

**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

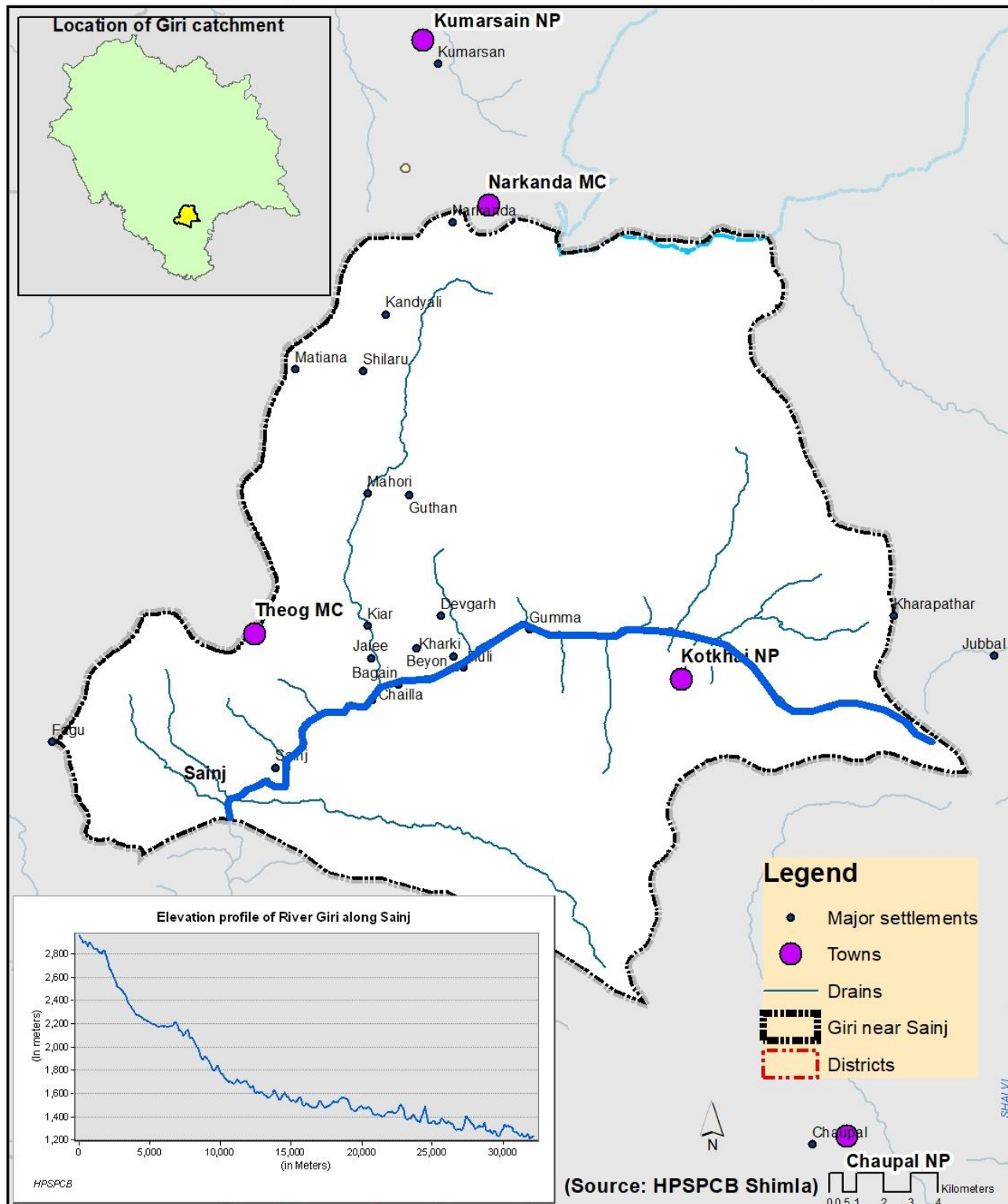


Figure 1: Digital Map showing Catchment Area of River Giri, District Shimla.

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