

Tracking the Water Quality of Arunavati River

Premlata Manohrrao Sonparote

Assistant professor, B.B. Arts, N. B. Commerce And B.P. Science College, Digras, Dist-Yavatmal

Abstracts

The Arunavati River water has significant socioeconomic value to people in Digras and Arni and 100 village of surrounding in Yavatmal district of Maharashtra. Water of Arunavati River used for drinking, irrigation purposes mainly. Selecting different sampling station during April 2014 to May 2015. The water samples were Evaluated by following parameters PH, temperature, E.conductance, calcium Hardness, chloride, Alkalinity, Turbidity, sulphate.

Key Words: - Water, Quality , River , Arunavati.

Introduction

The northern part of Yavatmal district is a plateau, It covers Darwaha, Ner, Yavatmal taluka and some part of Arni and Digras taluka. Arunavati is a major irrigation project across river Arunavati a tributary of river painganga in Gondvan basin. The Arunavati river is about 70 miles in length. The dam is located near savanga of Digras Taluka in Yavatmal district, Maharashtra. The painganga has six tributaries of same size these are pus, Arunavati, Adaan, waghadi, khuni and Vidarbha. Arunavati dam was constructed as a part of irrigation Hydroelectric project by government of Maharashtra in year 1994. Arunavati dam project is completed during 2008-09 and it is 10 kilometre far from the city

Materials and Methods

For qualitative assessment of Arunavati River water, a 18 km stretch was selected between stretch of river and basin five

sampling station were selected upstream of basin which is located at 20°16' 22'' at latitude of 78° 20' 32'' at longitude the climate of the site is continental. It is hot and dry in summer, mild in winter, cloudy and rainy in rainy season. The entire chemicals used in the study were of analytical grades. Double distilled water was used throughout the study. All glass wares and samples containers were thoroughly cleaned and finally rinsed with double distilled water. Temp was measured by mercury thermometer. PH, turbidity was measured by analytical mobile kit. The hardness estimated by conventional EDTA titration method. Sulphate was analysed by turbidity which involves titration with standard AgNO₃ solution using potassium chromate as an indicator.

Surface water samples were collected at an interval of 20 days from 5 identical stations from period of April 2014 to May 2015. Result and Discussion

The physico-chemical parameters of water samples are given in table in the range of mean. It is observed that the temperature varies at all points is nearly similar for sampling point no 1 to 3 and slightly decrease in temp for site 4 and 5 for river Arunavati. The PH varies from 7.16 to 6.59. electrical conductivity which is measurement of ionic strength of water varies between 0.42 to 0.34 μ/cm. variation from calcium hardness were decrease from 131 mg/l to 120 mg/l. It can be seen that the variation in chloride are sudden increments or decrements in chloride level. Sulphate varies from 6.12 to 8.28 mg/L. variation of alkalinity is observed between 132 mg/L to 151.4 mg/L. the variation turbidity for all sampling points are greater than 10 NTU always.

CONCLUSION

- 1) The Arunavati river has exceeded the danger level, is evident from above parameters because water of Arunavati was supplied to 100 villages and two towns for drinking.
- 2) The rise of population of three villages on the bank of river Arunavati perform each and everything in the river Arunavati. And all the waste water of the three villages is late in to river. The distance between the three villages and reservoir is less. Within such a short distance the quality of water is not maintain because the self purification system of river is not work properly for such short distance.
- 3) Silt deposition has resulted into the slow moving water body.
- 4) The dam construction has prohibited the natural flow of water of river Arunavati

because of which the self cleaning velocity is hampered.

- 5) The water quality river is diminishing slowly as there is reduced volumetric flow of water with increasing pollutants in water.
- 6) It is suggested that a regular check is to be kept on Arunavati River on its Physico-chemical and biological factors and legal action should be taken to preserve the river from the diverting.
- 7) The waste water of three villages do not lay in to the river directly it should be purified before late in to the river or the waste water of three villages diverted on opposite side of river into the valley.
- 8) The water quality Index does not give a complete solution to the problem of water quality management. Necessary suggested action should be taken.
Physico- chemical characteristics of water from Arunavati River

Parameters	Site 1	Site 2	Site 3	Site 4	Site 5
Temperature	24.40	24.30	25.20	22.02	22.62
PH	7.16	7.20	7.34	6.80	6.39
E. Conductance (μ/cm)	0.42	0.38	0.35	0.40	0.34
Calcium Hardness	120.29	131.52	126.82	130.11	128.18
Chloride (mg/L)	13.61	12.93	11.82	13.42	13.61
Alkalinity (mg/L)	132.3	135.2	139.9	148.8	151.4
Sulphate (mg/L)	6.12	7.34	6.22	8.28	7.32
Turbidity (NTU)	28.22	30.41	31.34	29.91	34.72

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