Introduction:

Water is the most precious gifts of the nature to mankind; the terrestrial ecosystem cannot function without it. All life and peripheral activities are ceased without water. In addition to drinking and personal hygiene, water is needed for agricultural production, industrial and manufacturing process, hydroelectric power generation, waste assimilation, recreation and wildlife etc. when a resource is used for so many diverse purposes, it is important that it be developed and used rationally and efficiently. From the very beginning, man realized the efficacy and essentiality of water for his daily life for that reason, water is called as life and it has been known as nectar.

Water is absolutely fundamental to life. It is difficult even to imagine a form of life that might exist without water. On the surface of the earth, water, in the form of oceans, seas, glaciers, freshwater bodies, rivers, wells, lakes, etc. occupies about 71.00 per cent of the area while, the landmass occupies about 29.00 per cent of the area. Out of the total water cover, about 97.00 per cent is seawater, while 3.00 per cent is fresh water. Polar ice contains about 2.00 per cent water and less than 1.00 per cent water is found in the form of lakes and groundwater. When we look upon the utilization of freshwater, we find that about 79.00 per cent of the water is used for irrigation purposes, 23.00 per cent water for industries and about 8.00 per cent only is used for domestic purposes.

Groundwater is an important source but unfortunately prone to contamination by materials deleterious to human health. In many areas of the word, the contamination is so heavy that the water is unfit even for agricultural use. The danger of groundwater pollution or contamination also exists in densely populated areas. Groundwater is a valuable resource that is withdrawn in all parts of the country for a variety of uses groundwater is especially important in a selected number of locations for a specific number of water users, including self-supplied domestic, commercial and livestock users in particular. As this resource becomes more contaminated and scarcer, demand for high quality water will continue to grow making groundwater even more valuable and protection more important.

Water sources available for drinking and other domestic purpose must possess high degree of purity, free from chemical contamination and micro-organism. The potential and quality of bore well water, is an economic resource and essential component of our life, is getting deteriorated in major rural centers due to pollution caused by population explosion,
ruralization and industrialization.[1,2] Studies on bore well water[3,4] hear, we report the physicochemical studies of bore wells water of Kathalal territory, Kathalal is located in kheda district of Gujarat and its some interior Adivasi area. Because of the geographical isolation and remoteness, people residing in the interior Adivasi area, mostly not have access to safe drinking water. In the absence of fresh water supply, the people are forced to take water from any sources that lies near their village. In most of interior Adivasi area, the bore well water is used for drinking purpose and other domestic purpose, Bore well water is generally good quality and it is difficult to pollute bore wells water. The use of fertilizers, pesticides and insecticides in rural area manure, lime, septic tank, refuse dumps etc. are the main source of bore wells water pollution.[5].

Physico-chemical analysis of drinking water of Gandhinagar district of Gujarat state has been investigated intensively [1-3]. Bore well water is generally used for drinking and other domestic purposes in this area. The use of fertilizers and pesticides, manure, lime, septic tank, refuses dump, etc. Are the main sources of bore wells water pollution [4]. In the absence of fresh watersupply people residing in this area use bore wells water for their domestic and drinking consumption. In order to assess water quality index, we have reported the physico-chemical analysis of bore wells drinking water. Fluoride is found in all natural water at some concentration. In ground water however low and high concentration of fluoride can occur depending upon the nature of the rocks and the occurrence of the fluoride – bearing minerals. Fluorosis has been described as an endemic of tropical climate[5].The main sources of fluoride intake is water[6].

Many congenital diseases such as goiter and cancer have been associated with presence of high concentration of a chemical or its inadequate supply in water. Opinya et al., (1987) reported that low or high level of fluoride ions concentration in water as the major cause of dental fluorosis. Low concentration of iodine in Homo sapiens results in goiter. Infants have been considered as a potential high risk group to the toxic effects of sodium from drinking water (smith, 1974). Currently, about 20% of the world’s population lacks access to safe drinking water, and more than 5 million people die annually from illness associated with safe drinking water or inadequate sanitation. If everyone had safe drinking water and adequate sanitation services, there would be 200 million fewer cases of diarrhea and 2.1 million fewer deaths caused by diarrhoeal illness each year (Hunter et al., 2001). Biofilms in drinking water distribution system has generated health concerns. Biofilms are coating of organic and inorganic materials in pipes that can harbor, protect and allow the proliferation of
several bacterial pathogens, including Legionella and Mycobacterium avium complex (MAC). Factors that affect bacterial growth on biofilms include water temperature, type of disinfectant and residual concentration, iodegradable organic carbon level, degree of pipe corrosion and treatment/distribution system characteristics. Chloramines are considerably more effective than chlorine for controlling legionella in biofilms distribution system deficiencies linked to a number of water born disease outbreaks. (Hunter et al., 2001).

The advantage of an optimal neural network model for prediction of water quality parameters based on few known parameters is implemented in this work. The empirical formula was taken from the Department of Natural Resources, New South Wales (NSW), Australia.

The results of the model were encouraging. The comparison of the NSW model, actual experimental results and regression models are also appended [Rajendra et al. 2009]. The scientist employs these models either because it is less expensive in terms of time and/or money to collect the information to make the predictions than to collect the information about the event itself, or, more likely, because the event to be predicted will occur in some future time.