**IMPACT: International Journal of Research in Applied, Natural and Social Sciences (IMPACT: IJRANSS)**
**ISSN(E): 2321-8851; ISSN(P): 2347-4580**
**Vol. 2, Issue 7, Jul 2014, 107-112**


# MATHEMATICAL MODELLING FOR WATER QUALITY OF NATHSAGAR RESERVOIR, AURANGABAD

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## ABSTRACT

Water is one of the most important and basic natural resources. Water resources globally are gradually getting contaminated by the addition of foreign materials from the surroundings. These include organic matter of plant and animal origin, land surface washings besides industrial and sewage effluents. The addition of these materials not only influences the micro fauna of fresh water but also favours the development of a variety of new biota, rendering it unfit for human consumption. Unpolluted safe drinking water is one of the primary requisites for healthy human life. This paper deals with mathematical modelling for water quality of Nathsagar Reservoir located at Aurangabad district, Maharashtra.

Three sampling stations were selected and water samples were collected for a period of one year continuously i.e. June 2009 to May 2010. Monthly changed in physico-chemical parameters were recorded such as Temperature, pH, Electrical Conductivity, Dissolved Oxygen and Biochemical Oxygen Demand respectively. During investigation these parameters were shown some variations with respect to DO concentration. These variations were represented as mathematical models by using multiple linear regression analysis. These models were found to be fit for DO variable in combination with four parameters. Results showed that there is significant relation between DO and other four selected parameter which explains between 45% to 74%.

**KEYWORDS:** DO, Physico-Chemical Parameters, Mathematical Model, Multiple Linear Regression (MLR), Nathsagar Reservoir