ACTION PLAN FOR RESTORATION

OF POLLUTED STRETCH OF RIVER RATNACHIRA

ALONG BHUBANESWAR, PURI STRETCH

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/. BOD has exceeded the tolerance limit of 3.0 mg/l at Kumardihitwice 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 Ratnachirariver

Ratnachira river, a small tributary of Bhargavi river, flows near Sakhigopal which is 18 Kms away from Puri townand 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.

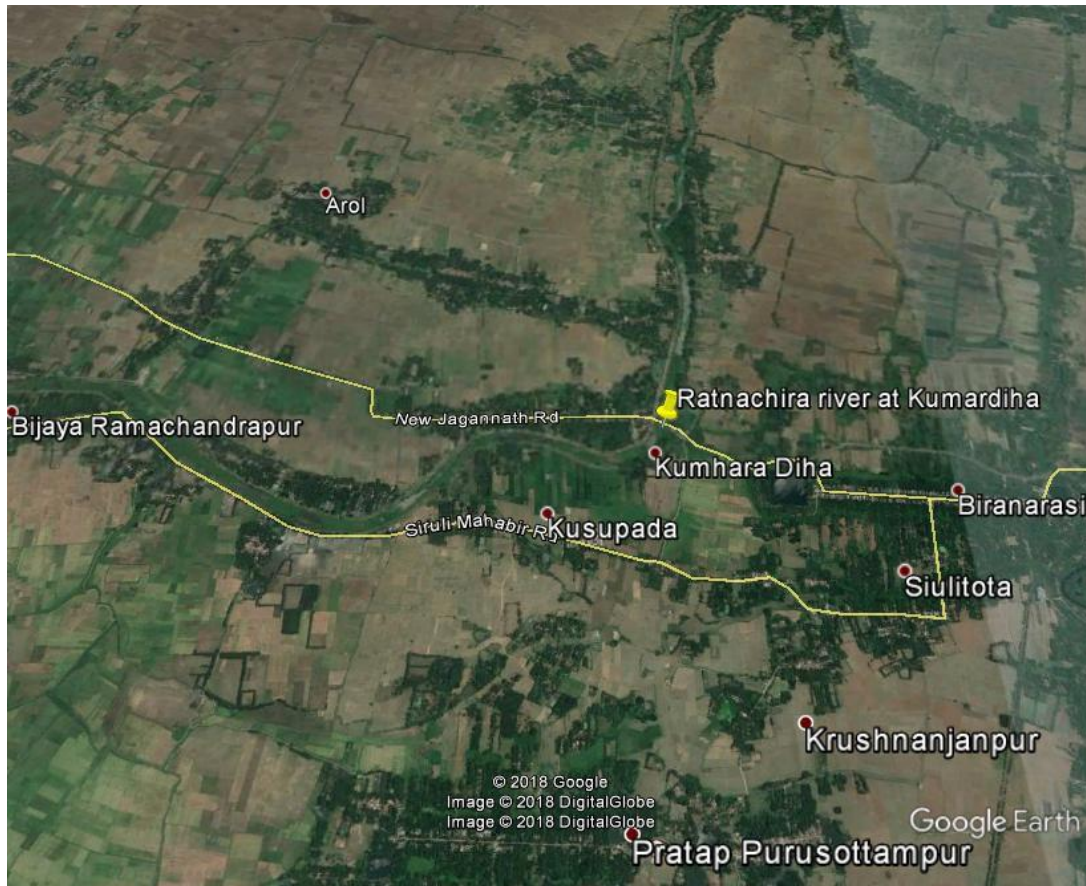Water quality monitoring station is shown in Fig.1.

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 is given in Table-1. The data show that BOD has exceeded the tolerance limit of 3.0 mg/l only twice at Kumardihaduring period of monitoring.

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

Month	BOD, mg/l
May	2.8
June	3.2
July	3.3
August	2
September	1.2
October	1.7
November	0.6
December	1.5
Minimum BOD, mg/l	**0.6**
Maximum BOD, mg/l	**3.3**

3.0 Sources of Pollution

Deterioration of water quality in the Ratnachira riveralong the stretch Sakhigopalmay be attributed to the insignificant flow during lean period and riparian activities, dumping of garbages by the high population density on its bank.

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 Sakhigopalstretch

Hon'bleNational 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.

1ˢᵗconcept : 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.

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

Since the BOD deviations are observed to be marginal as well as frequency of deviation is few, the water quality of the river can be improved 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.