

Proposed action plan for Rejuvenation of River Kumaradhara



Karnataka State Pollution Control Board

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ACTION PLAN FOR REJUVENATION OF RIVER KUMARADHARA

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Proposed action plan for Rejuvenation of River Kumaradhara

- 14.** State : **Karnataka**
River Name : **Kumaradhara**
River Stretch : **ALONG UPPINANGADI**
Priority : **V (BOD 3-6 mg/L)**
BOD Max.Value : **4 mg/L**

1.Kumardhara River is a South Indian rain fed river, located in the Indian state of Karnataka. Kumardhara River is one of the major rivers and the lifeline of Karnataka. Kumardhara River later merges with Netravati river at Uppinangadi, which is known as Dakshin Kashi. It is a well developed town in Dakshina Kannada. To reach the temple one needs to cross the Kumaradhara River. Kumardhara River is well known for its spiritual significance. The pilgrims are taking a holy bath in Kumardhara River before they go on to the temple to have "darshan", or visit to the Lord. The Kumaradhara river flows through dense forest and over the rocks.

The Kumaradhara river originates from Central Western ghats at an elevation of 1480 m and drops down to 33 m at Uppinangadi village of Puttar Taluk. The Kumaradhara River basin spread across the three districts in Karnataka- Dakshina Kannada, Kodagu and Hassan. It extends from 75o9'58" to 75o47'48" E and 12o29'4" to 12o58'33" N and drains an area of 1776 Sq. km. **The total polluted stretch of the River is about 5 kms along Uppinangadi.**

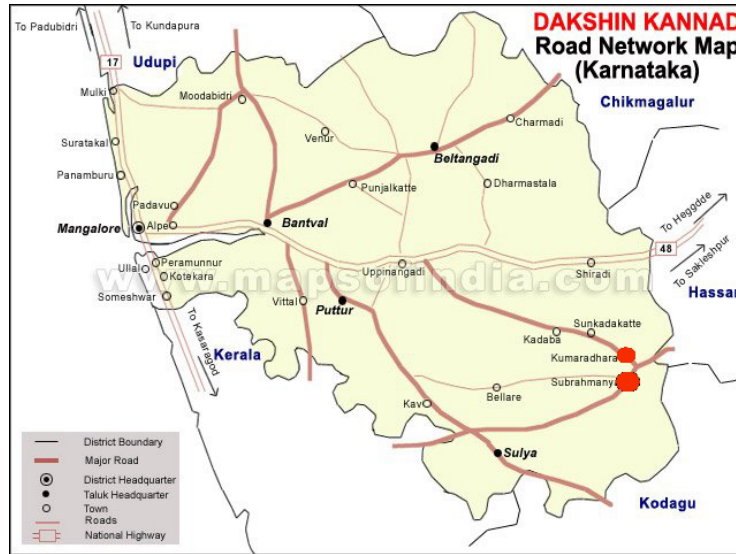


Figure 1. The Kumaradhara River Stretch

2. Industrial pollution:

There is no water polluting industries in this catchment area.

2.1 Treatment of Sewage:

Estimation of Local bodies’/Townships discharging their sewage and estimated sewage generation has to be identified. There are septic tank soak pit facilities in all the gram panchayath and small towns. Sewage overflow from these septic tank and soak pits from some of the adjoining river may join the river Kumaradhara, during rainy season, hence all the existing treated/untreated sewage disposed through open and kaccha drains have to be identified.

The following Local bodies’ are discharging sewage in to river Kumaradhara.

Sl No	River	Town Panchayat/Town Municipal Council	Sewage Generation in LPD	STP Exist Yes/ No	Mode of Dispose	Where to dispose
1.	Kumaradhara River	Subrahmanya, Sullia taluka, Dakshina Kannada District, Karnataka	2.6 MLD	Yes	Storm water/ Open Drain	River Kumaradhara
2		Panja and Kadaba	2.0 MLD	NO	Septic tank/	River

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				soak pit / Open Drain	Kumaradh ara
3.	Gramapanchayath Uppinangady	2.0 MLD	NO	Septic tank/ soak pit / Open Drain	River Kumaradh ara

Sewage is reaching the river through drains immediately after downstream of Subrahmanya, the sewage generated from villages - **Panja, Kadaba, Uppinangady Gram panchayath/Local bodies have to be provided with proper sewage treatment facilities.**

2.2. Municipal Sewage generation and Treatment

The Town wise sewage generation and treatment capacity developed so far is provided in **Table-1**

Table-1: Status of Domestic Pollution in River – Kumaradhara.

Sl No.	Name of the local body	Type	Total Sewage generation in MLD	Total Capacity of Sewage treatment in MLD	Status of STP
1	Subramanya	GP	2.60	2.60	Operational at present
2	Uppinangady	GP	2.0	2.0	Not Provided
3	Panja and Kadaba	GP	2.0	2.0	

3. Characteristics of River water quality:

The monitoring results of Kumaradhara. River At Up stream of Uppinagady Town Before Confluence with river Nethravathi for the year 2017 & 2018 are shown in **Table-2**. River water quality conforms to **Class C- means** Drinking Water Source with conventional treatment followed by disinfection.

3.1. Status of Water Quality

The details of parameter and specific concentration are provided in **Table-2**

Table-2 : Status of Water Quality of River - Kumaradhara.

Year	Locations	DO (mg/L)		BOD(mg/L)		Fecal Coliform (MPN/100ml)		Total Coliform (MPN/100ml)		Class
		Min	Max	Min	Max	Min	Max	Min	Max	
2017	U/S Uppinagady Town Before Confluence with river Nethravathi	6	7	1	3	17	920	94	1600	C
2018		6	7.9	1	2	14	170	240	900	C

The results indicate that the water is polluted due to sewage from Subramanya , Uppinangady, Panja.

4.Action taken by the KSPCB:

1. Inspection, Collection, analysis of river Kumaradhara water sample monthly and report to CPCB, New Delhi.
2. Issued several show cause notices to the concerned Local Bodies' for the treatment of sewage generated by the Local Bodies'.
3. As per the suggestion of the Board, KUWS & DB Board has put up STP at Subrahmanya for treatment of sewage generated from temple and subrhmanaya town area with the financial aid from subrahmanya temple trust.

5.0. Cost component involved in the Restoration of Polluted stretch

Cost component shall be an integral part of Detailed Project Report (DPR). Most of the cities and towns are deficient in treatment of its total sewage generated. In order to cater each identified town on the bank of polluted river and gaps observed between total sewage generated and treatment capacity needs to be considered for planning.

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Cost component shall invariably depend towards construction, operation and maintenance of sewage treatment plant. On an average Rupees 2.5 Crore has been estimated as Capital Cost per MLD (for primary, secondary and Tertiary treatment) excluding Operation and maintenance cost for all the available conventional and recent technologies. In some cities and towns developed capacity of STP is fully or partially underutilized due to inadequate sewerage network and other implementation issues.

Subramanya (GP) STP is maintained by Temple authorities along the Kumaradhara river.

Total estimated cost of Rs. **3.2 Crores should** be made budgetary provision by local bodies for operational and maintenance of Proposed STPs in the identified Grama panchayaths along the Kumaradhara River

Table -3: Cost Component involved in the Rejuvenation of Polluted Stretch of Kumaradhara.

Sl. No.	Activity	Cost in Rupees		
		Subramanya	Uppinangady	Kadaba and Panja
1	Operation & maintenance (O&M) cost for existing STPs per annum	Not applicable		
2	Capital cost including O&M for proposed new STPs & FSSM	Maintained by temple authority	Estimated cost included in action plan of Netravathi river	3.2 Crores (2.0 MLD)
3	Total Rupees	3.2 Crores		

6. Status of Environmental Flow (E-Flow) :

The details of Flow (discharge) is provided in **Table-4**

Table-4 : Status of E-Flow of River - Kumaradhara.

Year	Hydrological Observation Site	Flow (m ³ /s)	
		Min	Max
2018	Uppinangadi CMG station	11.35	378.10

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7. Action Plan- Short Term and Long Term Action and the Identified Authorities for initiating actions and the time limits for ensuring compliance.

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 :

Sl. No	Action plan for rejuvenation of river Kumaradhara	Organisation/ Agency Responsible for Execution of the Action plan	Time Target
I.	Industrial Pollution Control		
	(a) Compliance of industries located in catchment area with respect to effluent discharge standards and its disposal as per consent conditions	KSPCB	Complied
	(b) Inventorisation of the industries in the catchment area of River Kumaradhara 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	KSPCB	Complied
	(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	KSPCB	Complied

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<p>(d) Action against the industries not installed ETPs or ETPs exist but not operating or ETP outlet or treated effluent is not complying to the effluent discharge standards or norms</p>	<p style="text-align: center;">KSPCB</p>	<p style="text-align: center;">Complied</p>
<p>(e) Action against the red category industries for installation of OCEMS and not transferring data to CPCB and KSPCB</p>	<p style="text-align: center;">KSPCB</p>	<p style="text-align: center;">Complied</p>
<p>(f) Small scale/tiny and service providing units located in urban or semi-urban limits like Dairies, Auto Service Stations to have minimum provision of O & G traps</p>	<p style="text-align: center;">Local Bodies (Subramanya, panja , kadaba)/DMA</p>	<p style="text-align: center;">Within three months</p>
<p>(g) Prohibition of Burning of any kind of waste including agro-residues</p>	<p style="text-align: center;">State Govt./District Administration and Local authorities(Subramanya, panja , kadaba)/agriculture dept.</p>	<p style="text-align: center;">Within three months</p>
<p>(h) Directions to all the Industries which are observed to be not in operation or closed or temporarily closed to remain close till further orders from CPCB.</p>	<p style="text-align: center;">KSPCB</p>	<p style="text-align: center;">Within three months</p>
<p>(i) Estimation of industrial effluent generation and the existing CETP capacity and to arrive gap between the industrial effluent generation and the existing treatment capacity</p>	<p style="text-align: center;">KSPCB</p>	<p style="text-align: center;">Not Applicable</p>

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	(j) Channelization of industrial effluents to CETPs for ensuring treatment to comply with the discharge standards.	KSPCB and District /Local Administration	Not Applicable
	(k) Identification of suitable site within industrial estates, Execution and Commissioning of Adequate Capacity CETPs.	State Government , District/Local Administration /KIADB	Not Applicable
II. Sewage Treatment and Disposal Plan			
	(a) District-wise estimation of total sewage generation, existing treatment capacities, quantum of disposal of sewage presently through drains and the gaps in sewage treatment capacity.	State Government, KUWS & DB, District Administration and local bodies (Subramanya, panja , kadaba)	Within six months
	(b) To undertake measurement of flow of all the drains presently contributing pollution load in river Kumaradhara and to formulate detailed project report (DPR) for each drain and corresponding town and submission of DPR.	State Government, KUWS & DB, District Administration and local bodies (Subramanya, panja , kadaba)	Within six months
	(c) Proper design, execution of STPs with full utilisation capacity	State Government, KUWS & DB, District/Local Administration	Within 24 months

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	(d) Channelization including diversion of sewage generated from household/townships/villages to sewer lines/interception of all the drains presently carrying sewage and for ensuring proper treatment through the upcoming STPs	State Government, KUWS & DB, District/Local Administration	Within 18 months
	(e) Ensuring dairy/automobile service stations and Hotels / Restaurants particularly located on road-side should have a treatment system and levy of fine in case found violations	Local authorities/DMA	Within three months
III	Ground water quality		
	(a) Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public	State Government, Karnataka rural drinking water and Sanitation Department and Local authorities	Contaminated ground water is not noticed
	(b) Supply of potable water to the affected communities in the identified critical blocks	State Government, Karnataka rural drinking water and Sanitation Department and Local authorities	Not Applicable
	(c) Carrying assessment of ground water survey for quality and to identify over exploited and critical blocks in the district(Dakshina kannada).	Karnataka Ground Water Authority	Complied

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	(d) To conduct periodic surprise inspection of the industry to rule out any forceful injection of industrial effluents into ground water resources	KSPCB/ KGWA	Complied
	(e) All the industry should be directed to obtain NOC from the CGWB and action against the Units in Operation without obtaining of NOC from CGWA	KSPCB, CGWB/ CGWA and Karnataka .Ground Water Department	Within six months (The proposed new industries will be directed to obtain NOC from CGWA)
	(f) 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/ Karnataka Ground Water Department	complied

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IV	Flood Plain Zone (FPZ)		
	(a)Plantation in Flood Plain Zone (FPZ)	Karnataka Forest State Department	Within six months
	(b)Checking encroachments in the FPZ of river Kumaradhara	District/Local administration	Within six months
	(c)Prohibition of disposal of municipal plastic and bio- medical waste particularly in drains	Local administration	Within six months
	(d)Notification of Flood Plain Zone FPZ	State Government / Water Resources Department	Within six months
V	Environmental Flow (E-Flow) and Irrigation Practices		
	(a)Measurement of flow in the river and records maintained	Central Water Commission /Karnataka water resources department.	Regularly (Daily/ monthly)
	(b) To conserve water and good irrigation practices to be adopted by the farmers by organising mass awareness programmes and through media in vernacular language	Karnataka water resources department/Karnataka Irrigation Department and Agriculture Departments.	Once in six months

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