

**Proposed action plan for Rejuvenation of River Krishna**



**Karnataka State Pollution Control Board**

**“Parisara Bhavana”, # 49, Church Street,**

**Bengaluru - 560 001**

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### Proposed action plan for Rejuvenation of River Krishna

- 10. State :** Karnataka  
**River Name:** Krishna  
**River Stretch:** Yadurawadi to Tintini Bridge  
**Priority:** IV (BOD 6-10 mg/L)  
**BOD Range :** 3.1-6.2 mg/L

1. **The Krishna river** rises in the Western Ghats, at an elevation of about 1,337 m (4,386 ft) just north of Mahabaleshwar, about 64 km (40 mi) from the Arabian Sea. It flows for about 1,400 km (870 mi) and outfalls into the Bay of Bengal. The principal tributaries joining Krishna are the Ghataprabha River, Malaprabha River, Bhima River, Tungabhadra River and Musi River. **The polluted River stretch of Krishna River (96 Km out of 200 Km)** is in between Yadurwadi-Village, Chikkodi-Taluk (16°35'52.99"N, 74°40'49.17"E) and Zunjarwadi Village, Athani- Taluk (16°36'40.48"N, 75°14'55.28"E) .

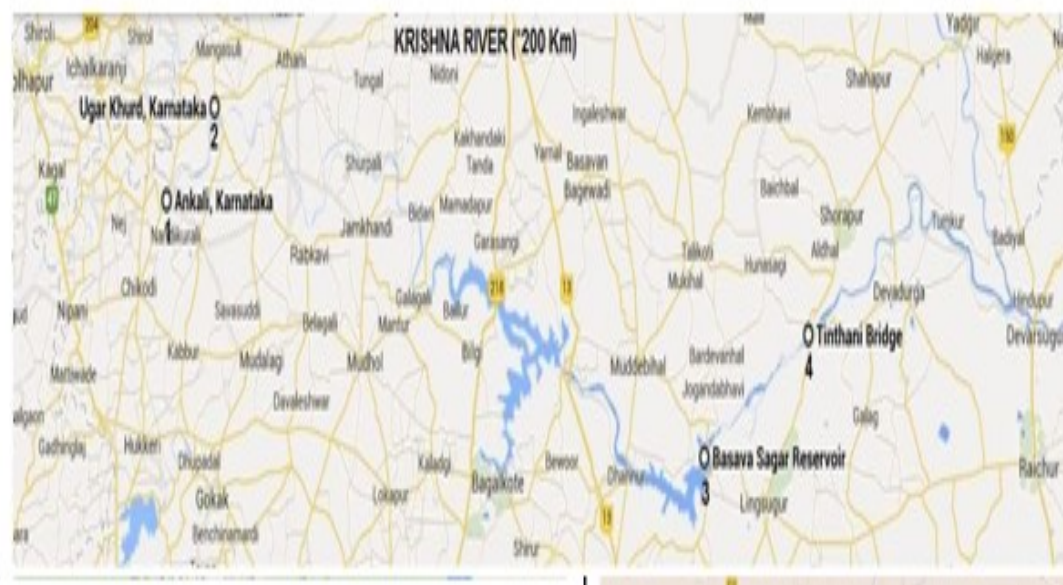


Figure 1. The Krishna River Stretch

**2. Municipal Sewage Generation and Treatment:**

The river water quality deterioration is caused mainly by discharge of untreated sewage from the townships and villages located on the river bank. The local bodies (Town Municipal Council & Town Panchyat) and major villages have not provided the sewage treatment facility.

**Details of Villages which are located on the polluted stretch of Krishna River.**

Sl.No	Villages	Population	Distance Km
1	Yadur	4261	0.76
2	Manjari	8613	2.21
3	Ankali	11.261	1.21
4	BavanSiundatti	6232	0.40
5	Diggewaddi	4617	0.25
6	Molwad	3446	0.41
7	Chinchalli	4483	2.42
8	Krishna Kittur	5217	0.67
9	Shirgur	5000	2.30
10	Saptasagar	4352	0.63
11	Hulagaballi	8359	0.54
12	Nadi-Ingalgaon	5070	0.62
13	Darur	5681	0.44
14	Khavatkoppa	3484	0.17
15	Shegunasi	5793	0.25
16	Satti	9984	0.78
17	Nandeshwar	5784	0.36
18	Asangi	5344	1.34

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19	Janawad	3558	0.75
20	Hipparagi	6914	0.24
21	Shirahatti	3638	0.50
22	Zunjarwad	4062	0.37

### 2.1 Details of Local Bodies which are located on the polluted stretch of Krishna River:

Sl. No.	Name of Local Body	Distance from river	Population (census2011)
1	Town Panchayat, Examba, Chikkodi Taluk Belagavi District.	About 5.7 Km	15224
2	Town Municipal Council Ugarkurd, Athani Taluk, Belagavi District	About 1.55 Km	23762
3	Town Municipal Council, Kudachi, Raibag Taluk, Belagavi District	About 0.26 km	23154
4	Town Panchayat, Chinchali, Raibag Taluk, Belagavi District.	About 2.66 Km	18986
5	Town Panchayat, Ainapur, Athani Taluk, Belagavi District	About 1.57 Km	18913

### 2.3 Status of Industrial Effluent and Treatment Facilities:

The category wise number of industrial units located within five Km from the bank of Krishna River (Polluted Stretch) is as follows:

Sl.No	Category	Number of Industries	Distance from Krishna River Km
01	Sugar & Co-gen	02	1)About 4.42

			2) About 3.89
02	Sugar & Distillery	01	About 0.68
03	Distillery	01	About 3.96

#### 2.4. 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 - Krishna**

Sl No.	Name of the local body	Type	Total Sewage generation in MLD	% of UGD facility provided	Total Capacity of Sewage treatment in MLD	Status of STP
1	Ugarkurd	TMC	1.72	0	3 MLD (proposed)	Not provided
2	Kudachi	TMC	1.72	0	4.62 (proposed)	
3	Examba	TP	1.00	0	4 MLD (proposed)	
4	Chinchali	TP	1.14	0	4 MLD (proposed)	
5	Chikkodi	TMC	2.00	40	5.8	Operational at present
6	Ainapur	TP	1.2	0	4 MLD (proposed)	Not provided
7	Sadalaga	TMC	2.4	75	3.72	Operational at present

#### 3. Characteristics of River water quality:

The monitoring results of **Krishna** River At Down Stream of Deosugar Bridge, Down Stream of Narayana pura Dam, Down Stream of Ugarkhurd Barrage, Down Stream of Alamatti Dam, At tintini Bridge and Ankali Bridge Along Chikkodi Kagwad Road, for the year 2017 & 2018 are shown in **Table-2**. River water quality conforms to Class C- means Drinking Water Source after conventional treatment followed by disinfection for 2017 and Class -D means water is fit for propagation of wildlife, fisheries for 2018 for almatti and Narayana pura dams.

### 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 – Krishna**

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	At D/S of Deo sugar Bridge	6.8	7.4	--	--	240	1800	600	3200	C
2018		7.2	8.2	2	3.6	240	1000	500	3200	D
2017	At D/S of Narayana pura Dam	6.9	10.8	0.42	2.32	110	900	140	1700	C
2018		6.5	10.2	0.78	8.17	220	900	900	1600	D
2017	At D/S of Ugarkhurd Barrage	4.2	8.3	0.3	2.46	300	900	500	1600	C
2018		5.8	8.1	0.18	2.22	100	900	500	1600	C
2017	Ankali Bridge Along Chikkodi Kagwad Road	4.5	8.6	0.42	2.94	300	900	900	1600	C
2018		6.2	8.1	0.42	2.22	110	900	500	1600	C
2017	D/S of Alamatti Dam	6.6	11.8	0.3	2.7	80	900	110	2200	C
2018		6.4	10.1	0.54	7.5	70	900	140	1600	D
2017	At tintini Bridge	6.8	7.4	--	--	220	600	900	1600	C
2018		7	7.6	2	3	110	1000	500	3200	C

**4. Action taken by the KSPCB:**

1) KSPCB has issued notice to all local bodies to take necessary steps to expedite the works of laying UGD and commissioning of STP on high priority.

2) Sugar & Co- gen Units have installed ETP as per the approval of the Board, installed online monitoring system and connected to CPCB server for the treated trade effluent. The distillery units are maintaining zero liquid discharge and installed online monitoring system for boiler, Camera and Flow meters and connected to CPCB server.

**3) KSPCB was installed one Continuous online water quality monitoring station at D/S of RTPS, Shakthinagar, Raichur.**

**5. Actions plan to be taken for Rejuvenation of River water quality:**

- Notice issued to all local bodies to take necessary steps to expedite laying 100% UGD and commissioning of STP on high priority. STP needs to be constructed in all the villages located on the River.
- Municipal solid wastes including poultry and slaughter house wastes shall be disposed only in SWM sites as per existing guidelines.
- The community toilets and Dhobi Ghats to be constructed.
- Vehicle washing and other activities to be regulated by the concerned Local bodies/Gram panchayats.

**6.0. 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.

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 perpetual issues.



Total estimated cost of **Rs. 28.54 Crores** should be made budgetary provision by local bodies for operational and maintenance of existing/Proposed STPs in the identified towns/villages along the Krishna River.

**Table -3: Cost Component involved in the Rejuvenation of Polluted Stretch of Krishna**

Sl. No.	Activity	Cost in Rupees						
		Ugarkurd	Kudachi	Examba	Chinchali	Ainapur	Sadalaga	Chikkodi
1	Operational & maintenance (O&M) cost for existing STPs per annum	Not applicable					25 Lakhs	26 Lakhs
2	Capital cost including O&M for proposed (FSSM & STP)	4.8 Crores	7.4 Crores	6.4 Crores	3.03 Crores (work in progress)	6.4 Crores	Not applicable	Not applicable
	<b>Total Rupees</b>	<b>28.54 Crores</b>						

**7. Status of Environmental Flow (E-Flow) :**

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

**Table-4 : Status of E-Flow of River - Krishna**

Year	Hydrological Observation Site	Flow (m <sup>3</sup> /s )	
		Min	Max
2015	Wadenapalli	0.003	229.36
2016		0.526	184.39

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

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**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 :-**

<b>Sl. No</b>	<b>Action plan for rejuvenation of river Krishna</b>	<b>Organisation/ Agency Responsible for Execution of the Action plan</b>	<b>Time Target</b>
<b>I.</b>	<b>Industrial Pollution Control</b>		
	(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 Krishna 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
	(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	KSPCB	Complied
	(e) Action against the red category industries for installation of OCEMS and not transferring data to CPCB and KSPCB	KSPCB	Complied

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	(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	Local authorities (Ugarkurd, Kudachi, Examba, Chinchali, Chikkodi, Ainapur and Sadalaga) /DMA	Within three months
	(g) Prohibition of Burning of any kind of waste including agro-residues	State Govt./District Administration and Local authorities (Ugarkurd, Kudachi, Examba, Chinchali, Chikkodi, Ainapur and Sadalaga) and agriculture dept.	Within three months
	(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.	KSPCB	Within three months
	(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	KSPCB	Not Applicable
	(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

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<b>II. Sewage Treatment and Disposal Plan</b>		
(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/Local Administration	Within six months
(b) To undertake measurement of flow of all the drains presently contributing pollution load in river Krishna and to formulate detailed project report (DPR) for each drain and corresponding town and submission of DPR to Government.	State Government, KUWS & DB, District/Local Administration	Within six months
(c) Proper design, execution of STPs with full utilisation capacity	State Government, KUWS & DB, District Administration/ Local bodies (Ugarkurd, Kudachi, Examba, Chinchali, Chikkodi, Ainapur and Sadalaga)	Within 24 months
(d) Channelization including diversion of sewage generated from household/town ships/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 Administration/ Local bodies (Ugarkurd, Kudachi, Examba, Chinchali, Chikkodi, Ainapur and Sadalaga)	Within 24 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

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<b>III</b>	<b>Ground water quality</b>		
	(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 ( Belagavi).	Karnataka Ground Water Authority	Complied
	(d) To conduct periodic surprise inspection of the industry to rule out any forceful injection of industrial effluents into ground water resources	KSPCB/BWSSB/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	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

<b>IV</b>	<b>Flood Plain Zone (FPZ)</b>		
	(a)Plantation in Flood Plain Zone (FPZ)	Karnataka State Forest Department	Within six months

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	(b)Checking encroachments in the FPZ of river Krishna	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
<b>V</b>	<b>Environmental Flow (E-Flow) and Irrigation Practices</b>		
	(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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