

Proposed Action Plan for Rejuvenation of River Cauvery



Karnataka State Pollution Control Board

“Parisara Bhavana”, # 49, Church Street,

Bengaluru - 560 001

January 2019

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Proposed action plan for Rejuvenation of River Cauvery

- 06.** State : **Karnataka**
 River Name: **Cauvery**
 River Stretch: **Ranganathittu to Sathigala bridge**
 Priority: **IV (BOD 6-10 mg/L)**
 BOD Range: **3.1-6.7 mg/L**

- 1. Cauvery River:** takes birth at Thalakaveri in Kodagu District of Karnataka State. The major tributaries of Cauvery River before Ranganathittu are river Harangi, river Lakshmanatheertha and river Hemavathi. The major tributaries joining river Cauvery in between Ranganathittu and Sathigala are Lokapavani and Kabini. The total stretch of the river extends to about 100 kms in the state of Karnataka. The major towns located on the bank of the river in this stretch are Srirangapatana in Mandya District, Bannur, T.Narasipura in Mysore District and Kollegala in Chamarajanagar District. **The total polluted stretch of the river is about 50 kms i.e., from Ranganathittu upstream of Srirangapatana Town to Sathigala road bridge at Sathigala.**

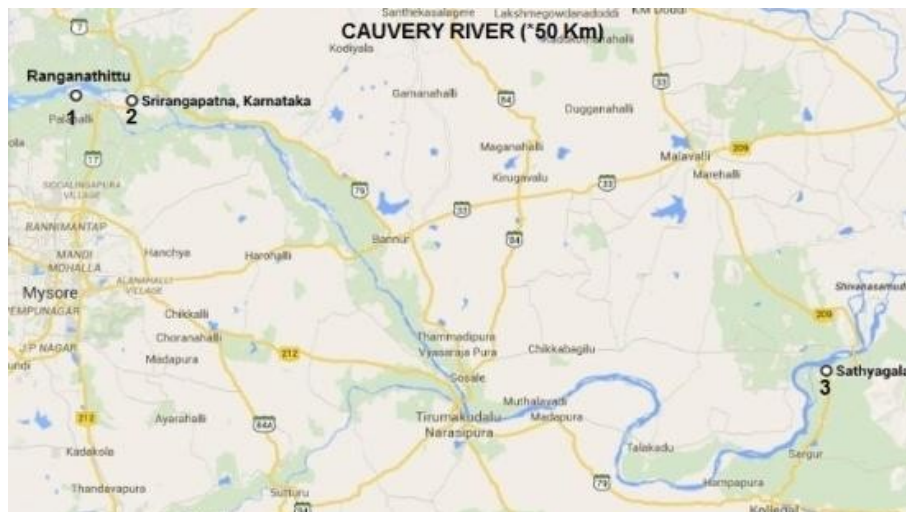


Figure 1. The Cauvery River Stretch

2.0.Municipal Sewage Generation and Treatment:

The water quality deterioration is caused by the discharge of sewage from the townships of Srirangapatna of Mandya District. River Cauvery passes through the sub urban areas of Srirangapatna. As per 2011 census the population of TMC, Srirangapatna is 25069.

The main source of water is from River Cauvery & bore wells and the Quantity of water supplied per day is 2.69 MLD and the quantity of sewage generated per day is 2.152 MLD.

The TMC is covered with 90% UGD system and provided 2 Nos. of low cost STP of capacity 1.39 MLD and 2.2 MLD to treat the sewage effluent generated from the Town limit. The sewage generated from unsewered area and missing link effluent is being discharged into storm water drain without any treatment which is ultimately leading to Cauvery River. 50% of UGD facility has been provided for Kollegala ,CMC.

The water quality deterioration is caused by discharge of sewage from the townships of Bannur and T Narsipura. As per the information provided by TMC and TP respectively water consumption in the townships of T Narsipura & Bannur 4MLD & 3.85MLD respectively. The town wise sewage generation and treatment capacity developed so far is provided in below.

Table: Status of Domestic Pollution in T-Narsipura & Bannur Taluk's

SI. No	District (Rural)	Taluk*	Total Sewage Generation on MLD	Total capacity of sewage treatment MLD	Details of STP	Remarks
1	Mysuru	T-Narsipura*	4.0	5.0	Presently provides micro STP's to treat the sullages	Proposed 4MLD STP plant at Alagudu Village, T-Narsipura, Mysuru District.
2		Bannur Town	3.85	3.3	Oxidation pond and 80% remaining treated in individual ST & SP	--

2.1 The quantity of Municipal Solid waste generated per day is about 8 to 9 Tons/day. MSW site has been identified and necessary infrastructures facilities to process the wastes is provided. At present they are not segregating the wastes and the wastes is being dumped in MSW site. Apart from dumping the solid wastes in the MSW site, some quantity is also dumped on banks of the River Cauvery.

2.2 Status of Industrial effluent and treatment facilities

The industrial units located in the water shed of river Cauvery are primarily small and medium scale units, less significant from water pollution point of view. The below table shows the list of industries and their pollution status;

Table: Category-wise Industries in the Water shed of River Cauvery

Sl. No	Category	Classification	No. of Industries	Non-polluting Industries	Highly polluting industries	Having adequate treatment plant	Zero discharge
1.	Vegetable oil manufacturing including solvent extraction and refinery /hydrogenated oils	Large Orange	01	0	0	01	01
2	Pulp & Paper	Medium Red	01	01	0	-	01
3	Hotels/ Resorts having more than 20 rooms and waste-water generation less than 10 KLD	Medium & Small Green	09	0	0	09	-
4	others	Small Red, Orange & Green	37	0	0	37	

The large and medium industries are maintaining zero liquid discharge by treating and recycling for the process. The hotels/resorts are having adequate treatment facility for treating the domestic sewage generated.

Out of 37 other industrial units are small sectors and scatter in different locations i.e., rice mills, hot mix plants and mineral water plants which are not significant from water pollution point of view.

2.3. 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 - Cauvery

Sl No.	Name of the local body	Type	Total Sewage generation in MLD	Total Capacity of Sewage treatment in MLD	Status of STP
1	Srirangapatna	TMC	2.152	3.61	Operational at present
2	Bannur	TP	3.85	3.3	Operational at present
4	Kollegala	CMC	7.2	3.3	Operational at present
3	T.Narsipura	TMC	4.0	5.0	Work is under progress

3. Characteristics of River water quality:

The monitoring results of River At D/S of Road Bridge at Shrirangapatna , At Ranganathittu & At Satyagala Bridge for the year 2017 & 2018 are shown in **Table-2**. River water quality at Satyagala Bridge Confirms to Class C- Means Drinking Water Source with conventional treatment followed by disinfection and Class D- for other two locations -Means Propagation of wild life, fisheries.

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 – Cauvery

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 Road Bridge at Shrirangapatna	4.2	7.4	1.0	3.16	390	3500	940	3900	D
	At Ranganathittu	4.4	7.3	1.0	3.50	110	700	1100	2800	D
	At Satyagala Bridge	5.5	7.2	1.54	2.89	200	460	1200	1700	C
2018	At D/S of Road Bridge at Shrirangapatna	4.9	7.1	1	3.20	170	390	940	1700	D
	At Ranganathittu	4.6	7.1	1	2.94	140	460	940	1400	D
	At Satyagala Bridge	5.5	7.2	1	2.9	92	320	790	1400	C

The results indicate that the water is polluted due to sewage from Srirangapatna , Bannur, Kollegala & T.Narsipura Towns.

4.Action taken by the KSPCB:

- Three new water quality monitoring station has identified in the stretch based on the criteria like upstream / downstream of confluence point of tributaries, sewage, agriculture run off etc. and carrying monitoring.
- Respective local bodies have been informed to provide UGD and STP to the whole municipal area and to treat to the standards prescribed by the Board and to make use of the treated sewage for irrigation / secondary purposes. In this regard, they have been advised to submit action plan for the treatment of sewage and utilization of which includes solid waste management.
- **KSPCB installed one continuous online water quality monitoring station at Sathigala bridge.**

5. Action plan to be taken for Rejuvenation of River Water Quality:

- 1) The Town Municipal Council T-Narsipura taluk has proposed 4MLD sewage treatment plant (STP) to treat the sewage and same shall be provided immediately with time bound programme.
- 2) Present TMC T-Narsipura provided micro STP's to treat the sullages. Until untreated sewage shall be used agricultural field till full pledged treatment facility to be established.
- 3) As per inline departments & KSPCB guidelines Buffer zone shall maintained on either side of the river bank.
- 4) Town Municipal Council and Town Panchayath shall ensure that providing complete underground drainage system.
- 5) Ensure that not to discharge wastewater through storm water drains and through missing links.
- 6) Regular monitoring and cleaning of river on either sides of river.
- 7) Creating awareness to the public on restoration of water quality of river and lakes.

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 implementation issues.

Total estimated cost of **Rs.51.52 Crores should be made budgetary provision for** Capital cost including O&M for proposed new STP's/Existing STPs in the identified cities/towns along the Cauvery River. The total cost of **Rs.10 crores** budgetary provision is already made for T.N.Pura local body by Government.

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

Sl. No.	Activity	Cost in Crores			
		Srirangapatna	Bannur	T.Narsipura	Kollegala
1	Operation & maintenance (O&M) cost for existing STP per annum	0.04	0.0329	Not Applicable	0.0329
2	Capital cost and O&M for proposed new STP's :	0.30 Crores (1.5 MLD, FSSM) work is under progress	43.60 Crores (UGD & 2.9MLD)	10 Crores (5 MLD) under construction	7.5 Crores (9.0 MLD)
	Total Rupees	61.52 Crores			

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 - Cauvery

Year	Hydrological Observation Site	Flow (m ³ /s)	
		Min	Max
2015	Chunchankatte	3.87	447.012
2016		8.165	11.25
2015	Kollegala	10.65	806.821
2016		11.14	40.01

8. 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 Cauvery	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 Cauvery 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
	(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 bodies(Sri rangapatna ,T.Narsipura , Bannur & Kollegala)/DMA	Within three months

	(g) Prohibition of Burning of any kind of waste including agro-residues	State Govt./District Administration and Local bodies (Sri rangapatna , T.Narsipura , Bannur & Kollegala) 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
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 & Local Bodies (Sri rangapatna , T.Narsipura , Bannur & Kollegala)	Within six months

	(b) To undertake measurement of flow of all the drains presently contributing pollution load in river CAUVERY and to formulate detailed project report (DPR) for each drain and corresponding town and submission of DPR .	State Government, KUWS & DB, District Administration /Local bodies(Sri rangapatna ,T.Narsipura , Bannur & Kollegala)	Within six months
	(c) Proper design, execution of STPs with full utilisation capacity	State Government, KUWS & DB , District/Local Administration	Within 12 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/Local Administration	Within 12 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	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 (Mysuru, Mandya and Chamarajanagar).	Karnataka Ground Water authority	Within Six months

	(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 Authority	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 Authority	Within six months

IV	Flood Plain Zone (FPZ)		
	(a)Plantation in Flood Plain Zone (FPZ)	Karnataka State Forest Department	Within Six months
	(b)Checking encroachments in the FPZ of river Cauvery	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	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 Irrigation Department/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 State Irrigation Department/Water Resources Department.	Once in six months
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