

PROJECT REPORT
ON
LIMNOLOGICAL STUDIES AND EVALUATION OF WATER
QUALITY INDEX

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ABSTRACT

Lakes are an inherent of the ecosystem. Lakes have traditionally served the function of meeting water requirements of the populace for drinking, household uses like washing, for agriculture, fishing and also for religious and cultural purposes. Apart from these functions, which involve direct use of the lake water, lakes are also known to recharge ground water, channelize water flow to prevent water logging and flooding. Lakes are also host to a wide variety of flora and fauna, especially birds.

Limnology is the division of hydrology that studies inland waters (running and standing waters, both fresh and shine), including their biological, physical, chemical, geological and hydrological aspects. This includes the study of (natural and man-made) lakes and ponds, rivers and streams, wetlands and ground waters.

Water Quality Index (WQI) is a dimensionless number that combines the multiple water quality factors into a single number by normalizing values to subjective rating curves. It is one of the most effective tools used to communicate information on the quality of water to the concerned citizens and policy makers.

Rapid urbanization is taking place in Bangalore metropolitan area. Improper environmental planning has given room for establishment of new residential layouts without proper sewerage systems and even if such systems have been provided, they have not been connected to tank sewers of BWSSB and hence becoming missing links. The municipal effluents from such missing links are getting into natural drains leading to tanks/lakes and deteriorate the quality of water.

“Water water everywhere neither a drop to drink”. The history book says there were 159 water bodies spread in an area of 2003ha in 1973, that number declined into 147(1582ha) in 1992 which further decline to 107(1083ha) in 2002, in 2007 further decline to 93 water bodies (918ha) and finally there are only 81 water bodies (both small and medium size) of which 34 are recognized as live lakes.

In this context, Puttenahalli lake, Yediur lake and Sankey tank are chosen for case of study. Puttenahalli lake is the smallest of the three lakes of the JP Nagar 7th phase area in south Bangalore. It is located in BBMP ward 187 between Brigade millenium and L&T south city. It has a recorded area of 13 acres with a perimeter of 1.1km. The lake was almost ‘LOST’ on

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the brink of extinction. Now it is home to several species of water and lake birds. Yediur lake in central Bangalore with a water spread of 15 acres. There was a marked reduction in the bird life over the years. The aquatic life in all the lakes was tapering over the years. Sankey tank, a manmade lake or tank, is situated in the western part of Bangalore in the middle of the suburbs of Malleshwaram, Vyalikawal and Sadashiva Nagar. The lake covers an area of about 15ha. At its widest, the tank has a width of 800m.

Samples were collected in 5 different stations, North, South, East, West, centre and analysis was done in our college laboratory for parameters like pH, Turbidity, Alkalinity, Hardness, Calcium hardness, chlorides, Dissolved oxygen, Nitrates, Sulphates, Iron, Copper, Nickel, Chromium, MPN (Most Probable Number). Based on the laboratory values all the three lakes have poor water quality as indicated by the Water Quality Index.