



“Study of various Physico-chemical Parameters of upper lake water in Bhopal region of Madhya Pradesh, India.”

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Abstract—In India, various manmade and natural lakes, reservoirs and wetlands are located within the urban limits of major cities. These water resources objectively fulfil different demands of mankind but due to ever increasing anthropogenic influences and ambient urbanization, several water bodies are gradually being degraded badly. The cumulative Impacts of anthropogenic pressure and pollution load from



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point and non-point sources are affecting water quantity and quality of these urban water bodies. The Upper Lake is one of the important urban lakes of India, located in Bhopal which is a state capital of Madhya Pradesh. Constructed in the 11th Century, the 1000 years old water body is still one of the major potable water sources for the people of Bhopal city. This lake is being used as a prime source of drinking water supply for Bhopal city. The present study was carried out to evaluate the use of simple, easy-to-perform, physico-chemical analysis for assessing upper lake water quality. The aim of the study is to evaluate the use of simple physico-chemical parameters to assess lake water quality. And also find out the organic load increase to domestic drain, when, drain are without treatment discharge in lake. The upper lake which is used by local inhabitants and is moderate pollution. Primary survey around the upper lake to finding out some domestic drain and rainy season drain are without treatment discharge in the upper lake. First of all, required data are collected i.e. catchment area and physico-chemical parameter of upper lake. Selection of simple, physico-chemical parameters to assess the water quality of lake, and physico-chemical parameters to assess the water quality of domestic drain. Analysing those simple, physico-chemical parameters to assess organic load effect on the upper lake water quality. Those simple, physico-chemical parameter result indicate are organic load increase in upper lake.

Keywords- Water quality of Upper Lake, Domestic Drain, physico-chemical parameter (Temperature, pH, Dissolved oxygen (DO), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD).

1. INTRODUCTION

Water on Earth is one of the most important substances. All plants and animals must have water to survive. If there were no water there would have been no life on earth. Water is so important that the water which people drink and use for other purposes is fresh water. This means that the water must be free of disease and chemicals and be clear (not cloudy). Water that is secure for drinking is called potable water. Water is a unique substance, because it can naturally renew and cleanses itself, by allowing pollutants to settle out (the process of sedimentation) or break down, or by diluting the pollutants to a spot where they are not in harmful concentrations. After all, its natural process takes time, and is difficult when intense quantities of harmful contaminants are added to the water leading to water pollution.

The four major sources of water are surface water source, Underground water source, Atmospheric water source and Oceanic water source. In our daily life we use only surfacewater and underground water. In this research work, we would be discussing only on the surface water source and its issues on pollution.

In this study Upper lake of Bhopal (M.P) is selected for the study purpose. It has high population around its surrounding areas. The urban catchment area comes under the Bhopal settlement.

The settled are has variety of land use consisting of housing, business, institutions, parks playgrounds, recreation sites, worshipping places and open places. To the south of the lake hilly tract is reserved for the zoo in natural surroundings. Due to protection of the area, the hilly tract has rich vegetation over the years. On hill top land is used for institutions, residential and commercial purposes. To the north of the lake land is mainly put to use for medical college, institutions, residences, encroachments and workshops, on the Idgah hill areas it is totally occupied with residences towards the hilly tracts of Cave temple is located with little plantations. The northern part of the lake was open till a decade back, but now it is the most thickly populated area called Koh-e-fiza. Further to the west Bairagarh

| Urban Sector | Semi-Urban Sector | Rural Sector |
|---|--|--|
| Untreated Sewage Inflow. Municipal Solid waste Dumping. Human Intervention. Anthropogenic activities Bathing, washing of Clothes and vehicles. | Partly urban and partly rural waste joining to Lake. | Agriculture waste. Chemical Fertilizer Residue. Cattle Intervention/grazing. Inflow of silt/soil. Municipal Solid waste of Villages. Pesticides and Insecticides. |

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