In this present study, to evaluate the water quality of Dara Dam, Taluka Shahada, district Nandurbar, three sampling sites were selected for water analysis. The average values were taken in consideration. Samples were collected for the two years from September 2007 to August 2009. Sampling was done once in a month having regular interval of 30 days.

To evaluate the water quality, water samples of each site were analyzed for following parameters and these were Physical appearance, Taste and Odour, Colour, Turbidity, pH, Total Solids, Total dissolved Solids (TDS), Total Suspended Solids (TSS), Total Alkalinity, Hydroxide Alkalinity, Carbonate Alkalinity, Bicarbonate Alkalinity Carbonate, Bicarbonate, Total Hardness, Permanent Hardness, Temporary Hardness Dissolved Oxygen (DO), Biological Oxygen Demand (BOD), Chloride (Cl), Sulphate, Chlorine, Silica, Nitrites, Nitrates, Calcium (Ca), Magnesium (Mg), Sodium (Na), Total Coliform (TC), Iron (Fe), Fluoride (F), Conductivity and Organic carbon.

Water Quality Index (WQI) was found out by using CCME (WQI) formula and data were analyzed statistically also to find out which parameters are significant for WQI.

**Surface water quality of Dara Dam in the year of 2007 (Sept to Dec)**

Table (3.1.1 to 3.1.2) shows the result of average values of 3 sampling stations of different parameters of Dara Dam region. It can be seen that out of 33 variables three parameters namely Total Suspended Solids (TSS), Total Coliform (TC) and Dissolved Oxygen (DO) were found exceeding their desirable limits. The average concentration of Total Suspended Solids (TSS) ranged from 67 mg/l to 211mg/l in the month of Sept. 2007 to Dec. 2007. In the month December it was highest and lowest in the month of October. High TSS can block light from reaching submerged vegetation. As the amount of light passing though the water is reduced, oxygen to be released into the water by plants (Mitchell, 1992).
The biological parameter Total Coliform was found exceeding its desirable limit that were more than 1800 MPN/100ml which indicate that surface water affected by the anthropogenic activities (Wolf, 2001).

Dissolved Oxygen (DO) is very important parameter of water quality and is an index of physical and biological processes going on in water. It is a primary comprehensive indicator of water quality in surface water. Dissolved Oxygen level in Dara Dam reservoir was recorded in the range of 6mg/l to 6.38mg/l during Sept-2007 to Dec-2007. The similar results were observed by Jawale, 2009 on Terna reservoir.

During this present investigation the different parameters like Hydroxide Alkalinity, Chlorine and Silica were not detected. But some traces of Organic Carbon and Nitrite were detected.

Depending upon these variables WQI of Dara Dam water for Sept - 2007 to Aug - 2007 is 84.42 which lie under the good category of CCME (WQI) (Table 3.1.13). On the basis of Water Quality Index it can be interpreted that the water quality in this reservoir is protected with only a minor degree of threat or impairment; conditions rarely depart from natural or desirable levels.

**Surface water quality of Dara Dam in the year of 2008 (Jan to Dec)**

Table (3.1.3 to 3.1.8) Shows the average values of 33 different water quality parameters of Dara Dam at three sampling stations DS I, DS II and DS III for the year 2008. During this study out of 33 variables four parameters namely Total Suspended Solid (TSS), Permanent Hardness, Dissolved Oxygen (DO) and Total Coliform (TC) were found exceeding their desirable limits. About four parameters namely Hydroxide Alkalinity, Carbonate, Chlorine and Silica were not detected but traces, Nitrite and Organic Carbon were found in this investigation. The concentration of Iron was found in the month of January to June but from the month July it was not detected. Similarly the concentration of fluoride was detected from January to August but from September it was not detected.
pH was recorded highest in the month of April and that was 8.65. The lowest pH was recorded in the month of August and that was 7.51. Similar observations were made by Subbamma and Sarma (1992) studied on temple pond, Machilipatnam. Jain and Thakur (1996) studied on Halali reservoir Vidisha District. The pH of the water body indicates the deterioration of water quality (Varma et. al., 1984). Swingle (1967) the pH range of 6.0 to 9.0 is most suitable for pond fish culture. Thus the pH range of Dam water indicated that Dara Dam reservoir is significant for production of fishes. During the year average value of pH indicates the water is slightly alkaline in nature.

The high value of Total Suspended Solids (TSS), 284 mg/l was recorded in the month of November while the minimum value 56 mg/l was recorded in the month of September. High TSS in the water body can often mean higher concentrations of bacteria, nutrients, pesticides and metals in the water. These pollutants may attach to sediment particles on the land and be carried into water bodies with storm water. In the water the pollutants may be released from the sediment or travel further downstream (Federal Interagency Stream Restoration Working Group 1998).

Dissolved Oxygen (DO) level in Dara Dam reservoir was recorded 6mg/l to 6.4mg/l. Dissolved Oxygen (DO) is one of the most important parameters in water. It regulates the metabolic activity of aquatic organisms. Tarzwell (1957) has stated that for supporting aquatic life minimum3mg/l Dissolved Oxygen is essential. The similar results were observed by Ingole et al., 2009 on Majalgaon reservoir, Gaur and Khan (1995). The average concentration of Total Coliform (TC) was more than 1800MPN/100ml which are above the desirable limits. It indicates that water body is contaminated and not suitable for drinking purpose (Ansari, et al., 2001)

Depending upon the variables the WQI of Dara Dam water in the year 2008 is 84.16, which lie under good category of CCME (WQI) (Table 3.1.13) and indicate that the normal treatment at filtration unit makes the Dam water potable for dinking.

229
Surface water quality of Dara Dam in the year of 2009.

Table (3.1.9 to 3.1.12) shows the average concentration of 33 different water quality parameters of Dara Dam reservoir for the year 2009. Out of 33 parameters four parameters namely pH, Total Suspended Solids (TSS), Dissolved Oxygen (DO) and Total Coliform (TC) were found exceeding their desirable limits.

pH was recorded 8.58, slightly higher in the month of April and Lowest pH was recorded 7.42 in the month of August. pH is considered as an important ecological factor and is the result of the interaction of various substances in solution in the water and also of numerous biological phenomenon. According to George (1961) the variation in pH is an important parameter in water body since more of the aquatic organisms are adapted to the average pH and do not withstand abrupt changes. In the present investigation the pH shows alkaline in trend. Similar results observed by Khare (2002), Panda and Sahu (2002) and Singh and Rai (2003).

In this present study the average concentration of Total Suspended Solid (TSS) ranges between 18 mg/l to 265 mg/l. The decrease in water clarity caused by TSS can affect the ability of fish to see and catch food. Suspended sediment can also clog fish gills, reduce growth rates, decrease resistance to disease, and prevent egg and larval development. When suspended solids settle to the bottom of a water body, they can smother the eggs of fish and aquatic insects, as well as suffocate newly hatched insect larvae. Settling sediments can fill in spaces between rocks which could have been used by aquatic organisms for homes. (Mitchell and Stapp, 1992).

The average value of Dissolved Oxygen (DO) varied from 6 mg/l to 6.4 mg/l similar observations were made by Kanawate and Kulkarni (2005) and they reported that the Dissolved Oxygen (DO) varied from 4.87 mg/l to 8.72 mg/l they stated that the Dissolved Oxygen content is vital parameter which regulates survival of aquatic life. At given point parameter like temperature,
transparency, nutrient load, biomass determines the Dissolved Oxygen (DO) (Chandrasekhar, 1996). Dissolved oxygen is an important parameter in water quality. Oxygen is essential for metabolism of all aquatic organisms which possess aerobic respiration (Wetzel, 1975).

The average concentration of Total Coliform (TC) in the year 2009 was more than 1800 MPN/100 ml which are above the desirable limit it indicates the water body is not suitable for drinking purpose. Total Coliform (TC) was present in high concentration which indicates that the water is not suitable for drinking purpose (Dixit, 1989).

Among these 33 variables about Hydroxide Alkalinity (HA), carbonate alkalinity, carbonate, Iron, Chlorine, Fluoride and Silica were not detected throughout the investigation in the year 2009. But traces of Nitrite and Organic Carbon were detected.

Depending upon these parameters, the WQI of Dara Dam water in the year 2009 is 83.7 which lie under good category of CCME (WQI) (Table 3.1.13).