

**Action Plan for Rejuvenation of**

**RIVER BHELA**

**Kashipur, Distt. Udham Singh Nagar, Uttarakhand**

**(River Stretch: Kashipur to Rajpura Tanda)**

**Priority - I**

**Approved by**

**Uttarakhand River Rejuvenation Committee**

**(Constituted in compliance of order of the  
Hon'ble National Green Tribunal)**

**Submitted to**

**Central Pollution Control Board, Delhi**

**July, 2019**

**Action Plan: 1**

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## Executive Summary

River Bhela is small spring-fed river originating from the agricultural fields and also receives spill over water from Tumaria dam, agriculture wash off and industrial wastewater from industries situated in Ramanagar Road and Bazpur road, Kashipur. It is a tributary of river Kosi. After passing through Kashipur Town river Bhela joins river Kosi near Khabriya Bhur Mustakham village, district Rampur, Uttar Pradesh. Kashipur town is a major human settlement in the catchment of Bhela River. Five villages namely – Pratappur, Barkhedi, Kuwakheda, Dohari Vakil and Kananpur are also located in the catchment of Bhela river within the boundary of Uttarakhand.

River Bhela receives industrial wastewater from industries situated in its catchment mainly from the Ramnagar Road and Bazpur road areas of Kashipur. 8 GPIs are operating in the catchment of river Bhela. There are three industrial drains namely – Nakti Nala, Pathri Nala and IGL nala which carries industrial wastewater and two municipal drains namely - Jaspur Khurd Nala and Hempur Ismail Nala which carries sewage / municipal drainage in to river Bhela and adversely affecting river water quality.

Based on water quality data for the years 2016 and 2017, River Bhela from Kashipur to Rajpura Tanda, approximately 14 Km. length has been identified as polluted river stretch by the Central Pollution Control Board (CPCB) because of high concentration of BOD (>30mg/L).

In compliance of Hon'ble National Green Tribunal order dated 20.09.2018, 19.12.2018 and 08.04.2019, action plan has been prepared for restoration of polluted river stretch from Kashipur to Rapura Tanda of River Bhela.

In order to improve river water quality, proposed activities are interception, diversion and treatment of municipal drains, establishment of Solid waste processing and disposal facility for Kashipur town, surveillance of water polluting industries, monitoring of drains carrying industrial wastewater, prohibition on illegal disposal of waste in river beds, groundwater quality monitoring and recharge of groundwater, plantation in catchment etc. About Rs. 5175.61 Lakhs would be required for interception, diversion and treatment of municipal drains and establishment of solid waste processing and disposal facility for Kashipur town and river training works to prevent soil erosion.

## **1. INTRODUCTION**

River Bhela is small spring-fed River originating from the agricultural fields and also receives spill over water from Tumaria dam, agriculture wash off and industrial wastewater form industries situated in Ramanagar Road and Bazpur road, Kashipur. River Bhela joins river Kosi at Tanda (Bazpur-Rampur road). River Bhela is a tributary of River Kosi. After travelling through Kashipur Town River Bhela finally joins with the river Kosi near Khabriya Bhur Mustakham village, district Rampur, Uttar Pradesh.

### **Major town/villages in the catchment of river Bhela:**

Kashipur town is having population of about 121623 (as per census, 2011), is a major human settlement in the catchment of Bhela river. Kashipur town is located in the south-west of the Kumaon region of Uttarakhand in the Terai – an area of relatively low-lying land, ranging between 500 and 1,000 feet above sea level and crossed by Kumaun's main north-south watershed between the basins of the Rivers Ramganga and Kosi. To the north of the city lies the Bhabar tract of Ramnagar, which separates the area from Shivalik Hills. Kashipur is drained only by two minor rivers by river Bhela, a tributary of river Kosi and river, a tributary of River Ramganga. Five villages namely – Pratappur, Barkhedi, Kuwakheda, Dohari Vakil and Kananpur are also located in the catchment of Bhela river within the boundary of Uttarakhand.

### **Major Industrial pockets in the catchment of river Bhela:**

River Bhela receives industrial wastewater from industries situated in its catchment mainly from the Ramnagar Road and Bazpur road areas of Kashipur. Uttarakhand Environment Protection and Pollution Control Board (UEPPCB) is having vigil on operation of effluent treatment plants particularly in grossly polluting industries (GPIs) and other red categories of water polluting industries. There are 08 GPIs operating in the catchment of river Bhela.

### **Major drains contributing sewage in the river Bhela:**

There are two major drains namely – Jaspur Khurd Nala and Hempur Ismail Nala, carrying sewage / municipal drainage from Kashipur town, which finally merging into Bhela river.

### **Major drains contributing industrial effluent in the river Bhela:**

There are three major drains which are contributing industrial wastewater into river Bhela. These are:

1. **Nakti Nala:** This nala is mainly carrying wastewater from three pulp and paper industries located along the Ramanagar road, Kashipur.
2. **Pathri Nala:** This nala is carrying wastewater from one pulp and paper mill located at Kundeshwari road.
3. **IGL drain:** This drain is contributing about wastewater into river Bhela from one chemical industry.

Based on water quality data for the years 2016 and 2017, River Bhela from Kashipur to Rajpura Tanda (approximately 14 Km.) has been identified as polluted river stretch by the Central Pollution Control Board (CPCB) because of high concentration of BOD (>30mg/L).

In pursuance to Hon'ble National Green Tribunal order dated 20.09.2018, 19.12.2018 and 08.04.2019, action plan has been prepared for restoration of polluted river stretch from Kashipur to Rapura Tanda of River Bhela.



A map showing Kashipur town, Grossly Polluting Industries (GPIs) and drains contributing to pollution in the catchment of river Bhela are given in Figure 2.



**Fig.** Kashipur town, GPIs and the main drains contributing industrial wastewater in to river Bhela.

## 2. WATER QUALITY GOALS:

It is an important aspect for restoration of river Bhela in context of meeting water quality for designated uses. It is pertinent to mention that because of low natural flowing water during most of the time, even if the industries located in the catchment meet the prescribed discharge norms as stipulated under the Environment (Protection) Rules, 1986, it would not be possible to achieve river water quality of Class 'B'. Effort would be made to improve in river water quality Class by prevention and control measures. However, goals can be met for Class 'E' i.e., for irrigation, industrial cooling and controlled waste disposal.

## 3. WATER QUALITY CHARACTERISTICS OF RIVER BHELA AND DRAINS CARRYING INDUSTRIAL WASTEWATER:

River quality monitoring is being carried out by the Uttarakhand Environment Protection and Pollution Control Board at upstream of Kashipur town at Hempur (Gausala) and downstream at Lohia bridge, Kashipur. Data collected in the year 2018 and 2019 (up to May, 2019) are as given blow:

### A. Water quality characteristics of river Bhela at upstream of Kashipur, US Nagar in the year 2018 & 2019 (up to May, 2019):

Month	pH	B.O.D. (mg/L)	C.O.D. (mg/L)	D.O. (mg/L)
Jan-18	7.2	6	20	6.2
Feb-18	7.2	4	14	5.8
Mar-18	7.2	4.2	16	6.2
Apr-18	7.3	6	20	7
May-18	River Dry			
Jun-18	River Dry			
Jul-18	7.2	3.4	10	6
Aug-18	7.2	4	16	7.2
Sep-18	7.1	6	18	7.2
Oct-18	7.3	4	8.2	6.6
Nov-18	7.3	6.2	16	5.8
Dec-18	7.1	3.2	8	6.8
<b>Average (Range)</b>	<b>7.21 (7.1-7.3)</b>	<b>4.7 (3.4-6.2)</b>	<b>14.62 (8-20)</b>	<b>6.48 (5.8-7.2)</b>

Month	pH	B.O.D. (mg/L)	C.O.D. (mg/L)	D.O. (mg/L)
Jan-19	7.10	2.0	6.20	7.20
Feb-19	7.4	1.5	5.8	6.2
Mar-19	7.8	1.8	30	3.2
Apr-19	7.3	2.0	6.2	4.8
May-19	River Dry			
Jun-19	7.5	3.0	28.0	4.0

**B. Water quality characteristics of river Bhela at downstream of Kashipur in the year 2018 & 2019 (up to May, 2019).**

Month	pH	B.O.D. (mg/L)	C.O.D. (mg/L)	D.O. (mg/L)
Jan-18	7.4	18	48	1.2
Feb-18	7.4	44	108	2.2
Mar-18	7.5	38	128	1.2
Apr-18	7.68	40	156	1.2
May-18	7.9	52	168	0.8
Jun-18	7.8	48	150	1.2
Jul-18	6.8	32	88	0.8
Aug-18	6.9	34	98	1.8
Sep-18	6.8	40	140	1.6
Oct-18	7.5	48	110	0
Nov-18	7.6	26	88	2.6
Dec-18	6.8	44	110	0.4
<b>Average (Range)</b>	<b>7.32 (6.8-7.9)</b>	<b>39.5 (18-52)</b>	<b>117.66 (48-168)</b>	<b>1.1 (0-2.6)</b>

Month	pH	B.O.D. (mg/L)	C.O.D. (mg/L)	D.O. (mg/L)
Jan-19	6.80	48	120	0.80
Feb-19	7.3	42	102	0.4
Mar-19	6.3	56	160	0.2
Apr-19	7.5	42	110	0.0
May-19	6.8	44	120	0.2
Jun-19	7.3	20	60	0.2

### C. Water quality of major drains contributing industrial wastewater to river Bhela.

Wastewater analysis of drains carrying industrial wastewater were carried out in the month of July, 2019. Wastewater characteristics of drains are as given below:

S.N.	Name of the Drain	Flow in KLD	Characteristics (Values are in mg/l except pH and Fecal Coliform)									
			pH	BOD mg/l	COD mg/l	Zn mg/l	Cr mg/l (Total)	Cd mg/l	Ni mg/l	Fe mg/l	As mg/l	FC (MPN/100 ml)
1.	Nakti Nala	819	6.79	55	200	0.24	BDL	BDL	BDL	4.71	BDL	920
2.	Pathri Nala	320	6.87	43	168	0.16	BDL	BDL	BDL	1.98	BDL	280
3.	IGL Drain	866	7.23	12	48	BDL	BDL	BDL	BDL	0.96	BDL	350

### D. Ground water quality in the catchment of river Bhela:

So far contamination of groundwater is not reported in the area, however groundwater quality monitoring shall be carried out at least twice in the year (winter: December-January and summer: May-June) at strategic locations to ascertain quality of groundwater.

#### 4. IDENTIFICATION OF SOURCES OF POLLUTION:

Major sources of pollution in River Bhela are:

- i. Sewage / municipal drainage from the Kashipur town.
- ii. Industrial effluent from the industrial located nearby Kashipur Area.
- iii. Improper disposal of solid waste.
- iv. Agricultural runoff.

Following components have identified for preparation of action plan for rejuvenation of river in compliance to the Hon'ble NGT Orders as detailed below:

**(a) Industrial Pollution control:**

- i. Identification of pollution potential industries.
- ii. Sector specific categorization of industries.
- iii. Assessment of Water consumption and wastewater discharge and gap in treatment of industrial effluent.
- iv. Provision of wastewater treatment system.
- v. Regulatory regime including "Charter for Prevention and Control of Pollution on Pulp and Paper Industries- 2015".

**(b) Sewage Management:**

- i. Estimation of quantity of sewage generated and requirement of treatment capacity.
- ii. Gap analysis in terms of sewage generation, existing installed treatment capacity and required treatment capacity.
- iii. Identification of municipal drains & their discharge in the catchment of river Bhela.
- iv. Interception and diversion of municipal drains to STP.
- v. Treatment and disposal of septage and controlling open defecation.

**(c) Solid Waste Management:**

- i. Implementation of Door-to-Door collection.
- ii. Source segregation as biodegradable and non-biodegradable wastes.
- iii. Identification of suitable site for setting up common waste processing and secure landfill facility.
- iv. Transportation, disposal and treatment facilities of municipal solid wastes generated from town in accordance of provisions of the Solid Waste Management Rules, 2016.
- v. Restriction illegal disposal of solid waste along the river bank and flood plain zones.
- vi. Prohibition on burning of solid wastes.

- vii. Implementation of Construction and Demolition Wastes Management Rules.

## 5. GAP ANALYSIS:

### 5.1 Sewage Management:

Kashipur is a major town located in catchment of River Bhela. Detail of sewage generation of Kashipur town is detailed below:-

1.	Major Town in the catchment area of River Bhela	Kashipur
2.	Population (as per census, 2011)	121623
3.	Expected Population (2031) (with 2% floating population)	172580
4.	Water Consumption in litres per capita per day with 20 % margin for GW consumption i.e., 162 Lit/head /day	27958 KLD
5.	Total Sewage generation in KLD (in 2031)	22435 KLD
6.	Existing STP nos/Septic tanks	STPs: Nil
		Captive Septic Tanks : All houses
7.	Total sewage treatment capacity through STPs/Septic Tanks	STPs : Nil
		Captive Septic Tanks: 15740
8.	Gap in Sewage Treatment	100%
9.	Remarks: 18 MLD capacity STP is under construction. However, it is situated in Dhela river catchment.	

Sewage generation of Kashipur town is about 28 MLD. Septic tanks have been made by individual households for disposal of sewage and supernatant is directly or indirectly disposed of in nearby drains which ultimately join two major drains, namely – Jaspur Khurd Nala and Hempur Ismail Nala and finally merging into Bahela river. Details of these two drains are:

**Dry weather discharge and BOD concentration of drains:**

Name of drain	Present average discharge (MLD)	Design year (2031) discharge (MLD)
Jaspur Khurd Nala	0.723	0.850
Hempur Ismail Nala	0.403	0.50

**5.2 Industrial Effluent Management:**

There are 08 Grossly Polluting Industries (GPIs) which are located at Kashipur and contributing to water pollution in river Bhela. Out of 8-GPIs, 2-GPIs are maintaining ZLD while rest of 6-industries are discharging about 4620 KLD wastewater directly or indirectly into river Bhela, through the drains.

Apart from GPIs there are 40 other water polluting industries are located in the catchment and generating about 3430 KLD wastewater. Individual industries have provided their own wastewater treatment system (ETP /STP) of appropriate capacity. Details of Grossly Polluting Industries (GPIs) and other water polluting industries in the catchment of river Bhela are given in the Table as below:

SN	Industry Name	Water Consumption (KLD)	Waste Water Generation (KLD)	Status of Treatment Plant	Capacity of ETP (KLD)	Gap (4)-(6)=	Final mode of disposal of effluent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Vishwakarama Paper & Board Ltd., Ramnagar Road, Kashipur.	1400	1050	Operational captive ETP	1200 KLD	nil	Nakti Nala
2	Vishwakarama Paper & Board Ltd. Unit-II, Ramnagar Road, Kashipur.	1400	1000	Operational captive ETP	1000 KLD	nil	Nakti Nala
3	Banwari Paper Mills Ltd. Ramnagar Road, Kashipur.	1375	915	Operational captive ETP	1350	nil	Nakti Nala
4	PMV Maltings Pvt. Ltd, Nand Nagar	900	315	Operational	500	nil	Drain leading

	Industrial Estate, Mahuakheragan, Kashipur.			captive ETP			to Bhela river
5	Kashi Vishwanath Textile Mill Pvt. Ltd., Ramnagar Road, Kashipur.	600	500	captive ZLD with RO and MEE	500 KLD-ETP	nil	ZLD through RO and MEE.
6	Multiwal Duplex Pvt Ltd., Vill-Gangapur Gosain, Kundeshwari Road, Kashipur	1015	800	Operational captive ETP	800	nil	Pathri Nala
7	India Glycol Ltd., (MEG Plant) Bazpur Road, Kashipur.	25248	540	Operational captive ETP	540	nil	Drain leading to Bhela river
8	India Glycol Ltd., (Ethanol Plant), Bazpur Road, Kashipur.	5596	1920	captive ZLD with RO and MEE	ZLD through MEE	nil	ZLD through MEE
	Others 40 water polluting industries <b>(Details included as annexure-1.)</b>	-	3430 KLD	Operational captive ETP	Individual captive ETP	nil	--

GPIs are being monitored in every quarter apart from other surprise inspection. Online effluent monitoring systems have also been provided at effluent outlet and real time data are being transmitted to Central Pollution Control Board and UEPPCB. Provisions of “Charter-2015” are being strictly being implemented in Pulp and Paper industries. Agro-based Pulp and Paper mills are allowed to operate only with Chemical Recovery Plant (CRP) with Zero Black Liquid Discharge. Environmental Surveillance Squad (ESS) also formed at head office level in order to make surprise inspection. Strengthening of ESS will be carried out for effective surveillance.

During the year 2018-19, the UEPPCB has taken action against 18 industrial units under section 33(A) of the Water (Prevention and Control of Pollution) Act, 1974 which were observed to be violating the conditions of consent and/or effluent discharge norms.

### 5.3 Industrial hazardous waste management:

About 1606 MTA hazardous waste is generated from the catchment. In Uttarakhand, there is one Hazardous Waste Treatment Storage and Disposal Facility i.e., M/S Bharat Oil and Waste Management Pvt. Ltd. located at Lakhsar, Distt. Haridwar with an installed capacity of 667 MT/month landfillable waste and 1000 MT/month incineration capacity. Out of total HW generated, 1233 MTA spent silver catalyst of India Glycol Ltd is being disposed through registered recyclers. Other recyclable hazardous wastes, mainly used oil and contaminated barrels are being recycled through registered recyclers. Landfillable waste is being disposed through HWTSDF in Uttarakhand i.e., M/S Bharat Oil and Waste Management Pvt. Ltd. located at Lakhsar, Distt. Haridwar.

### 5.4 Solid Waste Management:

Kashipur is the only major towns in the catchment area of river Bhela. Nagar Nigam, Kashipur is statutory body for implementation of Solid Waste Management Rules, 2016. Nagar Nigam has identified site for solid waste processing and disposal facility. Partial door to door collection of waste is being done.

<b>Nagar Nigam, Kashipur:</b>	
Total Population	12162 (as per 2011 census)
No. of municipal wards	40
Total waste generation	36.48 MTPD
Door to Door collection	20 wards
Bye Laws for user charges	Approved and being implemented.
Realization of user charges	~ Rs. 1.25 Lakhs per month.
Identification of land for waste processing and disposal facility	Land identified for waste processing and disposal facility. DPR of <b>Rs. 32.31 Crore</b> has been prepared. Proposal has been submitted to Uttarakhand Urban Sector Development Agency (UUSDA) for approval and sanction.

In case of villages located in the Bhela river catchment, following activities are being carried out under Swach Bharat Mission- Rural:

<b>Solid-Liquid Waste Management related works carrying out in Gram Panchayats under Swachh Bharat Mission (Gramin):</b>	
<b>A. Liquid Waste Management</b>	Construction of PVC/CC Drains & Individual / Community Soak pits.
<b>B. Solid Waste Management</b>	Establishment of Segregation Centre, individual dustbins, Community Garbage Pits, Individual Biogas plant and Vermi compost/NEDEP Compost Pit.
<b>C. Social/ HRD activities</b>	Swachhata Abhiyan, banned open Defecations, Plastic Banning Awareness, Personal/Domestic/environmental sanitation Awareness. Trainings for GP represented/ Swachhata Grahi, Rallies, awareness campaign etc.

**Plastic Waste:** Partial segregation of waste is being done in 20 wards only by Nagar Nigam, Kashipur. A segregated plastic waste is disposed through recycling units.

A total of 30 plastic waste recycling units are registered with Uttarakhand Environment Protection and Pollution Control Board. Installed capacity of these plastic recycling units is 135259.44 MTA. As per annual return of 18 Recycling units, 99289.74 MTA plastic wastes have been recycled in the year 2018-19.

### **5.5 Bio-medical Waste:**

About 95 Health Care Facilities (HCFs) are operating in Kashipur town. It is estimated that about 237.5 Kg/day biomedical waste is generated from these healthcare facilities. Common Bio-medical Waste Treatment Facility (CBMWTF) is located at Lambakheda, Gadarpur. Most of HCFs are contributing their waste to CBMWTF for treatment and disposal.

### **5.6 Groundwater Quality Monitoring:**

Groundwater quality monitoring at two locations is being carried out at Bhela river catchment area on half yearly basis, for basic and core parameters. Assessment of heavy metals and pesticides will be carried out along with basic and core parameters.

## 6. RIVER BHELA REJUVENATION PLAN:

Identified activities with time limits and budgetary requirements are given as below:

### 6.1 Proposed Interception and Diversion of municipal drains and construction of Sewage Treatment Plant:

Existing	Proposed	No. of I & D activity	Cost (Rs. in Lakhs)	
<b>Interception and Diversion of drains:</b>				
Nil	Jaspur Khurd Nala	1 No.	698.46	
	Hempur Ismail Nala	2 No.		
<b>Construction of STPs</b>				
Nil	Jaspur Khurd Nala	1 No.		
	Jaspur Khurd Nala	1 No.		
<b>Operation and Maintenance of 2-STPs for 15 years.</b>				
For Jaspur Khurd Nala			1095.91	
Hempur Ismail Nala				
Land Acquisition for STPs			77.00	
Project Preparation & Supervision @ 8% as per norms			52.00	
<b>Total Cost</b>			<b>1923.39</b>	

Total estimated cost of above proposed activities is: **Rs. 1923.39 Lakhs say Rs. 19.23.00 Lakhs.**

**Time line:** Proposal has been submitted to NMCG by the State Government for allocation of funds. Proposed activities will be completed within two years from sanction and release of funds.

### 6.2 Establishment of Solid Waste Processing and Disposal Facility for Kashipur town:

Nagar Nigam, Kashipur is statutory body responsible for management of solid wastes as per provisions of Solid Waste Management Rules, 2016 as amended. The population of Kashipur town is 121623 as per census of 2011. Nagar Nigam is divided into 40 wards. Partial door to door collection is

being undertaken, but because of lack of proper waste disposal site, mix / un-segregated wastes is being dumped at Kachnal Gazhi, Manpur Road. Nagar Nigam has approved Bye Laws for user charges and implemented. Land for waste processing and disposal facility has been identified

Detailed Project Report (DPR) is prepared and it is estimated that about Rs. 32.31Crore would be required for development of waste processing and disposal facility. Project Proposal has been submitted to Uttarakhand Urban Sector Development Agency for approval and sanction.

Total estimated cost for setting up solid waste processing and disposal facility is Approx. **Rs. 3231.00 Lakhs.**

**Time Line:** Proposal for solid waste processing and disposal facility have been submitted to the Uttarakhand Urban Sector Development Agency (UUSDA) for allocation of funds. Two year time would be required after sanction of project.

Construction and Demolition waste shall be disposed in river bed or road side. Necessary directions have already been issued to concerned local body for identification of site.

### **6.3 Flood Plan Zone (FPZ):**

River Bhela is non-perennial water body and flash floods are occurring only during monsoon , therefore flood plain zoning is not required for river Bhela. All encroachments if any will be removed. Illegal dumping of waste etc. will be removed from flood plain areas.

### **6.4 Environmental Flow (E-Flow) and Groundwater recharge measures:**

River Bhela carrying no natural water during non-monsoon months. Wastewater from industries increases the flow of river. Therefore, it would be difficult to maintain natural flow in the river.

However, provision for additional water storage in the form of artificial ponds and lakes wherever feasible will be taken care and same will be

allowed to discharge in the Bhela with a spill way gate provision to maintain E-flows as far as possible in river Bhela. Also, artificial lakes and ponds also help in ground water recharge.

All the government offices will be directed to create a provision of roof top rain water harvesting provision in their buildings for ensuring ground water recharge in the catchment of river Bhela.

### **6.5 Greenery Development:**

Adjacent to the banks of river Bhela, green coverage /parks wherever feasible will be developed by the Forest Department, Uttarakhand. Divisional Forest Officer, Tarai West Forest Division proposed following activities for river Bhela:

<b>Activities</b>	<b>Estimated Cost</b>
River training works to prevent soil erosion at River Dhela.	Rs. 21,21,700.00
<b>Total</b>	<b>Rs. 21,21,700.00</b>

Total estimated cost for above activities is Rs. 2121700 say **Rs. 21.22 Lakhs.**

### **6.6 Utilisation of treated sewage:**

Treated sewage will be utilised for irrigation or agricultural or industrial cooling or construction activities purposes once the STPs become operational in the catchment of river Bhela Treated water channel may also linked with irrigation network in order to reduce ground water consumption for irrigation uses.

### **6.7 Monitoring of Action Plan:**

The proposed Action Plans will be monitored by the River Rejuvenation Committee (RRC) constituted by Government of Uttarakhand vide Office order dated 05.12.2018, under the overall supervision and co-ordination of Principal Secretary, Forest & Environment, Govt. of Uttarakhand. CPCB

experts also be invited for the RRC review meetings for taking feedback and suggestions.

#### 7. ACTION PLAN:

Action plans with time lines and the budget estimates are given in the following Table:

S NO	Action plan for rejuvenation of river Bhela	Organisation/ Agency Responsible for Execution of the Action Plan	Time Target	Budgetary Requirement (Rs. In Lakhs)	Remarks
<b>1. Industrial Effluent Management:</b>					
a)	Routine /surprise inspection GPIs and Red category of industries for ensuring compliance of effluent discharge standards as prescribed under E (P) Rules, 1986, as amended.	Special Environmental Surveillance Task Force / UEPPCB	Continuous activity	Nil	Continuous activity.
b)	Strengthening of Environment Surveillance Squad (ESS) of UEPPCB	UEPPCB	Two months i.e., By September 2019	Nil	Continuous activity.
c)	Monitoring of drains carrying industrial wastewater.	UEPPCB	Complied (July, 2019 onwards)	Nil	Continuous activity.
<b>2. Sewage Management:</b>					
a)	Interception and diversion of 2- drains namely - Jaspur Khurd Nala and Hempur Ismail Nala	Uttarakhand Peyjal Jal Nigam	Two year from sanction of funds.	<b>1923.39</b>	Proposed activities will be completed in two years from sanction and release of funds. Project proposal has
b)	Installation of 2-Nos. of STPs at - Jaspur Khurd Nala and Hempur Ismail Nala	Uttarakhand Peyjal Jal Nigam			

c)	Operation and Maintenance of 2 Nos. of STPs for 15 years; Operation and Maintenance of 3 Nos. I&D Works for 15 years; Land acquisition etc. expenses	Uttarakhand Peyjal Jal Nigam			been submitted to NMCG for funding.
d)	Utilisation of treated sewage for horti-agri activities, construction activity, irrigation by irrigation drainage channels of treated sewage, industrial activity	Uttarakhand Peyjal Jal Nigam/ Irrigation Depatt./Nagar Nigam, Kashipur	One year	--	--
<b>3. Solid Waste Management:</b>					
a)	Provision of Door to door collection of solid waste in all 40 wards of town.	Nagar Nigam, Kashipur.	October, 2019	<b>3231.00</b>	DPR has been submitted to Uttarakhand Urban Sector Development Agency for sanction of project.
b)	Source segregation of wastes in all 40 wards of town.	Nagar Nigam, Kashipur.	April, 2020		
c)	Setting up integrated solid waste, C & D processing and disposal facilities.	Nagar Nigam, Kashipur	Two years from sanction of funds.		
<b>4. Groundwater Quality</b>					
a)	Groundwater quality monitoring at salient points in the catchment of river Bhela during summer (May-June) and winter (December-January).	UEPPCB	Continuous activity	-	Ground water monitoring will be done in Summer and winter month.
<b>5. Flood Plain Zone:</b>					
(a)	Prohibition on illegal disposal of waste and removal of	District Administration/ Nagar Nigam,	Continuous activity	-	Direction in this regard has already

	encroachment from river banks.	Kashipur			been issued by Urban Development Directorate. It will be monitored regularly.
<b>6. Environmental Flow (E-Flow) and Groundwater recharge measures:</b>					
(a)	Provisions of roof top rain water harvesting in Govt. building and construction of artificial lakes /ponds, wherever feasible.	District Administration/ Irrigation Deptt.	Continuous activity	-	Directions have already been issued by the Government.
<b>7. Green Development:</b>					
(a)	River Training works to prevent soil erosion of river Bhela.	Tarai West Forest Division, Ramnagar	One years from sanction of project.	<b>21.22</b>	-

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**Annexure-1****List of water pollution industries located in the river Bhela catchment.**

SN	Industry Name	Address	Water Consumption (KLD)	Wastewater Generation (KLD)	Wastewater Treatment System
1.	Bharat Metal Enterprises	khasra no-1203- Nanad Nagar Industrial Estate, Phase-II, Kashipur	6.2	3	ETP
2.	F & S Enterprises	IDEB INDUSTRIAL ESTATE, Mahukheraganj	6.2	3	ETP
3.	Gama Infraprop Private Limited	MAHUAKHERA GANJ-KASHIPUR	600	100	ETP
4.	Himalayan Food Park Pvt Ltd	Kh no-282 to 319- Mahuakheraganj, Kashipur,	125	100	ETP-cum-STP
5.	India Glycol Ltd, (Lignocellulosic Biomass Pilot Project)	A-1 industrial area, Bajpur road, Kashipur	31	19	ETP
6.	Lohia Auto Industries	N.N.I.E. Mahuakhera Ganj Kashipur.	49	28	ETP
7.	Mentha & Allied Product Ltd	Plot No.- 1 to 6- Shree Balajee Industrial area, Mahuakheraganj	7	3	ETP
8.	Sravanthi Energy Pvt. Ltd.	Khaikhera, Kshipur	1500	462	ETP & STP
9.	Aarna Healthcare	NAND NAGRI, INDUSTRIAL ESTATE MAHUAJHERA GANJ KASHIPUR.	95	35	ETP
10.	Agrich Foods	Nand Nagar Industrial Estate, Mahuakhera Gunj, Kashipur.	53	27	ETP
11.	Apex International	NAND NAGAR INDUSTRIAL ESTATE MAHUWAKHERA GANJ	29	23.5	ETP

12.	Ashish Agri Food Pvt Ltd	PLOT NO 11-IDEB Industrial estate, Kashipur	113	55	ETP
13.	B.P Frozen Foods	Dhabora mustkham, Dhabora Mustkham, Kashipur	75	43	ETP
14.	Bajpai Refrigeration & Bakers Co	IDEB Industrial Estate PHASE-I, - Kashipur	77	31.5	ETP
15.	Bakers Circle (India) Pvt. Ltd.	Nand Nagar Industrial Estate, Mahuwakhera Ganj, Kashipur	46	16	ETP
16.	Canadian Speciality Vinyls	Plot No.- 437-Shree Developers, Industrial Estate, Mahukheraganj	19	10	ETP
17.	Cheema Frozen Foods	JAITPUR, KUNDES HWARI ROAD, SHIVLALPUR DALLU, Kashipur	60	39	ETP
18.	Devarpan Foods Pvt.Ltd	Vill- Kunddeswara, KKP- Kashipur	53.5	48	ETP
19.	Dr. Oetker India Pvt.	Pratapur, Pratappur, Kashipur	55	45	ETP
20.	Flexituff International Ltd.	NEAR IDGAH, PIPALGAON ROAD, KKP- KASHIPUR	180	80	ETP
21.	Gupta Power Infrastructure Pvt Ltd	NAND NAGAR, KASHIPUR	30	4	STP
22.	Hotel Ananya Regency	RAMNAGAR ROAD, NEEJHRA, Kashipur	18	15	STP
23.	India Glycols Ltd-Bottling Plant	A-1 -Industrial Area, Bazpur Road, Kashipur, KKP- Kashipur	150	150	ETP
24.	jai Mata Di Industries	NAND NAGAR INDUSTRIAL ESTATE, MAHUWAKHERA GANJ, KASHIPUR	28	7	ETP
25.	Jindal Research Labs Ltd	PLOT NO 1-NNIE PHASE I, KKP- KASHIPUR	48	4	STP
26.	Jindal Frozen Foods Private Limited	Village - Narain Nagar, Bazpur Road, Kashipur.	17	13.5	ETP

27.	Just In Agri Food (P) Ltd	19, IDEB, PHASE I-MAHUA KHERA GANJ, KASHIPUR.	44	21	ETP
28.	Konark Industries	IDEB,phase - 1,industrial estate, KASHIPUR	60	42	ETP
29.	M/s Adoratex (formerlyRizwan Export House)	Vill- Mahuakheraganj, Teh.- kashipur, Distt.- U.S. Nagar	155	88	ETP
30.	Numix Industries Private Limited	Himalayan Food Park, Mahuakhera Ganj, Kashipur	12	8.5	ETP-cum-STP
31.	PMV Maltings Pvt. Ltd.(former The Malt company)	Phase-II-Nand Nagar Industrial Estate, Mahuakheraganj, Kashipur	2156	1475	STP
32.	PMV Nutrient Products Pvt. Ltd.	Nand Nagar Industrial Estate-Phase-II, Vill- Mahuakheraganj, Kashipur,	104	78	ETP
33.	Prakash County(A Unit Of Ashish Builder)	Village Paiga, Teh - Kashipur	86	80	STP
34.	Shanti Frozen Food	Mahuakheraganj, Kashipur	77	48	ETP
35.	Solitaire Drugs & Pharma (P) Ltd (Food &Beverrage Div)	439 & 440-M ahua khera ganj,KKP- kashipur	59	53	ETP
36.	SRF Ltd.	Ramngagar Road Kashipur,KKP- Rampura	1.5	2	STP
37.	SRF Ltd. Unit-Ii	Rampura,KKP- Rampura	45	32	STP
38.	Sri Shandar Snacks Pvt Limited	I.D.E.B industrial estate,KKP- KASHIPUR	42.5	32	ETP
39.	Stellar Cold Chain Inc	Village - Hempur Ismail, Narayan Nagar Industrial Estate, , Hempur Ismail, Kashipur	84	49.5	ETP

40.	VIVIMED LABS LTD (Formerly Creative Health Care Pvt. Ltd).	KUNDESHWARI, KASHIPUR	14	6.4	ETP
	Total		6410.9	3379.9	

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