

**ACTION PLAN FOR RESTORATION OF POLLUTED
STRETCH OF
RIVER NAGAVALI ALONG JAYKAYPUR TO
RAYAGADA UNDER PRIORITY
CATEGORY V**

C O N T E N T S

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1.0 Background

Water quality assessment of river Nagavali has been carried out by the State Pollution Control Board, Odisha under the project “National Water Quality Monitoring Programme” on regular basis at three locations, such as Penta (Jaykaypur upstream), Devodola (Jaykaypur Downstream) and Pratappur (Rayagada Downstream). The maximum Biochemical Oxygen Demand (BOD) range in this stretch of Nagavali river during 2017 was observed to be in the range 3.1-3.9 mg/l. BOD has exceeded the tolerance limit of 3.0 mg/l at Jaykaypur Downstream 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, Nagavali river stretch along Jaykaypur to Rayagada has been categorized under Priority-V.

2.0 Rayagada city

Rayagada city is situated on the bank of Nagavali river. The city is located at 83.42°E longitude and 19.17°N latitude in Rayagada district of Odisha. Rayagada town is located at a distance of 390 km from the State Capital Bhubaneswar. The industrial township of M/s J. K. Paper Mills is situated along Nagavali river at a distance of approximately 10 Km from Rayagada Municipality. As per 2011 census, Rayagada Municipality has a population of 71208 and Jaykaypur town has an approximate population of 35,000.

3.0 Water quality of Nagavali River

Nagavali river originates from the Bijipur hills of the Eastern Ghat near village Lakhabahal in Kalahandi district of Odisha. It is an interstate river with a total length of 217 km flowing through Odisha and Andhra Pradesh. It covers 125 km stretch in Odisha state and has a basin area of 48.8% of total basin area. From its origin to its exit from Odisha at Karada village of Rayagada, it flows mostly through very scarcely populated areas with almost no industrial and mining activities. There is only one major town, Rayagada, one large pulp and paper mill (M/s J.K. paper Mills Limited) at Jaykaypur and one ferro alloy plant (IMFA) at Theruvali are in the Odisha portion of Nagavali river basin .

Water quality of the river Nagavali is monitored at three locations- Penta U/s, Jaykaypur D/s and Rayagada D/s. Water quality monitoring stations are shown in Fig.1.

Monthwise water quality data of river Nagavali with respect to Biochemical Oxygen Demand (BOD) during the year 2017 and 2018 are given in Table-1. The data shows that BOD has exceeded the tolerance limit of 3.0 mg/l marginally twice only at Jaykaypur downstream during 2017 and there is no exceedance of BOD value observed during 2018.

4.0 Sources of Pollution

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

M/s J.K. Paper Mill, the large pulp and paper mill, established on the Nagavali river catchment area has set up a effluent treatment plant to treat the wastewater to achieve the stringent stipulated limit prior to discharge into Nagavali river. Further, the industry has also set up a 2 MLD capacity

sewage treatment plant to treat the domestic wastewater of its industrial township prior to discharge to Nagavali river.

However, during non-monsoon period, due to non-availability of dilution in the river, marginal water quality deterioration has been observed.

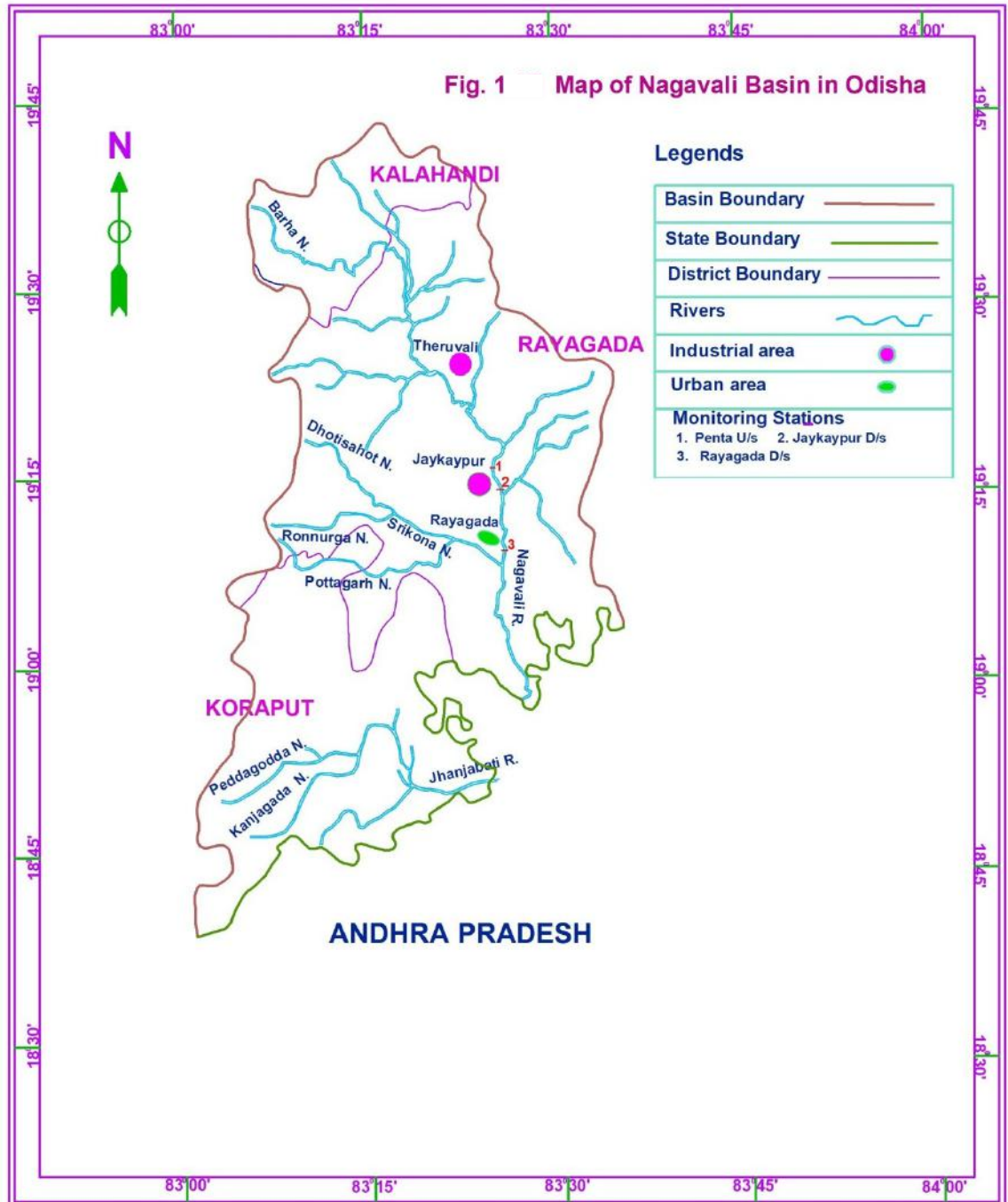


Table-1 Monthwise BOD (mg/l) in Nagavali river during 2017 and 2018

Month	BOD, mg/l		
	Penta U/s	Jaykaypur D/s at Devodola	Rayagada D/s at Pratappur
January	0.3	3.5	0.5
February	1.9	2.6	1.1
March	0.2	1.7	0.8
April	1.2	3.4	0.7
May	0.8	1.5	0.8
June	1.5	1.8	1.6
July	1.0	1.6	2.6
August	0.5	0.5	0.6
September	0.7	1.3	1.8
October	1.0	2.1	1.6
November	0.6	1.2	1.6
December	0.3	2.5	2.4
Minimum BOD, mg/l	0.2	0.5	0.5
Maximum BOD, mg/l	1.9	3.5	2.6
January	1.0	2.1	1.2
February	1.5	2.5	1.3
March	1.0	1.8	1.6
April	1.0	1.2	1.6
May	0.4	0.9	0.5
June	1.4	1.8	1.2
July	1.4	2.8	2.1
August	0.4	1.2	0.6
September	0.8	1.5	1.0
October	0.8	1.7	0.6
November	0.4	0.8	0.7
December	0.5	1.1	1.0
Minimum BOD, mg/l	0.4	0.8	0.5
Maximum BOD, mg/l	1.5	2.8	2.1

Approximately 26 TPD municipal solid waste is being generated in Rayagada municipality which is collected through both door to door collection and from community bins and then transported to earmarked landfill site. The dumping site has been chosen for its deep natural depression. Therefore, there is remote chance of contamination of Nagavali river by municipal solid waste disposal from Rayagada Municipality.

Approximately 20 Kg of biomedical waste per day is generated from the health care units existing in Rayagada Municipality. The biomedical waste The biomedical waste generated by the respective health care units in these two areas are dumped in earthen pits constructed within its premises as per deep burial disposal practice suggested under Biomedical Waste (Management and Handling) Rule, 2016. Therefore, there is remote possibility of contamination of Nagavali river by bio-medical waste generated from Rayagada Municipality and Jaykaypur town.

5.0 Action plan for restoration of Water quality of Nagavali River along Jaykaypur to Rayagada 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.

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BOD values of Nagavali river along the stretch from Jaykaypur to Rayagada remained within the tolerance limit of 3.0 mg/l during the period 2017-2018 excepting only two occasions (January and April, 2017 at Jaykaypur D/s). Such single marginal deviation during lean period may be treated as outlier or may be due to some incidental effects. 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.

Industries operating in Jaykaypur area have been instructed by the Board to install rain water harvesting structures as a mean to ground water recharge and to undertake massive plantation in the peripheral area as a Corporate Social Responsibility activity..

6.0 Implementing Authority

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

Odisha Water Supply and Sewerage Board (OWSSB) under Housing and Urban Development Department in Govt. of Odisha is the implementing authority for implementation of AMRUT yojana and wastewater management project in Rayagada Municipality.

7.0 Conclusion

From the discussions in the foregoing sections it may be concluded that the impact of municipal wastewater, industrial wastewater and solid waste on the water quality of Budhabalanga river is insignificant. The frequency of exceedance of BOD values from the tolerance limit of 3.0 mg/l in the river stretch from Jaykaypur D/s to Rayagada D/s has been decreased from 17 % during 2017 to no exceedance in BOD values during 2018. **Therefore the river stretch may be considered as not polluted.**

On the above background, the river stretch of Nagavali River from Jaykaypur D/s to Rayagada D/s **stretch may be deleted from the list of polluted river stretch.**

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