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SHORT COMMUNICATION

STUDIES ON POLLUTION OF RIVER NETHRAVATHI, KARNATAKA

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ABSTRACT

The studies carried out on the River Nethravathi show that the river is grossly polluted at various stretches especially where pilgrim activity is concentrated. The major sources of the pollution are entry of sewage and direct human activity in the form of bathing, cloth washing, washing of vehicles, throwing of religious and other objects. Turbidity of the river at certain stations has been found quite low due to algal growth and presence of silt.

World over, the rivers encouraged civilization and serve as primary sources of water for human consumption apart from other beneficial uses including transport through waterways, irrigation, recreation and industrial, etc. River Nethravathi is one of the major rivers flowing west into the Arabian Sea and has a length of about 148 km. It originates near Samse in Charmadi Ghats, which is part of the Western Ghats. After being joined by a number of small tributaries, it debounches into the Arabian Sea near Mangalore.

The Nethravathi is a major river of the district Dakshina Kannada, having a drainage area of about 3,432 sq. km. Dakshina Kannada receives an average rainfall of 3500-4500 mm annually. The study was carried out to asses the water quality at various stations along the river basin for the period of five months (October 2005- February 2006). The analysis was carried out by the methods of APHA (1985) and the observations recorded at the different stations are given in Table 1.

At most of the stations the water is used for irrigation with direct human activities like bathing, cleaning of vehicles and joining of small polluted streams to the river. The water is unclean (muddy) and suspended oil slicks can be observed. There are also various fast food centres which have come up near the river. At Kumardhara bridge, road construction and vented dam work across the Subramanya river is still pending; National Highway (NH 48) is under expansion, which results in lot of dust and silt into the river. At Pane Mangalore, the water is highly turbid in rainy season; looks brownish, muddy and various objects such as clothes are thrown into the river, which causes lot of suspended floating material in the river water. There are various pilgrim centres at Dakshina Kannada district. One of the famous pilgrim centre is Dharmasthal, where hundreds of people take “holy dip” and wash their clothes along the banks of this river everyday.

It can be seen that the dissolved oxygen (DO), which determines quality and quantity of biota, is sufficient at all the stations for the plankton to survive and various physiological activities. However, the poor flow during lean period (December and February) coupled with deterioration of water quality with increased temperature resulted in the depletion of DO. Besides this, the mixing of organic wastes demanding oxygen might have induced drop in oxygen level. Turbidity is a measure of cloudiness in water. The more turbid the water, the muckier it is. The water was found to be more turbid during the months of November and February at various stations. This is caused by soil ero-

Table 1: Water quality data of the Nethravathi river (October 2005 to February 2006).

Parameter	pH	DO (mg/L)	BOD_5 (mg/L)	Turbidity (NTU)	MPN	TDS (mg/L)
October 2005						
Station 1	6.8	7.87	0.98	1.0	79	21
Station 2	6.8	7.92	0.57	3.4	14	21
Station 3	6.7	7.45	1.40	4.7	33	21
November 2005						
Station 1	6.6	7.98	0.91	8.3	1600	33
Station 2	6.7	6.96	0.40	11.8	350	31
Station 3	6.7	6.60	0.48	20.1	1600	39
Station 4	6.3	8.13	2.05	13.3	220	30
December 2005						
Station 1	6.22	7.31	1.43	2.9	40	28
Station 2	6.62	7.65	0.57	2.5	12	21
Station 3	6.42	7.74	1.40	2.9	8.2	28
Station 4	6.52	7.63	0.43	1.6	130	21
January 2006						
Station 1	6.85	6.95	3.47	3.1	14	35
Station 2	7.26	7.55	1.3	4.0	2	21
Station 3	7.39	7.58	2.24	1.8	9.2	28
Station 4	7.15	7.47	1.38	1.9	6.8	28
February 2006						
Station 1	7.18	5.87	1.38	14.0	15	42
Station 2	7.39	6.96	1.73	13.5	13	28
Station 3	7.50	6.82	2.24	11.9	11	35
Station 4	7.60	6.92	1.30	12.5	15	35

sion, waste discharge, urban runoff and algal growth etc. Abundance of algae was found along the few stations.

Total dissolved solids or filterable residue includes salts and organic residue. It is noticed from the results that the stations of downstream region have higher TDS values compared to the upstream ones. The number of pilgrims is much more in this season and they use this water for various purposes. It is also due to addition of sewage through non-point sources and also the anthropogenic activities along the banks at different stretches in the downstream. MPN of coliforms values are found to be higher in the stations along the temple vicinities as they are much affected by anthropogenic indulgence and defection on the banks. As these are holy places devotees take a dip before entering the temple. Increased inflow of pilgrims decreased hygienic conditions, and poorly maintained sanitation results in the deterioration of environmental health of the aquatic system.

During month of November (festival season), the water quality was found to be deteriorating. The temple towns are old and planned for a flow of limited devotees during the olden days. There is no proper sewage treatment plant, and there are solid and liquid organic biowastes generated without proper disposal systems. The water quality was recorded comparatively good in the month of January. The water can be used for bathing and drinking purposes only after treatment.

REFERENCES

APHA 1985. Standard Methods of Water and Waste Water Analysis. American Public Health Association, Washington DC.