The present study was carried out on 13 different lakes of Urban Ahmedabad. It is considered to be the largest city of Gujarat. It is further divided into two parts by a river Sabarmati, - the old city eastern Ahmedabad and new city western Ahmedabad. The 13 lakes selected for the studies are taken from both the part, eastern and western. The lakes selected from eastern Ahmedabad are, Kankaria lake, Chandola lake, Bibi talav, Nikol lake, Ghodasar lake Asarwa lake and Saijpur lake. The lake selected from the western side were Vastrapur lake, Malav talav, Sarkhej lake, Chandlodia lake, Gota lake and Ognaj lake. Among all this lake, some lakes are natural and some are manmade constructed by AUDA (Ahmedabad Urban Development Authority) and AMC (Ahmedabad Municipal Corporation) to restore the rain water and to recharge underground aquifers.

The study of physical, chemical and botanical parameter was carried seasonally from March 2009 to February 2010. The physical and chemical parameters included in the studies are temperature, pH, electrical conductivity, turbidity, total dissolve solid, total alkalinity, total hardness, calcium, magnesium, dissolve oxygen, biochemical oxygen demand, chloride, sodium, nitrate and phosphate. The analysis of physical and chemical parameter were done based on APHA, Standard Methods (1985); Kumar and Ravindranath (1998), ‘Water Studies, Method for Monitoring Water Quality’ and Trivedy and Goel (1984) “Chemical and Biological Methods for Water Pollution Studies” Composite samples were collected in pre washed polythene cans from different lakes in the morning to access various physico-chemical parameter. Few parameters which undergoes changes quickly such as temperature, pH, electrical conductivity, dissolve oxygen, turbidity were evaluated on the spot, immediately after collection of sample, were as remaining parameter were performed in the laboratory.

Detailed analyses of phytoplanktonic populations are done by estimating the numbers in each genera. The phytoplankton consisting of individual cells, filaments and colonies are counted as individual cells. When colonies of species are counted,
the average number of cells per colony is counted. Device used for this analysis is Sedgwick Rafter counting cell.

After completing detail investigation for physical and chemical parameter of all the 13 lakes it was found that pH, turbidity, total dissolve solids, alkalinity and total hardens recorded during study for Chandola lake, Nikol lake, Bibi talav, Saijpur lake, Chandlodia lake and Gota lake were above desirable limit were as in some of the above lake the amount of calcium recorded were also above desirable limit. The Dissolve oxygen recorded for this lakes are also very low during summer season. But in Kankaria lake, Ghodasar lake, Asarwa lake, Vastrapur lake, Ognaj lake, Malav talav and Sarkhej lake only few of the parameters were above desirable limit.

And looking toward the botanical result, the Chandola lake, Nikol lake, Bibi talav, Saijpur lake, Chandlodia lake and Gota lake shows high dominance of Oscillatoria sp., Anabena sp., Cylindrospermum sp., Microcystis sp., Lyngbya sp. Chlorella sp., Scenedesmus sp., Closterium sp., Cosmarium sp., Navicula sp., Nitzschia sp., Synendra and Gomphonema sp. which indicates that this lakes posses high amount of organic waste and water of the lake is organically polluted. And all the above lake shows the dominace of cyanophyceae over chlorophyceae , bacillariophyceae and euglenophyceae. But in Kankaria lake, Ghodasar lake, Asarwa lake, Vastrapur lake, Ognaj lake, Malav talav and Sarkhej lake very low dominance of Oscillatoria sp., Microcystis sp., Phormidium sp., Nostoc sp., Pediastrum sp., Cosmarium sp., Navicula sp., Cymbella sp., were recorded which shows that water of this lakes are not organically polluted. And all the above lake shows the dominace of chlorophyceae over cyanophyceae, bacillariophyceae and euglenophyceae.

Finally on the basis of the result available Kankaria lake, Ghodasar talav, Asarwa lake (of eastern Ahmedabad) and Vastrapur lake, Malav talav, Sarkhej lake, Ognaj lake (of western Ahmedabad) are found unpolluted. Whereas Chandola lake, Bibi talav, Nikol lake, Saijpur lake (of eastern Ahmedabad) and Chandlodia lake,
Gota lake (of western Ahmedabad) revealed eutrophication and high level of pollution. Therefore these lakes were listed as polluted lakes.