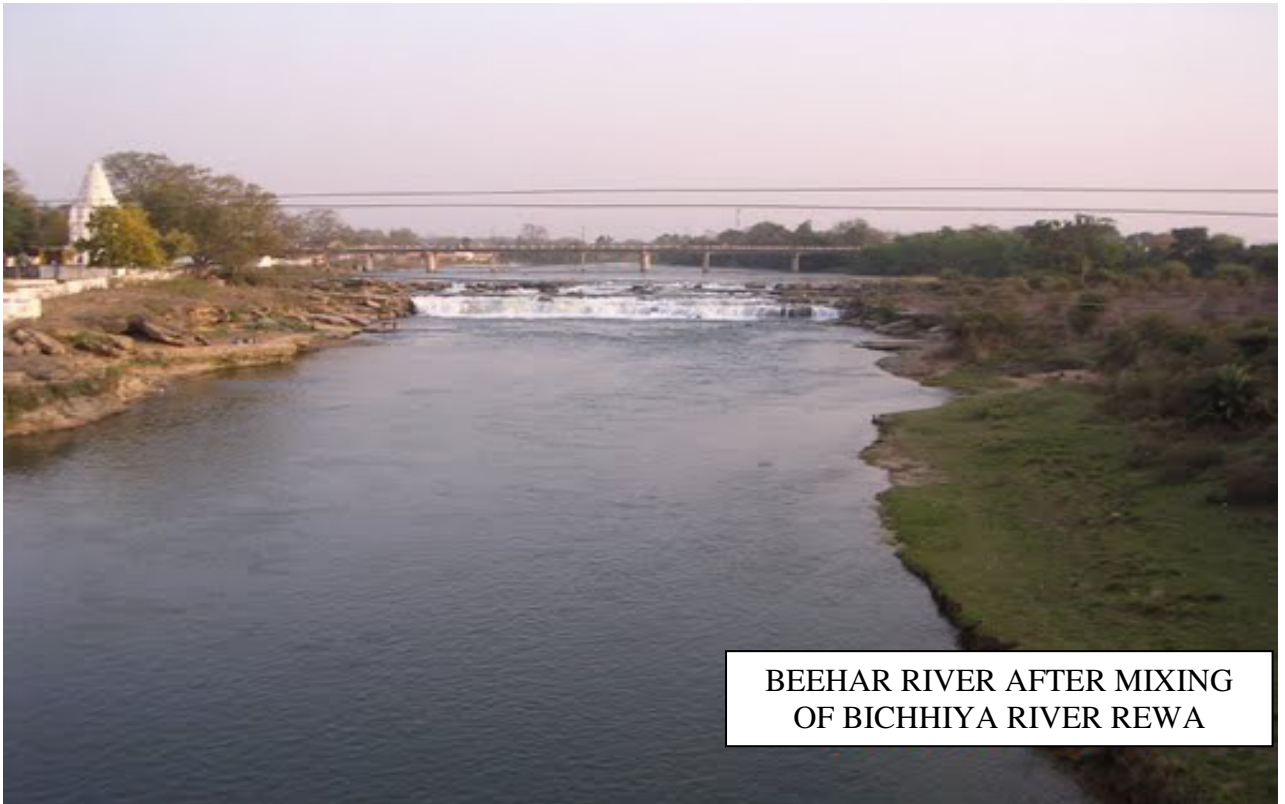


PROPOSED ACTION PLAN FOR REJUVENATION OF RIVER BICCHIYA REWA (M.P.)



Submitted by
REGIONAL OFFICE
M.P. POLLUTION CONTROL BOARD
REWA

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1.0 **BACKGROUND**

1.1 **NGT Case No. 673/2018** : Hon'ble National Green Tribunal Central Zonal Bench New Delhi, in the matter of original application no. 673/2018 (*News Item Published in the "Hindu" authored by Shri Jacob Koshy titled "More river stretches are now critically polluted: CPCB"*) passed an order on 20/09/2018. The para 48, 49 and 50.3 of this order are relevant to comply. The para 48 states that *"it is absolutely necessary that Action Plans are prepared to restore the polluted river stretches to the prescribed standards"*. Para 49 states that *"Model Action Plan for Hindon River, already provided by CPCB, may also be taken into account"*

In para 50(i, ii, iii) Hon'ble National Green Tribunal has issued 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 finalization of the action plans.*
- ii. *The action plans may be prepared by four-member Committee comprising, Director, and 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 characterization 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 plans 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.

EXECUTING SUMMARY

2.Basic Information About The Stretch :

Polluted River stretch/Length of River Bicchiya,at Rewa:

- (i) River Bicchiya originates from village KhairakankesarainMauganjtahseel of Rewa district from SitapurPahadirange(Latitude:24.3325N;Longitude:81.448E).The length of River Bicchiya is apprx.45-50Kms.from its origin to its confluence in Beehar river at Rajghat,behind the Rewa fort.(Lat:24.32522,Long: 81.19119).



Origin Of Bicchiya River at village Khairakankesar

- (ii) During survey ,it was found that the origin point of river was dry, however small amount of water seepage in a pool was observed there.
- (iii) The river stretch was found dry upto Etar gram panchayat.
- (iv) Water flow was observed from Silpari Panchayat in Rewa distt. which is apprx. 6-7 Kms. away from LakshmanBagh temple area.(U/s Of Rewa town),near Mahajan tola.
- (v) The various villages falling along the path of river Bicchiya are Khairi, Umari, Gauri, Rajgawan, Etar, Rerua, Purwa, Sotha, Bhetha, Chandehari, Hatwa, Badgaon, Baghurada, Rakariya, Amiriti, Dandi, Tola, Deehi, Teekar, Gadwa, Barigwan, Chuan, Chirhata, Neega, Bhatlo, Silpari etc.
- (vi) The distance of river Bicchiya from origin to Mahajan Tola ,near LakshmanBagh area is pollution free. The domestic sewage near Mahajan tola, began to meet in Bicchiya river (Lat.24.30425N Long.:81.1805E) near LakshmanBagh.



Mahajan Tola Allah before mixing to River Bicchiya

Similarly waste water generating from the population residing in Bicchiyamohalla, Rani Talab mohalla and other nearby area through Bicchiyanalla which is the major source of pollution was observed flowing in River Bicchiya along its length. Hence, the pollution stretch of River Bicchiya starts after meeting Bicchiyanalla (Lat. 24.31002N Long.: 81.17504E).



BicchiyaNallah before mixing to River Bicchiya, near Rewa-Govindgarh Rd. bridge

(vii) PHE pumping station near Rewa-Govindgarh Rd. bridge takes water of River Bicchiya for treatment in Rani Talab Water Treatment Plant from where it is then supplied to various area of Rewa city after treatment.



River Bicchiya near Rewa-Govindgarh Rd. bridge, Rewa

(viii) After Bicchiyanalla, another nalla of Rani talab area (latitude-24.319 & longitude-81.1744), approx. 250 mtr. from Bicchiyanalla meets into the river.



Nallah near Rani talab area Before mixing to River Bicchiya

Another nalla near Akharaghat area (approx. 350 mtrs. from Rani talab area nalla) meets into the D/s of river in North side (Lat. 24.31196N Long.: 81.17317E).



Nallah near Akharaghat before mixing into River Bicchiya, Rewa

A drain from the Kuthuliya area (Lat.24.3052N Long.:81.1747E).on other side of river Bicchiya meets into the river.



Kuthuliyallah before mixing to River Bicchiya near Rd.bridge,Rewa

Hence,it may be stated that the pollution stretch of River Bicchiya is of apprx.2.5 Kms. only in Rewa city.

(ix)River Bicchiya thereafter finally joins River Beehar at Rajghat,behind the Rewa fort and the river is known as Beehar river from this location. It is to be noted that about one kilometer in Kuthuliyavillage(U/s) before confluence of Beehar&Bicchiya at Rajghat,apprx.130 cubic meter (max.)of Sone river water is continuously being discharge from canal of Bansagar dam into Beehar river.(min.of 30 Cubic Meter,Avg. water discharge in Beehar is 80 Cubic meter) thereby giving sufficient water flow in Beehar river.



River Bicchiya at confluence with River Beehar at Rajghat, behind Rewa Fort, Rewa

(x) Three main irrigation canals from Bansagardam, viz. Purwa, Quonti & Silpara provide water for irrigation in Rewa district. Quonticanal which runs alongside of Bicchiya river also provides water to the river (approx. 10-20 cubic meter).

(xi) Five main nallahs of Rewa city meet in River Beehar (d/s) between Rajghat & Ajarha village. However, due to heavy flow of Beehar river, the impact of domestic waste water gets minimized as a result of which, the pollution load here gets aerated & diluted, which gives the water quality of A/B category in River Beehar.

3. Reason of Pollution stretch in Bicchiya River:

Due to back pressure from Beehar river, water of Bicchiya river has almost no flow in Rewa city region, hence the municipal waste water going into the river through four nallahs does not get diluted thereby causing the pollution in its 2.5 Kms. stretch.

4. Inventory of sources of pollution:

- Mainly the sewage of Rewa city flows in the polluted river stretch.
- Total Sewage generation of Rewa city =37 MLD.
- Under AmritYojna for Rewa city,proposed Sewage Treatment plants (8 STPs) are under construction which will treat domestic sewage generating from appprx.35000 houses in 45 wards of Rewa city. The project is going to start by 2020 .(Capacity of constructed 01 STP=12MLD, 7 STPs= 25 MLD in total) taking into account ,the future increased sewage generation for next twenty years).

5. Action Plan For Rejuvenating River Bicchiya:

It was found that silting has made river Bichhiya flat and it has loosen its porosity. So it is suggested that following steps are required: beside trapping the outfalls of domestic sewage from various nallahs into the river through STPs.construction.:

- (a) At first removal of silt in non polluting stretch of river Bicchiya from Khairakankesara to Silpari panchayat is necessary so that its flow can be maintained naturally.
- (b) The construction work of STPs and diversion of drains should be speedup so as to make it free from domestic sewage which is providing nutrients into the river as a result of which eutrophication is engulfing the river in Rewa town(from LakshmanBagh to Rajghat).
- (c) The whole length of river Bicchiya has to be made free from encroachment by farmers in various villages who are using its water for irrigation purpose.
- (d) Plantation and setting up of Biodiversity parks along the bank of river alongwith the help of Forest department & Municipal Corporation Rewa & other ULBs coming under the area is also necessary.
- (e) Regular monitoring is being carried out near PHE pumping station ,Rewa near Rewa-GovindgarhRd.bridge.The water quality here comes in B category in 2018-19.

- (f) As per Hon'ble NGT's direction, an interdepartmental committee comprising of Collector, District Rewa, ROMPPCB, Rewa, Joint director Town & CP, Rewa & Executive Engineer, WRD, Rewa must be set up so that action plan for making river Bicchiya pollution free and to work on its rejuvenation in time bound manner.

Diversion Of Sewer outfalls & present proposed sewerage network :

- About 20% of the pipe sewers are laid down in the city to intercept the sewage going into various nallahs with the aim that no sewage flows through natural drains into the rivers. Implementing agency is UADD & Nagar Nigam Rewa ; working agency –EGIS New Delhi & KK Spun, Faridabad.

S.No.	Action plan for rejuvenation of River Bicchiya	Responsible agency	Time target for preparation of scheme	Present status
1.	Laying of sewerage network in various colonies of Rewa city under Amrit Yojna	Nagar paliknigam, Rewa	Scheme is already under implementation	Work is in progress (Total 08 STP & Sewer network = 500 Km, cost = 212 Crore. likely to be completed in 2020.
2.	Plantation in the area	Forest department	Yet to start. To be discussed with local administration & forest department to prepare the action plan within six months.	-

Industrial effluent management:

S.No.	Action plan for rejuvenation of River Bicchiya	Responsible agency	Time target for preparation of scheme	Present status
1.	No major industry set up along the bank of Bichhiya river	M.P.P.C.B.	Six months	As such no major industry is established along the bank of Bichhiya river, survey will be done by MPPCB.
2.	No CETP has been setup in Rewa			

6. Solid Waste management in Rewa city :

Type Of waste	Estimated Quantity	Detail of collection, Transportation, Treatment & Disposal	Detail of agency, capacity & Technology used	Status of compliance
Municipal Solid waste	94 TPD	<p>1. 100% door to door collection</p> <p>2. Plastic waste sent to Cement Plant for incineration=apprx.5.0MT/D to ACC & Ultratech cement plants.</p> <p>3. Quantity of waste processed through Compost plant-90TPD</p> <p>4. No. of transfer station-02</p> <p>5. No. of green bins=338 No. of blue bins-338 Mode of transportation of waste to processing facility by vehicles.(52 Nos.; containerized-05 Nos., tricycle/hand cart-30 Nos.</p> <p>6. Manual & mechanical sweeping.</p>	<p>(a) Nagar Palik Nigam, Rewa/RMSW holding Ltd., Rewa</p> <p>(b) Compost Plant-90TPD capacity</p> <p>© Refuse Derived Fuel- 5.0MT/D</p> <p>(d) Waste to Energy plant for processing of apprx.340TPD waste is proposed in village Pahadiya, distt. Rewa (capacity of 6MW)</p> <p>(e) Mechanical sweeping- 02 Nos. of vehicles</p>	<p>Common Solid Waste management facility for Rewa, Satna & Sidhi districts for Waste to Energy plant of 6 MW is going to set up at Pahadiya village, Distt. Rewa, EC is awaited.</p>

BioMedicalWaste :

S.No.	Bio Medical Waste generated in Rewa city	Detail of CBWTF & disposal	Detail of agency, capacity & technology used	status of compliance
1.	Apprx.300 Kg/d in Rewa city	CBWTF at Satna a. All the 150 HCFs have taken membership of CBWTF in Rewa district b. 100% collection in covered vehicles c. 100% transportation to CBWTF at Satna.	M/s Indowater Waste Management & Pollution Control Corporation, Satna Incinerator of 100Kg /hr. installed	Yes complying

7. Proposed action plan- Short term & Long term action and the identified authorities for initiating actions and the time limits for ensuring compliance.

The short term and long term action plans and the implementing agencies responsible for execution of the action plans and the time limits are given in table as below :-

Proposed Short Term and Long Term Action Plan for Rejuvenation of River Bicchiya At Rewa

SI No.	Action plan for rejuvenation of river Bicchiya	Organization/Agency Responsible for Execution of the Action Plan	Time Target (For Preparation of Scheme)	Present Status
I.	Industrial Pollution Control			
	(a) Construction of Effluent Conveyance System & CETP (Common Effluent Treatment Plant) for Rewa city	Nagar Palik Nigam Rewa	one year for submission of Action plan	No CETP is set up in Rewa city as no major industry is set up along the bank of Bicchiya River
	(b) Small scale/tiny and service providing units located in urban or semi-urban limits like Dairies. Auto Service Stations to have a minimum provision of O&G traps.	MPPCB	Within 06 month	Survey will be done by MPPCB along with Local administration.
	(c) Prohibition of Burning of	State Govt./District	Regularly	Govt. of M.P. has

	any kind of waste including agro-residues	and Local authorities		already issued prohibitory orders.
2	Sewage Treatment & Disposal Plan			
	Completion of Conveyance System for City Sewage			
	(a) For Primary Sewerage: The work related to primary sewer line is complete(apprx.88 Km) (20%). Apprx.396 Km sewer line is pending due to Contractor & Nagar Palik Nigam Rewa dispute.	RMC Rewa/Nagar PalikNigam,Rewa	Scheme is already under implementation under AMRUT Yojna	To be completed in apprx.2 years.
	(c) Sewerage Network to Connect Sewer Lines falling in Bicchiya& Beehar Rivers to Primary Sewerage System: Rs 212 crores,	RMC Rewa/Nagar PalikNigam,Rewa	Scheme is already under implementation	-
5.	Implementation of Rewa Sewerage project project of Rs. 212 cr is already under process of implementation. The details of works are as under			
5.1	Interception & Diversion of Sewage with STP in river Bichiya&Beehar			
	(a) Laying of Sewer lines in the area	RMC Rewa/Nagar PalikNigam,Rewa	Scheme is already under implementation	Work in progress (Total Package of 08STPs & Sewer Network- 450Km. Cost-212 Cr.)- Likely to be completed Dec. 2021
6.8	Replacement of old Sewerage pipeline network. –No any old sewer pipeline in Rewa city			
7.	River front development of Bicchiya river in smart city area-Not Applicable			
III	Ground water quality			
	(a) Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public	Nagar Nigam/ Local bodies/ Collector/PHED	Within 06 months	-
	(b) Supply of potable water to the affected communities in the identified critical blocks	Nagar Nigam/ Local bodies/PHED and M.P. Ground Water Department	Within 06 months	
	(c) Carrying assessment of ground water survey for quality and to identify over exploited and critical blocks.	CGWB/M.P. Ground Water Department	Within 06 Months	-
	(d) To Conduct periodic	MPPCB and M.P.	Within 03	-

	surprise inspection of the industry to rule out any forceful injection of industrial effluents into groundwater resources	Ground Water Department	Months	
	(e) To ensure rain water harvesting by the industrial commercial and other institutions and groundwater recharging with only clean water be encouraged by CGWB/CGWA	CGWA/M.P. Ground Water Department/T&CP/MCI /Local bodies	Within 01 Year	-
IV	Flood Plain Zone (FPZ)			
	(a) Survey & Demarcation of FPZ of River Bichhiya/ Beehar& Identification of encroachments.	District/Local administration	Within 06 Months	
	(b) Checking encroachments in the FPZ of river Bichhiya,at Rewa	District/Local administration	Within 06 Months	
	(c) Notification of Flood plain Zone FPZ	State Government	Within 06 Months	
	(d) Plantation in Flood plain Zone (FPZ)	M.P. State Forest Department	within one year	-
	(e) Prohibition of disposal of municipal plastic and biomedical waste particularly in drains	Local administration	Regularly	Disposal of Solid Waste in FPZ of rivers & Nallas already banned. The Nagar Palik Nigam is following practices in management of MSW
	E-Flow and Irrigation Practices			
	(a) Measurement of flow of Bichhiya River and maintaining records	M.P. Irrigation Department /Nagar Nigam/ Local bodies	Regularly	-
	(b) To conserve water and good irrigation practices to be adopted by the farmers by organizing mass awareness programmes and through	M.P. State Irrigation and Agriculture Departments.& MPPCB	Regularly	General awareness programme will be conducted by MPPCB from time to time.

	media in vernacular language			

Remedial Plan for Ground water quality in catchment area of River Bicchiya:

(i) Survey of various ground water sources in the catchment area of river Bicchiya in Rewa city along the polluted stretch is going to be done followed by water quality testing within two months (upto July 2019).

(ii) Nagar Palik Nigam /PHE is supplying treated surface water for drinking to citizens of Rewa city through 03 filter plant.

Action Plan For Flood Plain Zone:

Survey and demarcation of Flood plain zone of River Bicchiya & identification of encroachments is to be discussed with district/local administration (within six months for preparation of scheme) for getting the area of Flood Plain zone notified.

Action Plan For Environmental Flow (E-Flow & Irrigation Practices) & Setting up of Biodiversity Park:

S.No.	Action plan for rejuvenation of River Bicchiya	Responsible agency	Time target for preparation of scheme	Present status
1.	Removal of obstruction in upstream catchment of Bicchiya river & cleaning of source channels	Nagar Palik Nigam, Rewa/Local Administration	within Six months	-
2.	Removal of encroachment if any	Local administration & Nagar Palik Nigam, Rewa	within Six months	-
3.	Plantation in the area	Forest department	To submit action plan within Six months	-
4.	Repair of existing stop dams, if any along the river Bicchiya.	WRD & Nagar Palik Nigam, Rewa	To submit action plan within Six months	-
5.	To conserve water and good irrigation practices to be adopted by the farmers by organizing mass awareness programs and through media.	M.P. State Irrigation and Agriculture departments.	To submit action plan within Six months	-
6.	To set up Biodiversity park near Bicchiya river, Rewa	Forest and Agriculture departments.	To submit action plan within Six months	-

7. Water Quality Of River Stretch / Main Drains Contributing Pollution (May 2019)

S.No.	River/Nallah	Flow MLD	in pH	BOD (Mg/L)	COD (mg/L)	TDS (Mg/L)
1.	River Bicchiya near PHE Pumping station,Rewa	-	7.68	3.0	10.2	310.0
2.	Nallah near LakshmanBagh& Mahajan Tolaarea,Rewa	1.5	7.5	22.0	64.96	719.0
3.	Bicchiyanalla,near Rd.bridge ,Rewa	2.5	7.73	40.0	111.36	909.0
4.	Nalla near Kuthuliya,Rewa	1.5	7.35	18.0	58.92	705.0
5.	Nalla near Akharaghat, Rewa	2.0	7.42	25.0	74.24	786.0
6.	Drain of Rani talabarea,Rewa	2.0	7.30	25.0	80.80	677.0

