfactory	7.43	8.1	BDL	27	170	B	Satisfactory
3	River Pabbar at Snail D/s of TRT of Swara Kuddu	2619	7.86	7.8	BDL	6.8	170	B	Satisfactory	8.38	7.8	BDL	17	40	A	Satisfactory
4	River Pabbar U/s Hafkoti	4039	7.78	7.2	BDL	6.8	47	A	Satisfactory	7.23	7.6	BDL	220	920	C	Satisfactory
July 2023										August 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Pabbar U/s Dhambari	2617	7.97	8.0	BDL	6.8	33	A	Satisfactory	7.65	8.6	BDL	17	280	B	Satisfactory
2	River Pabbar U/s Rohru	2618	8.21	7.9	BDL	11	170	B	Satisfactory	7.39	8.5	BDL	20	350	B	Satisfactory
3	River Pabbar at Snail D/s of TRT of Swara Kuddu	2619	7.03	7.9	BDL	9.2	140	B	Satisfactory	7.52	8.0	BDL	17	220	B	Satisfactory
4	River Pabbar U/s Hafkoti	4039	7.36	7.8	BDL	6.8	110	B	Satisfactory	7.54	7.6	BDL	9.2	94	B	Satisfactory

September 2023										October 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Pabbar U/s Dhambari	2617	7.75	8.1	BDL	9.2	70	B	Satisfactory	7.24	8.4	BDL	11	70	B	Satisfactory
2	River Pabbar U/s Rohru	2618	7.76	8.0	BDL	11	94	B	Satisfactory	7.21	8.3	BDL	14	220	B	Satisfactory
3	River Pabbar at Snail D/s of TRT of Swara Kuddu	2619	7.92	7.7	BDL	6.8	110	B	Satisfactory	7.80	7.9	BDL	47	350	B	Satisfactory
4	River Pabbar U/s Hatkoti	4039	7.76	7.8	BDL	6.8	49	A	Satisfactory	8.23	8.1	BDL	11	49	A	Satisfactory
November 2023										December 2023						
Sr. No.	Name of location	Sample Code	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI	pH	D.O. mg/l	BOD mg/l	F.C. MPN /100ml	T.C. MPN /100ml	DBU	WQI
1	River Pabbar U/s Dhambari	2617	7.83	8.5	BDL	6.8	17	A	Satisfactory	7.74	9.2	BDL	4	26	A	Satisfactory
2	River Pabbar U/s Rohru	2618	7.75	8.4	BDL	9.3	26	A	Satisfactory	8.25	9.1	BDL	4.5	70	B	Satisfactory
3	River Pabbar at Snail D/s of TRT of Swara Kuddu	2619	7.82	8.0	BDL	47	140	B	Satisfactory	7.69	8.9	BDL	21	350	B	Satisfactory
4	River Pabbar U/s Hatkoti	4039	7.82	8.0	BDL	32	94	B	Satisfactory	7.49	8.7	BDL	2	39	A	Satisfactory

BEFORE THE NATIONAL GREEN TRIBUNAL
333
(PRINCIPAL BENCH), NEW DELHI

ORIGINAL APPLICATION NO.735/2023

IN THE MATTER OF:

**In re: News item appearing in News Himachal dated 04.12.2023 titled "Ashwani Khad:
The Most Polluted River in Himachal Pradesh"**

VAKALTNAMA

KNOW ALL to whom these presents shall come that I/we Sat Pal Dhiman, working as Additional Secretary (EST & CC) to the Government of Himachal Pradesh in the State of Himachal Pradesh, do hereby appoint **SHRI DIVYANSHU SRIVASTAVA (D/1383/2015)**, hereinafter called the Advocate to be My/our Advocates in the above noted case and authorise them/him:

- a) To act, appear and plead in the above noted case in this court in any other court in which the same may be tried or heard and also in the appellate courts.
- b) To sign, file, verify and present pleading, applications, appeals, cross-objections or petitions for execution, review, revision, withdrawal, compromise or other petition, replies, objections affidavits or other documents as may be deemed necessary or proper for the prosecution of the said case in all its stages.
- c) To file and take back documents.
- d) To withdraw, or compromise the said case or submit to arbitration any differences or disputes that may arise touching or in any manner relating to the said case.
- e) To take out execution proceedings.
- f) To deposit, draw and receive moneys, cheques and grant receipts therefor and to do all other acts and things which may be necessary to be done for the progress and in the course of the prosecution of the said case.
- g) To appoint and instruct any other Legal Practitioner authorising him to exercise the powers and authorities hereby conferred upon the Advocate whenever he may think fit to do so and to sign the power of attorney on my/our behalf.

And I/we the undersigned do hereby agree to ratify and confirm acts done by the Advocate or his substitute in the matter my/our own acts as if done by me/us to all intents and purposes.

And I/we undertake that I/we or my/our authorised agent would appear in the court on all hearings and will inform the Advocate for appearance when the case is called.

And I/we the undersigned do hereby agree not to hold the Advocate or his substitute responsible for the result of the said case in consequence of his absence from the court when the said case is called up for hearing, or for any negligence of the said Advocate or his substitute.

And I/we the undersigned do hereby agree that in the event of the whole or any part of the fee agreed by me/us to be paid to the Advocate remaining unpaid, he shall be entitled to withdraw from the prosecution of the said case until the same is paid up. If any costs are allowed for an adjournment, the Advocate would be entitled to the same.

IN WITNESS WHERE OF I/we do hereunto set my/our hand to these presents of which have been understood by me/us this 22 day of February, 2024.

ACCEPTED:



(DIVYANSHU KUMAR SRIVASTAVA)
48, Lawyer's Chamber, Supreme Court
New Delhi -110001
Dksrivastava0511@gmail.com
9711872319



CLIENT

**Addl. Secretary
(Env., Science & Technology)
to the Government of HP
Shimla-171002**