Action Plan: No. 2

Action Plan for Rejuvenation of River Dhela

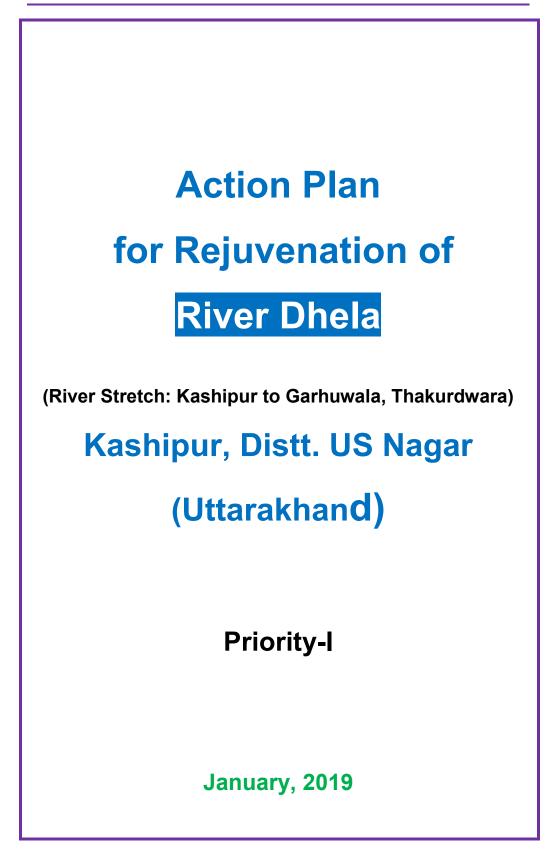
(River Stretch: Kashipur to Garhuwala, Thakurdwara)

Kashipur, Distt. US Nagar

(Uttarakhand)

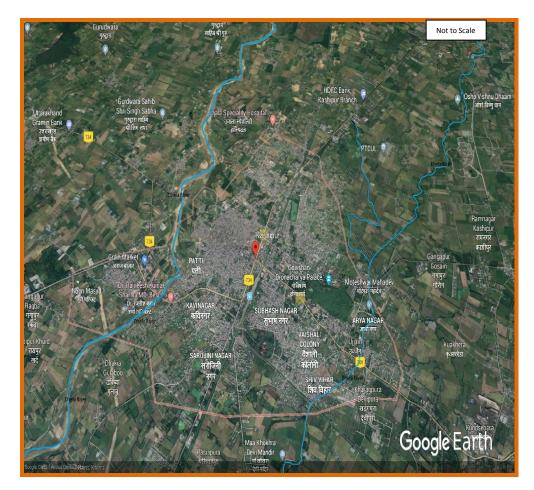
Priority-I

January, 2019



1. INTRODUCTION

River Dhela originating from the Ramnagar forest area and passing along the agriculture fields of tarai region. Tumaria dam is made on the river Dhela at upstream of Kashipur for diversion of river water for irrigation purpose, resulting most of the time no natural discharge in the river. As per Census 2011, Kashipur town having population of about 1.21 lacs and major human settlement is in the catchment of Dhela river. River Dhela receives partial drainage of the city. 18 MLD capacity Sewage Treatment Plant (STP) is under construction under AMRUT yojna along with 1.5 Km. long sewerage network. It is expected that by March, 2020 STP would start functioning. River Dhela also receives wastewater for nearby industrial units which are predominantly pulp and paper industries. River Dhela joins river Ramganga at upstream of Moradabad (Uttar Pradesh).



Google image of Kashipur town with river Dhela and river Bhela. (Not to scale)

2. WATER QUALITY GOALS:

It is an important aspect for revival of river Dhela in context of meeting water quality criteria for bathing. As stated above natural flow of river Dhela is restricted through *Tumeria* dam, wherein river water is diverted for irrigation purposes and therefore after *Tumeria* dam, there is almost no natural flow in the river Dhela except during the monsoon months. As it passes through Kashipur town, 04 municipal drains joins it along with wastewater from industries- mainly 13 pulp and paper industries. For bimproved water quality in the river, it is imperative to maintain the wastewater quality form industrial units and of sewage within prescribed limit all the time.

Month	рН	BOD (mg/L)	COD (mg/L)	DO (mg/L)
Jan-18	7.2	12	38	5.2
Feb-18	7.4	4	18	6.4
Mar-18	7.3	8	26	5.4
Apr-18	River Dry			
May-18	River Dry			
Jun-18	River Dry			
Jul-18	River Dry			
Aug-18	7.4	8	24	6.2
Sep-18	7.1	7.2	20	6.2
Oct-18	7.2	8	30	5.6
Nov-18	7.3	8	18	4.6
Dec-18	7.4	4	10	6.4
Average	7.28	7.4	23	5.75
Min- Max	(7.1-7.4)	(4-12)	(10-38)	(4.6-6.4)

A. Water quality characteristics of river Dhella at Updtaram of Kashipur (U/S Moradabad Road) in the year 2018.

B. Water quality characteristics of river Dhella at downstream of Kashipur (D/S Thakurdwara, Aliganj Road) in the year 2018.

Month	рН	BOD (mg/L)	COD (mg/L)	DO (mg/L)
Jan-18	7.6	20	102	2.2
Feb-18	7.7	40	132	2.8
Mar-18	7.8	18	60	2.4
Apr-18	River Dry			
May-18	River Dry			
Jun-18	River Dry			
Jul-18	6.9	22	72	2.4
Aug-18	7.1	20	74	3.8
Sep-18	6.9	18	60	2.8

Oct-18	7.2	16	58	2.2
Nov-18	7.2	20	58	2.6
Dec-18	6.7	22	60	2.2
Average	7.23	21.77	75.11	2.6
Min-Max	(6.7-7.8)	(16-40)	(58-132)	(2.2-3.8)

Basis of Proposed Action Plan for rejuvenation of river Dhela:

River Dhela being intermittent river, the action plan for maintaining water quality for Class "B" will be different as it receives significant volume of industrial wastewater from nearby area and municipal sewage of Kashipur town. Therefore, the action plan for prevention and control of pollution of river Dhela has been prepared based on the following components:

3. COMPONENTS OF ACTION PLAN:

The proposed action plan for rejuvenation of river Dhela consisting following components:

3.1 Source Control:

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

(a) Industrial Pollution control:

There are 13 Pulp & Paper industries located along the River bank which discharges their treated effluent in river Dhela. All the units have functional ETPs and treated effluent is discharged in to the Dehla River. List of GPIs situated in the catchment is enclosed as **Annexure-1**.

Followings are action points for 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; and
- iv. Regulatory regime including "Charter for Prevention and Control of Pollution on Pulp and Paper Industries- 2015".

- v. Action plan for stringent discharge Norms for pulp & paper industries as water for dilution is not available in the river.
- vi. Strict enforcement of protocol formulated for CRP operation in agro-based pulp & paper industries.

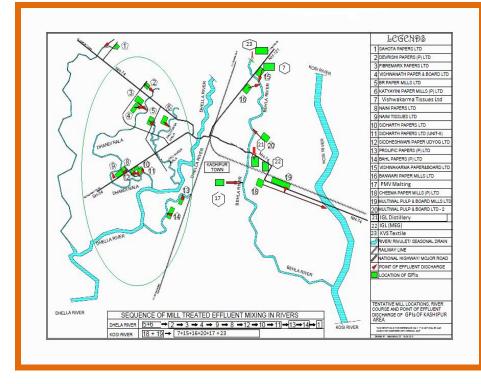


Figure: Rivers Dhela in the Kashipur area along with industrial drains and locations of GPIs.

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

- Four major drains are identified by Uttarakhand PeyJal Nigam, which are carrying untreated sewage to river Dehla.
 - Jal Nigam Nalla/ Kalash Mandap Nalla 4.8 MLD
 - Laxmipur Nalla 9.24 MLD
 Gabiya Nalla -10.535 MLD
 Ice Factory Nalla 2.07 MLD Total Discharge - 26.645 MLD
- (ii) 18 MLD STP is under construction under AMRUT programme to treat the untreated sewage from Jal Nigam Nalla/ Kalash Mandap Nalla & Laxmipur Nalla.

- (iii) Proposal for 14 MLD STP is under consideration under Namami Ganga Programme by PeyJal Nigam & Nagar Nigam.
- (iv) City has sewerage network only of 1.5 km length.
- (v) Only 3,000 household out of 27,000 are having piped water supply and remaining are having their own borewells. Additional 12,000 households will be connected through piped water supply under AMRUT programme.

Followings are action points for Channelization, treatment, utilization and disposal of treated domestic sewage

- i. Identification of drains & their discharge in the catchment of river Dhela.
- ii. Estimation of quantity of sewage generated and requirement of treatment capacity.
- iii. Completion of 18 MLD STP in time-bound manner.
- iv. Expedite finalisation of proposal of 14 MLD STP and its construction in time bound manner.
- v. Storm water drains now carrying sewage and sludge joining river Dhela and interception and diversion of sewage to STP.
- vi. Treatment and disposal of septage and controlling open defecation.
- vii. Establishing proper sewer network for the city.
- viii. Coverage of piped water supply to all household.
- ix. Control on water consumption through metering system on piped water supply & bore wells.

(c) Solid Waste Management:

- (i) Earlier the city has 20 wards which are increased to 40 wards. The estimated MSW generation is 50 TPD in 20 wards.
- (ii) The MSW collected from 20 wards is dumped on the trenching ground near Kachnal Gazhi, Manpur Road.
- (iii) The site is located at 100-150 m from bank of River Dhela. It seems to be located in flood plane zone.
- (iv) Mixing of Bio-medical waste with MSW is reported by Nagar Nigam.
- (v) DPR for establishment of MSW processing plant at same site is under finalisation.

Followings are action points for Solid Waste Management

- i. Collection, segregation, transportation, disposal and treatment of municipal solid wastes generated from town in accordance of provisions of the Solid Waste Management Rules, 2016.
- ii. MSW collection network should be extended up to 40 wards.
- iii. Proposed location of MSW processing plant should be reviewed in line with Flood Plain Zone Notification & CPCB guidelines.
- iv. MSW processing plant with sufficient treatment capacity should be established in time bound manner.
- v. Restriction illegal disposal of solid waste along the river bank, drains and flood plain zones.
- vi. Burning of solid waste should be strictly prohibited.
- vii. Strict vigilance on Bio-medical waste generators to restrict mixing of BMW with MSW.
- viii. Construction and demolition wastes should be disposed in designated areas and no case it should be disposed in to river beds or flood plain zone.
- 3.2 River catchment/Basin management Controlled ground water extraction and periodic quality assessment:
 - i. Periodic assessment of groundwater resources and regulation 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 ground water tube wells/bore wells or hand pumps.
 - iv. Assessment of the need for regulating use of ground water for Irrigation purposes.

3.3 Flood Plain Zone.

- i. Demarcation and Notification of flood plain zone.
- ii. Regulating activities in flood plain zone.
- iii. No disposal of Municipal, Plastic, Hazardous, Bio-medical and Electrical and Electronic wastes in Flood Plain Zone.
- iv. Greenery development Plantation plan.

3.4 Ecological/Environmental Flow (E-Flow)

- i. Issues relating to E-Flow.
- ii. Irrigation practices.
- iii. To Explore possibility to maintain minimum E-flow.

4. RIVER DHELA REJUVENATION PLAN:

Following are the action plan for rejuvenation of river Dhela as detailed below:

4.1 Industrial Pollution Control:

Following are the action points for sector-wise pollution control: -

(i) Pulp and Paper Industries:

- (a) Pulp and Paper manufacturing units should not be permitted to dispose polluted or coloured effluents in any drains leading to river Dhela.
- (b) Agro-based pulping should be allowed only with Chemical Recovery Plant (CRP) with Zero Black Liquid Discharge in the catchment area of river Dhela or drains leading to Dhela river.
- (c) Pulp and paper units shall meet Charter criteria as prescribed by Central Pollution Control Board (CPCB) and Uttarakhand Environment Protection and Pollution Control Board (UEPPCB) all the time.
- (d) Proper records of Sludge used for boards making should be maintained. The concerned industry shall ensure that no over-flow from sludge drying bed occurs.
- (e) The inert lime sludge which is presently found disposed near river banks should be prohibited. The possibility of installation of common lime kiln should be explored.
- (f) Considering dry condition of river Dhela at kashipur during winter & summer season, the practise of use of treated effluent into irrigation should be carried out as per Charter. A comprehensive action plan should be prepared by all units located on the bank of River Dhela.
- (g) Pulp and paper industry should install Sewage Treatment Plant for their domestic sewage. Treated sewage should reuse in gardening/irrigation purpose.

(ii) Specific Action Points:

- (a) UEPPCB with the support of District Industry Centre (DIC) shall carryout inventory of industries within two months' time.
- (b) All the industries which are presently in operation without Consent under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 as the case may be should be directed by UEPPCB to obtain consent within three months and failing which action should be taken by UEPPCB for closure of all such industrial units.
- (c) All the hazardous waste generating industries or the industries covered under Schedule-I of the Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 as amended, should be directed to obtain authorization within a month from UEPPCB and failing which action should be taken by UEPPCB for closure of all such industrial units.
- (d) All the GPIs category industries have provided OCEMS at the outlet of ETPs. Industries shall be directed to take measures to transfer real time data with auto validation facilities to the UEPPCB and CPCB with immediate effect.
- (e) No industry should operate or continue manufacturing process unless they possess valid permission for ground water extraction from Central Ground Water Authority (CGWA). All such industries shall obtain groundwater extraction permission from the Central Groundwater Board (CGWA) within three-month time period.
- (f) Small scale/tiny and service providing units located in urban or semi-urban limits like Dairies, Auto Service Stations etc., should not be allowed to dispose waste water effluents or sludges into drains, thereby ensuring not causing damages to drains or sewers. Such units should have minimum provision of Oil & Grease traps.
- (g) Drains carrying industrial wastewater shall be monitored regularly by the UEPPCB.
- (h) Burning of any kind of waste including industrial solid waste and agriculture residue should be completely prohibited.

4.2 Treatment of Sewage:

- (a) 18 MLD capacity Sewage Treatment Plant (STP) is under construction for the Kashipur town along the Dhela catchment, under AMRUT yojna. 1.5 Km. long sewerage network is also proposed. Another STP of 14 MLD capacity is also proposed for which DPR has been prepared for funding.
- (b) All municipal drains leading to river Dhela should be intercepted and sewage diverted to STPs for treatment.
- (c) Uttarakhand Jal Nigam would undertake measurement of flow of the drain(s) and formulate detailed project report (DPR) for each drain and STP within 2 months.
- (d) The flow in each drain should exclude monsoon flow. Further, any drain if receiving fresh water from any escape channel etc, should be examined for its diversion rather than mixing with sewage.
- (e) Sewage treatment plants for Kashipur town and drains should be properly designed with the interception and diversion plan.
- (f) Sewage treatment plant (STP) and its design should be based on its full utilization capacity and ensuring that all the house are connected to sewers.
- (g) The design aspect of STP should include sewage utilization plan, instead of disposal into the drain/river. As directed by the Hon'ble NGT in Ganga matter (Segment 'A") at least 75% sewage should be utilized. For the remaining 25% to be discharged into river, strict standards of BOD and FC should be followed and complied.
- (h) DPRs should be submitted to the River Rejuvenation Committee (RRC) for consideration as a part of Ganga/Yamuna basin management plan.
- (i) Hotels/Restaurants particularly located on road-side should not dispose untreated sewage and solid waste into nearby pubic drain or rivers, such establishments should be properly regulated and levied with fines as directed by Hon'ble NGT in Ganga matter in case of any violation.
- (j) Drains carrying industrial wastewater shall not be diverted to STPs.
- (k) Septage management protocol shall be strictly followed.

4.3 Solid Waste Treatment and Disposal:

(a) Door to Door collection of solid waste shall be carried out and only segregated waste shall be accepted.

- (b) Biodegradable wastes shall be used for composting while recyclable waste shall be sent to registered recyclers.
- (c) Action Plan for Solid waste Management for Kashipur town as prepared by the Urban Development Directorate, Uttarakhand shall be implemented.
- (d) No case Construction and Demolition waste shall be disposed in river bed or flood plain zone. Nagar Nigam Kashipur shall identify the site for such wastes.

4.4 Ground Water Quality:

- (a) 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 three locations to ascertain level of pollutants in groundwater.
- (b) CGWA should identify over exploited and critical blocks in the area with respect to the ground water extraction and industries be directed to comply with CGWA conditions.
- (c) UEPPCB should be vigilant and conduct surprise inspection of the industry to rule out any forceful injection of industrial effluents into groundwater resources or disposal of effluent in rain water recharge pits.
- (d) No industrial unit should be establishment or allowed to continue its operation unless they obtain permission from CGWA for ground water extraction within three month.
- (e) Rain water harvesting of industrial, commercial and other institutions may be insisted upon by CGWA and groundwater recharging with only clean water be encouraged by CGWA.

4.5 Flood Plan Zone (FPZ):

The Uttarakhand Irrigation Department shall identity/demarcates Flood Plain Zone and regulate the activities. Such regulations would also cover:

- (a) Plantation in Flood Plain Zone (FPZ) By State Forest Department.
- (b) Checking encroachments By District/Local Administration.
- (c) Prohibition of disposal of municipal and bio-medical waste particularly in drains By Local administration.
- (d) State Government may notify FPZ within six months.

4.6 Environmental Flow (E-Flow):

- (a) River Dhela carrying very thin and lean flow of original water and almost dry on the upstream of Kashipur during non-monsoon period, as river water is diverted for irrigation purposes through Tumaria dam.
- (b) Fresh water flowing through escape channels/small barrages should be checked. Good quality of water should not be used for dilution of pollution unless; required degree of treatment is achieved for municipal sewage and industrial effluents.
- (c) To conserve water and good irrigation practices to be adopted by the farmers for which mass awareness programmes through media be provided in vernacular languages to the farmers by the Uttarakhand State Irrigation and Agriculture Departments.

4.7 Monitoring of Action Plan:

The proposed Action Plan 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, Environment, Govt. of Uttarakhand.

5 ACTION PLAN:

Short Term and Long Term Action and the Identified Authorities for initiating actions and the time limits for ensuring compliance:

S.N.	Action plan for rejuvenation of river Dhela	Organisation/ Agency Responsible for Execution of the Action Plan	Time Target
1.	Industrial Pollution Control		
	 a) Action plans suggested under section - of the draft Action Plan. 	UEPPCB	Within Three months.
	 b) Inventorisation of the industries in the catchment area of River Dhela 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. 	DIC, US Nagar & UEPPCB	Within two months.
	 c) Actions against the Identified industries in operation without Consents under Water & Air Acts/Authorisation under the H & OW (M & TM) Rules, 2016 as amended. 	UEPPCB	Within three months.
	 d) Action against the industries not installed ETPs or ETPs exist but not operating or ETP outlet or treated effluent is not complying with effluent discharge norms. 	UEPPCB	Within three months.
	 e) Action against the GPIs which have not provided continuous real-time effluent quality data to UEPPCB and CPCB. f) Douting (auroriag) inspection 	UEPPCB	Within a month.
	f) Routine /surprise inspection	Special	Regularly.

			1
S.N.	Action plan for rejuvenation of river Dhela	Organisation/ Agency Responsible for Execution of the Action Plan	Time Target
	GPIs and Red category of industries for ensuring compliance of effluent discharge standards as prescribed under E(P) Rules, 1986, as amended.	Environmental Surveillance Task Force / UEPPCB	
	 g) Small scale/tiny and service providing units located in urban or semi-urban limits like Dairies, Auto Service Stations etc., have minimum provision of Oil & Grease traps. 	UEPPCB	Within three months.
	 h) Monitoring of drains carrying industrial wastewater. 	UEPPCB	Within a month.
	 Prohibition of Burning of any kind of waste including agro- residue. 	Nagar Nigam, Kashipur / District Administration	Within a month.
2.	Sewage Treatment & Disposal Pla	an	
	 a) Estimation of total sewage generation, existing treatment facilities, quantum of disposal of sewage presently through drains and the gaps in sewage treatment capacity. 	Jal Nigam / Nagar Nigam, Kashipur	Within two months.
	 b) To undertake measurement of flow of all the drains presently contributing pollution load in river Dhela and formulate Detailed Project Report (DPR) for each drain and submit DPR to RRC. Plan for utilization of treated water (at least 75%) should be a part of DPR. Proposal should include installation of OCEMS & PTZ 	Jal Nigam / Nagar Nigam, Kashipur	Within two months.

S.N.	Action plan for rejuvenation of river Dhela	Organisation/ Agency Responsible for Execution of the Action Plan	Time Target		
	camera at STP Outlet.				
	 c) Channelization including diversion of sewage generated from household / township / villages to sewer lines and interception of all drains (excluding drains carrying industrial wastewater) for ensuring proper treatment through upcoming STPs. 	Jal Nigam / Nagar Nigam, Kashipur	Within six months after commissi oning of STPs.		
	 d) Ensuring dairy / automobile service stations and Hotels/ Restaurants should be connected with sewer line / should have their own treatment system and levy of fine in case of violation. 	UEPPCB / Nagar Nigam, Kashipur.	Within three months.		
	 e) Monitoring of STP outlet effluent quality w.r.t. STPs effluent discharge norms prescribed under E(P) Rules, 1986 as amended. 	UEPPCB.	After commissi oning of STP.		
4.	Solid Waste Treatment and Dispo	sal			
	 a) Action plan for Solid Waste Management for Kashipur town prepared by Urban Development Directorate, Uttarakhand shall be implemented. No case collected solid waste shall be disposed illegally into river bed /flood plain zone. 	Urban Development Directorate / Nagar Nigam, Kashipur.	Within six months.		
	 b) Door to door collection of solid waste shall be encouraged. 	Nagar Nigam, Kashipur.	Within a month.		
	 c) Composting will be made out of bio-degradable waste and 	Nagar Nigam, Kashipur.	Within two		

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S.N.	Action plan for rejuvenation of river Dhela	Organisation/ Agency Responsible for Execution of the Action Plan	Time Target
	recyclable waste shall be disposed thorough registered recyclers.		months.
	 d) Construction and demolition waste shall be disposed in designated area/place only. Designated place shall be earmarked by the Local authority. 	Nagar Nigam, Kashipur.	Within a month.
5.	Ground Water Quality		
	a) Groundwater quality monitoring at three locations during summer (May-June) and winter (December- January).	UEPPCB	Within a month.
	b) Identification of over exploited and critical area w.r.t. groundwater extraction.	CGWA	Within six months.
	c) To conduct periodic surprise inspection of industries to rule out any forceful injection of industrial wastewater in to groundwater or disposal of wastewater through rainwater recharging pit.	UEPPCB / CGWA	Within two months.
	 All the industry should be directed to obtain necessary permission for groundwater extraction from CGWA. 	UEPPCB /CGWA	Within three months.
	e) Ensure rainwater harvesting by industries, commercial complexes / institutions and groundwater recharging with clean water.	CGWA	Within six months.
6.	Flood Plain Zone (FPZ)		

	Organization/				
S.N.	Action plan for rejuvenation of river Dhela	Organisation/ Agency Responsible for Execution of the Action Plan	Time Target		
	 a) Demarcation of flood plain zone and notification of Flood Plain Zone 		Within six months.		
	b) Plantation in Flood Plain Zone	Uttarakhand Forest Department	Within six months.		
	 c) Checking encroachment in the FPZ of Dhela River. 	District Administration, US Nagar / Nagar Nigam, Kashipur	Within three months.		
	 d) Prohibition of disposal of municipal plastic waste and biomedical wastes particularly in drains and FPZ. 	Administration /	Within a month.		
7.	Environmental Flow (E-Flow) ar	Irrigation Practices			
	 a) Measurements of Dhela Rive flow of at upstream of Tumaria Dam and downstream of Kashipur town and maintain record. 	f Irrigation I Department.	Regularly		
	 b) To conserve water and good irrigation practices to be adopted by the farmers by organising mass awareness programmes through media in vernacular language. 	e Irrigation / Department / 6 Department of	Regularly.		

Annexure-1

SN	ID	Industry Name	Address	Waste Water Generation (KLD)
1	13764	Katyayini Paper Mills Pvt. Ltd.	Near Sodhi Farm, vill. Kuddiyawala-Jaspur road,KKP- Kashipur	2258
2	10789	Naini Papers Limited	7TH K.M. STONE,- MORADABAD ROAD,KKP- KASHIPUR	4920
3	10546	Naini Tissues Ltd.	7 KM-MORADABAD ROAD,KKP-KASHIPUR	5020
4	15564	Prolific Papers Pvt. Ltd.	Khasra No. 83, -Village Girdhai, Tehsil Kashipur, District U.S. Nagar,KKP-Girdhai	1005
5	10029	Sidarth Papers Pvt. Ltd (Unit 2) (formerly Sidarth Papers Ltd (Unit 2))	7th K.M. Muradabad Road, Kashipur,KKP-Kashipur	3750
6	10026	Siddheshwari Paper Udyog Pvt. Ltd(formerly Siddheshwari Paper Udyog Ltd.)	7th K.M. Muradabad Road,KKP-Kashipur	2919
7	14048	Bahl Paper Mills Limited	KHASRA NO. 28 MIN (BAGHELWALA) & 74/1 (GIRDHAI)-5TH KM STONE, ALIGANJ ROAD, KASHIPUR (U S NAGAR),KKP-BAGHELWALA	3458
8	10027	Sidharth Papers Pvt. Ltd.(formerly Sidharth Papers Ltd.)	7th K.M. Muradabad Road,KKP-Kashipur	3800
9	12918	Sahota Papers Limited	Khata No.0- 7,150,260,212,269,139,272,219 Kh No-235,126,233,,Village Narayanpur Post Jaspur (U.S.Nagar) U.K	2234.88
10	17149	DEV RISHI PAPERS PVT LTD(FORMER NAME MUNNAJI PAPERMILL PVT LTD)	Khasara No. 275,277,285,Village- Jagatpur Patti, Jaspur,Kashipur	810
11	13700	M\s Fibremarx Papers Pvt Limited	7th Km Milestone,Village- Haldua Shahu, Post - Shivrajpur	1755
12	13186	Vishwanath Paper & Boards Ltd	Village Halduwa Shahu,Tehsil Jaspur	1753
13	10949	B.R. Papers Pvt. Ltd	Khasra No. 548/1,Vill. Lalpur, Tehsil Jaspur	270
14	15002	The Kisan Sahakari Chini Mill, Nadehi, US Nagar	Nadehi, US Nagar	180

List of GPIs located in catchment of river Dhela, Kashipur.
