RESEARCH PAPER:

Seasonal water quality status in Tungbhadra river around TB dam, Karnataka, India

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SUMMARY

It is important to make an assessment of quality for the best use of water resources distribution and utilization. It becomes necessary to have an idea of the present and future demand of water for various use *e.g.* irrigation, industries, public health and river conservation. In the present study, water quality analysis of Tungabhadra River around Tungabhadra Dam, from Kudli (upstream) to Honnarahalli (downstream) has been carried out in order to determine the sources responsible for deterioration of water quality. In order to evaluate the quality of Tungabhadra River, water samples were collected from different locations in various seasons during 2009-10. Analyses were carried out with various chemical techniques to determine the water quality. The water quality parameters were analyzed; pH, electrical conductivity, total dissolved solid (TDS), dissolved oxygen, biochemical oxygen demand, chemical oxygen demand, total hardness, total alkalinity, chloride, Nitrate, sulphate, sodium and potassium. Ten different stations were selected in the present study along the river basin for the sample collection. The study identified increase in the anthropogenic activities which is the main source of pollution. It was observed that the main cause of deterioration in water quality was due to the lack of proper sanitation, unprotected river sites. The river water cannot be used for domestic purposes without any form of treatment.

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Human activities involve the use of water in one way or the other. It may be noted that man's early habitation and civilization sprang up along the banks of rivers. However, with the rapid increase in the population of the country and the need to meet the increasing demands of irrigation, human and industrial consumption, the available water resources in many parts of the country are getting depleted and the water quality has been deteriorated. Indian rivers are polluted due to the discharge of untreated sewage and industrial effluents (Bhardwaj, 2005). The situation is no different in the Tungabhadra river basin, where agricultural activities, urbanization and industrialization have significant impacts on water quality. In this context, the study would help to meet the continued need for sound information on the situation analysis, extent of water-quality problems, variations in water quality in different seasons, on understanding other key issues and constraints.

Generally, the seasonal variability for many constituents is weaker in the downstream when compared with the upstream of the reservoirs. This is beneficial for downstream users because the result is more reliable and there is consistent quality of the water supply. There are several reports on river water quality assessment using physico–chemical and biological parameters (Madhyastha *et al.*, 1999; Sinha *et al.*, 2004; Singh and Gupta 2004 and Santosh *et al.*, 2007.

The population pressures in the basin cause an acceleration of the progressive deterioration of water quality because of increased domestic, municipal, agricultural and industrial activities and effluent being discharged into water bodies and increase in environmental degradation.

In the present study, water quality analysis of Tungabhadra River around Tungabhadra Dam, from Kudli (upstream) to Honnarahalli (downstream) has been carried out in order to determine the sources responsible for deterioration of water quality.