

WATER QUALITY STUDIES ON BOMMANAHALLI LAKE

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ABSTRACT

The present study aims at assessment of water quality of Bommasandra Lake. Data were collected for four sample stations to assess the quality of water from the lake for human consumption and irrigation. The Physico-chemical parameters of experimental water samples were collected and analysed as per standard methods, also obtained values were compared with standard values, which are recommended by bureau of Indian standards (BIS). The study reveals that water is unsafe for human consumptions.

INTRODUCTION

Water is vital for the existence of all life forms and is essential for all activities of human beings. Potable water is defined as the water, which is suitable for human consumption. But today due to the presence of various chemical compound and waste from human activities so that this water gets polluted. From a public health or ecological point of view a pollutant is any biological, physical or chemical substances in which an indomitable excess is known to be harmful to other desirable living organism. These are many different materials that may pollute surface water or ground water. Studies on water quality are going increasing importance in our country and many exhaustive and comprehensive studies have been carried out. The present study is designated to assess the quality of water for Bommasandra lake in Bangalore district of Karnataka, Fig 1 and Fig 2 shows the location of lake, Bommasandra lake is located in Karnataka, near by Bangalore of around 25 km, and is located 13° 52' 45" N and 78° 35' 10"

E. The annual average rainfall is 73 cm in this area. The Bommasandra Lake is one of the sources for domestic, aquaculture, drinking water for cattle's and agriculture for local area. The lake water facing various hydrological & biological problems due to discharge of domestic waste, with small-scale industrial waste and run-off water. The physico - chemical condition of the medium plays an important role in determining the living complex of inland fresh water, the results of physico-chemical were compared with Indian drinking water standards, and also with the procedures adopted in estimation of various parameters are according to the standard methods. In this paper the attempt has been made to access water quality of this lake for use, by studying physico-chemical parameters.

MATERIALS AND METHODS

The water samples were collected at different points in the lake for analysis, including at inflow and out flow points of the lake for different seasons, Fig 2

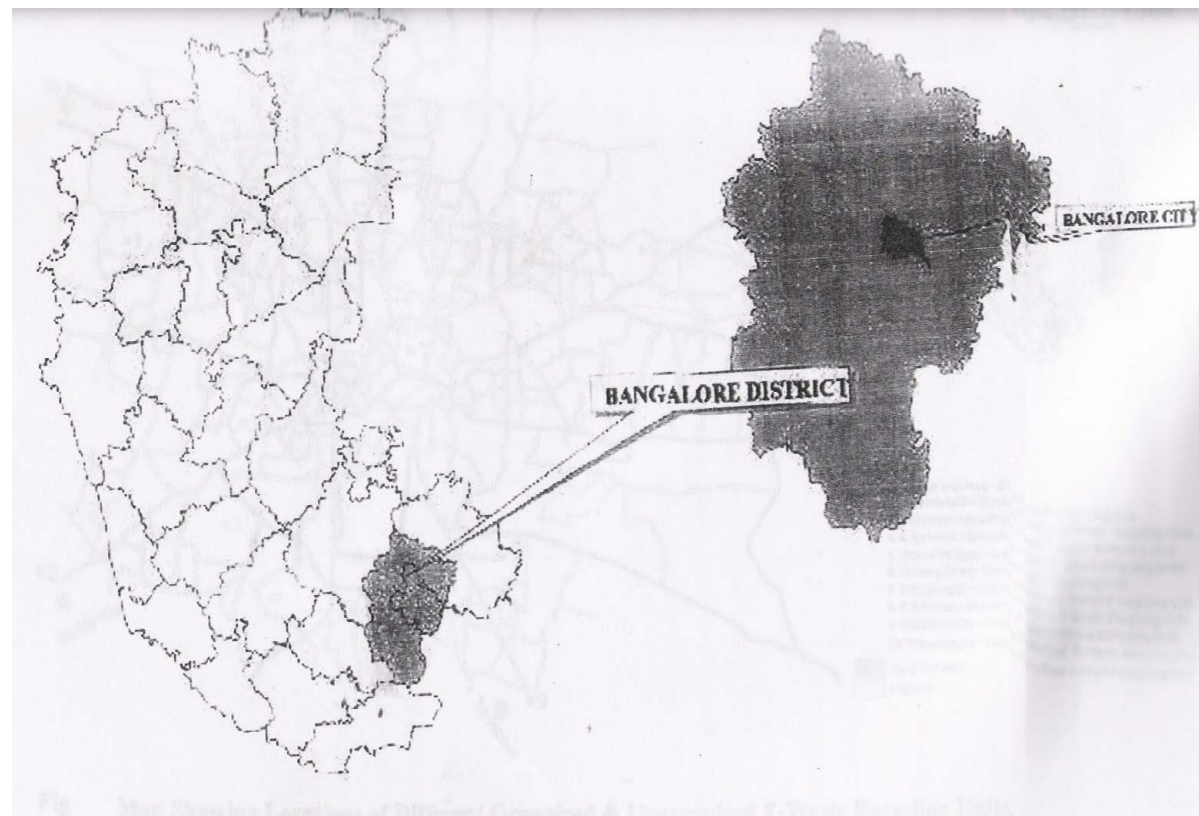


Fig. 1 Location map showing Bangalore district and Bangalore city.

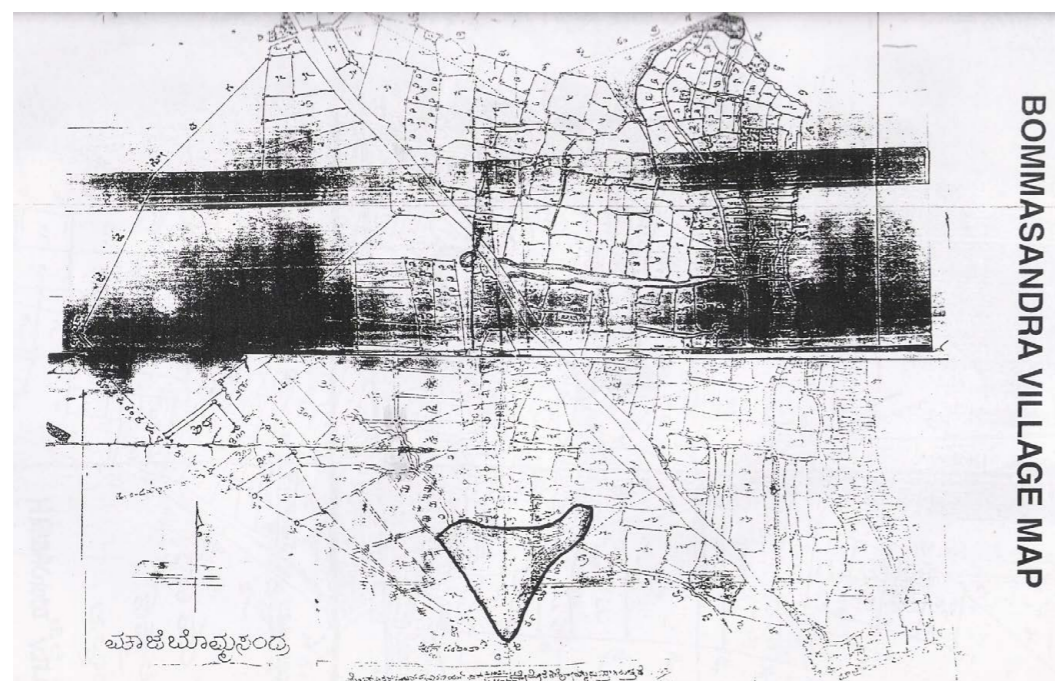


Fig. 2 The border line showing the location Bommasandra lake.

Table 1. Physico-chemical Characteristics of Bommasandra lake water

Sr. No	Parameter	Samplings Stations				Mean
		1	2	3	4	
1.	Odour		Objectionable			
2.	Temperature,	26.00	27.20	26.30	24.50	26.00
3.	Colour	Green	Light green	Green	Green	Green
4.	Turbidity	83.40	80.70	86.90	84.00	83.75
5.	Electrical Conductivity ($\mu\text{s}/\text{cm}$)	377.5	369.0	381.1	316.0	368.65
6.	pH	8.37	8.60	8.10	8.04	8.30
7.	Total dissolved solids (TDS) mg/L	908.5	801	950.1	901.1	890.17
8.	Dissolved Oxygen (DO) mg/L	1.60	1.70	1.80	1.92	1.75
9.	Calcium (Ca), mg/L	136.8	132.6	141.01	138.6	137.25
11.	Magnesium (mg), mg/L	11.80	12.10	13.0	12.20	12.27
12.	Total Hardness, mg/L	310	385	369.50	371.0	358.87
13.	Ca-Hardness, mg/L	240	235.5	356.7	245.9	269.25
14.	Mg-Hardness, mg/L	72.3	74.6	75.6	78.10	75.15
15.	Chloride mg/L	395	385	369.5	371.0	380.12
16.	Total alkalinity, mg/L	417	412.10	417.0	413.20	414.82
17.	Sulphates mg/L	36.50	38.10	37.10	37.60	37.32
18.	B.O.D mg/L	6.70	6.00	7.20	7.01	6.72
19.	Ca/Mg Ratio	11.59	10.95	10.90	11.40	11.21

shows the location of lake. Clean and sterilized plastic cans of two liter capacity were used to collect the samples for analysis and also to determine dissolved oxygen, the Sterilized glass bottles were used. The analytical and average results of water samples are presented in table for both seasons. The results were compared with Indian drinking water standards and also the analysis was carried as per the procedure laid by standard method.

RESULTS AND DISCUSSION

The odour of the lake water is objectionable, due to discharge of domestic waste, the pH is 8.30 so that the water is alkaline, and Total dissolved solids ranges from 801.0 to 890.175mg/L. The chloride is also maximum, and also the values are more than the standard value in other sampling stations also in average. The calcium and Magnesium is greater than the limit in all the sampling stations so that hardness is little more than the limit. The dissolve oxygen (DO) is less than the permissible value of water due to discharge of domestic waste water from industries and from human settlement area. The mean of all values were used to assess the data of table with BIS drinking water specification so that it is confirmed that lake water quality is not suitable for drinking purpose and bathing.

CONCLUSION

The Bommasandra lake water is unsuitable for drinking purpose. The average of the parameters shows higher value of odour due to solids, pH value is little high which shows the acidity of water, and the hardness is also in excess, The water shows totally the presence of solids and micro organisms, Totally the lake water require treatment before use for drinking, unfit for bathing also and industrial use.

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