

**ACTION PLAN FOR RESTORATION OF POLLUTED STRETCH OF
RIVER RATNACHIRA ALONG BHUBANESWAR , PURI
STRETCH UNDER PRIORITY CATEGORY-V**

EXECUTIVE SUMMARY ON PROPOSED ACTION PLANS

Sl. No.	DESCRIPTION OF ITEM	Details
1.	Name of the identified polluted river and its tributaries	: Ratnachira River None
2.	Is river is perennial and total length of the polluted river	: Ratnachira River is a small storm water drain with a length of approximately 30 Km from its origin from Bhargavi River to its outfall in Chilika lake.
3.	No of drains contributing to pollution and names of major drains	: No drains
4.	Whether 'River Rejuvenation Committee (RRC) constituted by the State Govt./UT Administration and If so, Date of constitution of 'RRC'	: Yes. Constituted by the State Government vide letter No. 24426 dated 12.11.2018
6.	Major Towns on the banks of the river with population	: Sakhigopal
	a. Total no. of existing STPs and the total capacities in MLD	: No STP has been established.
	b. Total MSW generation in TPA	: Insignificant
7	Existing treatment and disposal facilities and total capacity	: Total MSW is being disposed in the earmarked dumping yard.
8.	a. Major industrial estates located with total no. of industries	: Not applicable
	b. No of CETP's and their treatment capacity	: Nil
	c. Gaps in treatment of industrial effluent	: Nil

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1.0 Background

Water quality assessment of river Ratnachira has been carried out by the State Pollution Control Board, Odisha under the project “National Water Quality Monitoring Programme” on regular basis at only one location, at Kumardiha near Sakhigopal since May, 2017. The maximum Biochemical Oxygen Demand (BOD) range in this stretch of Ratnachira river during 2017 was observed to be in the range 3.2-3.3 mg/l. BOD has exceeded the tolerance limit of 3.0 mg/l at Kumardihi twice during the total period of observation and therefore has been identified as polluted river stretch by the Central Pollution Control Board (CPCB). The polluted river stretches are categorized under five different priorities based on the BOD values as per Central Pollution Control Board (CPCB) classification. Monitoring locations with BOD concentration exceeding 30 mg/l has been categorized as Priority-I. Monitoring locations with BOD concentrations in the range 20-30 mg/l, 10-20 mg/l, 6-10 mg/l and 3-6 mg/l are categorized as Priority-II, Priority-III, Priority-IV and Priority-V respectively. Based on this classification, Ratnachira river stretch along Sakhigopal stretch has been categorized under Priority-V.

2.0 Water quality of Ratnachira river

Ratnachira river, a small tributary of Bhargavi river, flows near Sakhigopal which is 18 Kms away from Puri town and 46 km from Bhubaneswar city. The river ultimately falls in Chilika lake, the largest brackish water lake in Asia. It flows mostly through thickly populated villages.

Water quality monitoring station is shown in Fig.1.

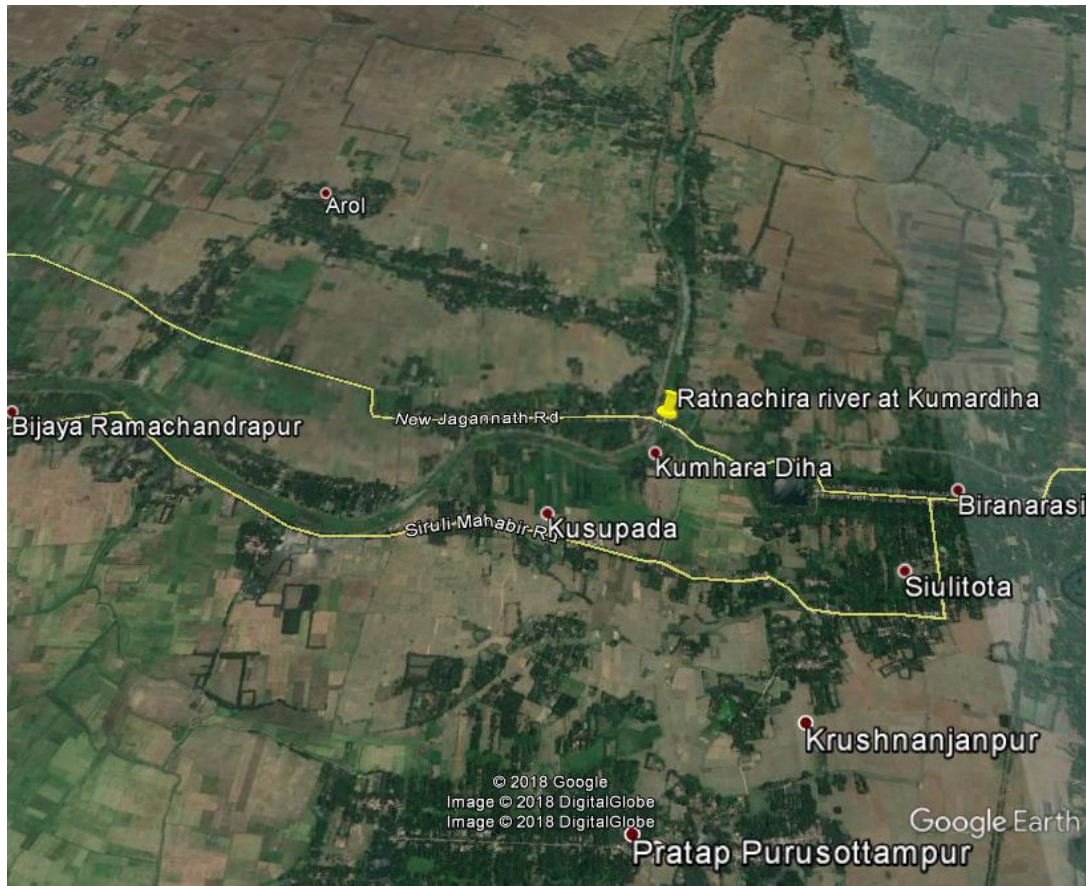


Fig.1 Water quality monitoring station on river Ratnachira

Monthwise water quality data of river Ratnachira with respect to Biochemical Oxygen Demand (BOD) during the year 2017 and 2018 are given in Table-1. The data show that BOD has exceeded the tolerance limit of 3.0 mg/l marginally only twice at Kumardiha during 2017 and marginally once during 2018.

Table-1 Monthwise BOD (mg/l) in Ratnachira river at Kumardiha during 2017 and 2018

Month	BOD, mg/l	
	2017	2018
January		1.7
February		1.0
March		2.5
April		3.5
May	2.8	1.6
June	3.2	2.2
July	3.3	3.0
August	2	0.8
September	1.2	0.9
October	1.7	2.2
November	0.6	0.5
December	1.5	1.5
Minimum BOD, mg/l	0.6	0.5
Maximum BOD, mg/l	3.3	3.5

3.0 Sources of Pollution

Deterioration of water quality in the Ratnachira river along the stretch Sakhigopal may be attributed to the insignificant flow during lean period and riparian activities.

However, in the list of polluted river stretched identified by CPCB, the polluted stretch of Ratnachira has been identified as along Bhubaneswar, Puri. In reality, the river is neither flowing near Bhubaneswar city nor near Puri city. Rather, the river flows through a densely populated area, Sakhigopal. The activities carried out by the villagers residing on its bank,

insignificant flow in the river are the major cause of water quality deterioration during lean period of a year.

4.0 Action plan for restoration of Water quality of Ratnachira River along Sakhigopal stretch

Hon'ble National Green Tribunal (NGT) Principal Bench have mentioned the suggestions of the CPCB in Para 42 in the order of the Case No. 673/2018 for implementation of following a two-fold concept for restoration of polluted river stretches.

1st concept : To target enhancement of river flow through interventions on the water sheds/ catchment areas for conservation and recharge of rainwater for subsequent release during lean flow period in year. This concept will work on dilutions of pollutants in the rivers and streams to reduce concentration to meet the desired level of water quality.

2nd concept : Regulation and enforcement of standards in conjunction with the available flow in rivers/ streams and allocation of discharges with stipulated norms.

BOD value in the river most of the time remained within 3.0 mg/l excepting twice in 2017 and once in 2018. The water quality of the river can be maintained within the tolerance limit by enhancement of river flow through interventions of the river catchment area for conservation and recharge of rainwater for subsequent release during lean flow period in the year.

The implementation of Swachh Bharat Abhiyan and construction of individual household toilets and community/public toilets, provision of water supply and increase in awareness among local inhabitants have significantly reduced the open defecation practice of the local inhabitants in the stretch.

Since Ratnachira river is a small river drain with a length of approximately 30 Km, action plans covering aspects w.r.t. Flood Plain Zone protection and its management, maintaining E-

Flows and water shed management, good irrigation practices setting up of Bio-Diversity parks, removal of encroachment and Plantation on both sides of the river are not feasible in the catchment of Ratnachira river..

5.0 Implementing Authority

Panchayati Raj and Drinking Water Department in Govt. of Odisha has the mandate to implement Swaach Bharat Abhiyan (Gramin) in all the village and make the people of peripheral villages of a river aware to use toilets and to provide health sanitation facilities.

6.0 Conclusion

There is no wastewater discharge to Ratnachira river in its catchment. Only a few marginal exceedance in BOD values from the tolerance limit of 3.0 mg/l observed in both the years in the identified stretch of Ratnachira river may be attributed to some sporadic events or in-stream activities. The marginal deviation of BOD values (3.2 mg/l and 3.3 mg/l in 2017 and 3.5 mg/l in 2018) may be treated as an outlier and **therefore the river stretch may be considered as not polluted.**

On the above background, the categorization of the river stretch by CPCB under Priority category – V with the identified stretch “Along Bhubaneswar, Puri needs reconsideration and the stretch **may be corrected as “ along Sakhigopal”** and further, the stretch **may be deleted** from the list of polluted river stretch which has been prepared by CPCB only on the basis of deviation of BOD values from the tolerance limit of 3.0 mg/l.
