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## **CHAPTER 7**

## **CONCLUSION**

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Today we are living in an environment which is totally unsafe. The water we drink have become vehicles to carry poisonous chemicals and dreadful pathogens into our body. Water is the highly valued commodity for human survival. Many people in high income group depend on highly priced bottled water. The cost of one litre of water was more than a litre of milk a year back. In such situation, the poor and middle income who can't offered to buy water depend on the public water supply system and ground water. So they are susceptible to many waterborne illnesses. In hotels in food vending shops, water from public water supply and ground water is used for cooking, washing and other purposes. Most of the people in urban limits uses ground water and water supplied by public system for bathing, mouth brushing and other purposes. So, every one living in urban places even in villages depend on ground water and public water supply system. The water the people use must be free from biological and physiochemical pollutants. The microbiological pathogens like viruses, bacterial and protozoan inhabiting the water give to the consumers is increasing day by day particularly in urban setup and in metro cities where effluents and water from hospitals and other system contaminates the ground water and public water supply system through land run off during rainy season. In India today every one is afraid of the quality of the water.

Hence, it has become imperative to provide "Safe" drinking water to the public. This is quite impossible for many people who depend on ground water. Also in large cities like Chennai where more than 7 million people are dependent of

public water supply. The ultra purification of domestic water supply is quite impossible in public water supply system. Hence, individual water user has to select one type of point-of-use water purification process to save their families health. The small investment one makes in water purification process could help them to save a lot of expenses in health care management. In this scenario the present study was designed to understand the base level of different physiochemical and bacterial agents in water the people use in Chennai metropolitan city. Investigation was done for 2 years. The study indicated an alarming level of heterotrophic bacteria, total coliforms, fecal coliforms, and opportunistic bacterial population in the water supplied under public supply system and in ground water. Some of these parameters exceeded several times over WHO permissible limits. The bacterial load was found to vary with seasons. During rainy season the havoc of waterborne pathogens is very high.

In Chennai, the Metro water is supplied from Porur Lake that get water during rainy months and from rivers. From Porur Lake the water is supplied to the households after purification at Kilpauk water treatment plant. The water supplied from the Kilpauk treatment unit on reaching the immediate site. Anna nagar has less bacterial contamination but as the supply networks extends to T.Nagar and Adampakkam the bacterial contamination level increases progressively due to the gradual loss of the potency of the treatment agents in the water. But ground water in all the three stations had uniformly a higher level of bacterial pathogens.

To advocate the right method of water treatment by using cost effective technologies, seven types of water treatments experiments were conducted. This includes preheating, chlorination, Iodination, ultra filtration, UV light treatment,

nanofiltration and reverse osmosis process. Experimental trials were carried out on the water the people use and special water samples that were previously seeded with opportunistic bacterial pathogens. Of all the systems tested, UV treatment, nano filtration and reverse osmosis process were found effective and safe to the consumers. As the consumers may find difficult to set up their treatment plant for ground water taken out from bore wells and metro water easily, they avoid such installations to get pure water. Most of them prefer a commercial water purification system that accommodates different purification strategies in one unit. Hence, experiments were conducted in different water purification units available in the market and Aquaguard, a water purification unit supplied by Aquamall Water Solutions Ltd., was found very effective both water treatment wise and in cost wise. Hence a thorough investigation was made on the Aquaguard purification unit and its purification ability was undoubtedly proved to be the best one in the market. This enable the people to choose the right products at right time to save the life of their beloved ones.