

**ACTION PLAN FOR RESTORATION OF POLLUTED STRETCH OF  
KUSUMI RIVER ALONG ANGUL TALCHER  
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	: Kusumi River. No tributary
2.	Is river is perennial and total length of the polluted river	: Kusumi river is a small stream with a length of approximately 30 Km from its origin to its outfall into 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
5.	Whether 'River Rejuvenation Committee (RRC) have approved the Action Plan :	Yes. RRC have approved the Action Plan in its 3 <sup>rd</sup> meeting held on 04.06.2018.
6.	Major Towns on the banks of the river with population	: No ULB situated along the river.
7.	a. Total no. of existing STPs and the total capacities in MLD	: No STP has been established.
	b. Total MSW generation in TPA	: Insignificant
	c. 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
	d. Existing HW Treatment and Disposal Facilities and total capacity with life span	: Nil

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## **1.0 Background**

Water quality assessment of Kusumi river has been carried out by the State Pollution Control Board, Odisha under the project “National Water Quality Monitoring Programme” at only one location, Tangi in Khurdha district since April, 2017. The Biochemical Oxygen Demand (BOD) range in this stretch of Kusumi river during 2017 was observed to be in between 0.4-3.2 mg/l. BOD has exceeded the tolerance limit of 3.0 mg/l in this stretch only once during the total period of observation.

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 have 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, the river stretch of Kusumi river has been categorized by CPCB under Priority-V with the maximum BOD value being 3.2 mg/l. However, the polluted stretch has been wrongly identified by CPCB as along Angul Talcher, as the river flows in Khurdha district not in Angul district.

## **2.0 Water quality of Kusumi river**

Kusumi river, a small river originates in Nayagarh district of the State of Odisha and flows through Khurdha district before its outfall into Chilka lake. The flow in the river is marginal during non-monsoon season. Satellite image of Kusumi river and location of water quality monitoring station on the river are shown in Fig. 1.

Water quality of Kusumi river is being monitored by the Board on regular basis since April, 2017. Monthwise water quality data of Kusumi river with respect to Biochemical Oxygen Demand (BOD) during the year 2017 and 2018 are given in Table-1.



**Fig.1. Satellite image of Kusumi river and Monitoring location on Kusumi river**

**Table-1 Monthwise BOD (mg/l) in Kusumi river during 2017 and 2018**

Month	BOD, mg/l	
	Kusumi river at Tangi	
	2017	2018
January	-	0.4
February	-	1.1
March	-	1.3
April	3.2	1.5
May	2.6	1.7
June	0.4	0.7
July	2.3	1.6
August	1.8	1.0
September	1.6	1.3
October	0.6	1.3
November	0.7	0.8
December	0.6	1.1
<b>Minimum BOD, mg/l</b>	<b>0.4</b>	<b>0.4</b>
<b>Maximum BOD, mg/l</b>	<b>3.2</b>	<b>1.7</b>
<b>Average, BOD, mg/l</b>	<b>1.5</b>	<b>1.2</b>

The data shows that BOD has exceeded the tolerance limit of 3.0 mg/l marginally only once during April, 2017 throughout the period 2017-2018. Otherwise, BOD remained within the tolerance limit of 3.0 mg/l during rest period of the year.

There is no organized wastewater discharge to Kusumi river upto its confluence with Chilika lake. There is no urban local body situated along the bank of Kusumi river. Therefore, there is remote possibility of domestic wastewater discharge to the river. However, the observation of single marginally deviating BOD value may be ascribed to decomposition of

aquatic plants and dead leaves in the water which has been amplified due to marginal flow in the river during lean period. And may be considered as an outlier of total observation.

### ***3.0 Action plan for restoration of Water quality of Kusumi river***

As evidenced from the foregoing discussions, there is no identified point source of pollution to Kusumi river. This is also reflected in the BOD values of Kusumi river in which most of the time BOD remained within the tolerance limit of 3.0 mg/l during the period 2017-2018 excepting only one occasion. Such single deviation may be treated as outlier or may be due to some incidental effects.

In Para 42 of the order of the case No. 673/2018 (More river stretches are now critically polluted), Hon'ble NGT has suggested a two-fold concept for restoration of polluted river stretches as follows.

**1<sup>st</sup> 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.

**2<sup>nd</sup> 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 remains within 3.0 mg/l excepting a single occasion. The water quality of the river can be maintained within the tolerance limit throughout the year 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 Kusumi river is a small river 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 such river.

#### **4.0 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.

#### **5.0 Conclusion**

There is no wastewater discharge to Kusumi river in its catchment. Single deviation in BOD values from the tolerance limit of 3.0 mg/l observed in the period 2017-2018 in the identified stretch of Kusumi river may be attributed to some sporadic events or in-stream activities. The single marginal deviation of BOD values (3.2 mg/l in 2017) 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 of Kusumi River by CPCB under Priority category – V with the identified stretch “Along Angul Talcher” and maximum BOD values in the range 3.2 mg/l needs reconsideration. The stretch may be considered as along Tangi in Khurdha district instead of “Along Angul Talcher” as the river does not flow in Angul-Talcher area. Further, because of single marginal deviation in BOD value over a two year of observation 2017 and 2018, the **stretch may be deleted from the list of polluted river stretch.**

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