

Assessment of seasonal variation of drinking water quality in Mysore, India

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SUMMARY

The seasonal variation of drinking water quality at Mysore, Karnataka, India was carried out during 2007-2008. The physico-chemical and bacteriological assessment was carried out for drinking water samples from selected areas of Mysore. The study revealed that water contained high concentration of fluoride contents in some areas and with excess of iron, copper, magnesium and nitrate contents which exceeded the permissible limit (ISI). Parameters like Total Dissolved Solids (TDS), Alkalinity, were also high in all seasons. Among 15 samples, 8 samples show the positive results during biochemical confirmatory test. The bacteriological studies showed that the water samples were unsafe in all the seasons. The result also showed that there was wide variation in the quality of drinking water supply in different areas of Mysore city. Based on the results obtained by the analysis, the quality of the drinking water supply varied from moderate contamination to larger extent of contamination.

Key words :

Drinking water,
Water quality,
Seasonal
variation,
Physico-chemical
and biological
parameters,
Alkalinity.

Eight thousand children around the world die from diarrhea everyday. That is about three million people die every year from preventable disease. According to World Health Organization (WHO, 1984) more than 80 per cent diseases in the world are attributed to unsafe drinking water or inadequate sanitation practices (Diamant, 1982). In India, every year number of death of children under the age of five is attributed to poor quality of drinking water. It is estimated that poor quality and inadequate quantity of water accounts for about 10 per cent of the total burden of diseases in the Karnataka State, India (World Bank Report, ISEC, Bangalore, 2002). Almost 70 per cent of Indian surface water resources and a growing number of its groundwater reserves have been contaminated by biological, organic and inorganic pollutants (Rajanna *et al.*, 2001).

Mortality from disease like gastroenteritis occurs mainly due to contamination of water. Infections of diarrhea make the largest single contribution to the burden of disease associated with unsafe water and hygiene. It is no wonder that the incidents of hepatitis has been increasing dramatically in most Indian cities. In the last 5 years, the spreading of hepatitis is more when compared to that of previous 15 years (Thyagarajan *et al.*, 2002). The fundamental duty of public health system of any government is supplying clean drinking water to reduce the incidents of water borne diseases. But evidences show that supplying clean drinking water is not enough. There are

lot of reports (Nagaraju, 1999 and Report in The Hindu, 2007) on epidemic diseases such as amoebic dysentery, vomiting, gastroenteritis, jaundice and typhoid fever along with intestinal diseases in some areas of Mysore, which are caused by consumption of polluted water, supplied by Mysore Municipal Water supply.

Improper management, old and obsolete machinery, lack of management, water politics and many other factors have proved to be a hurdle for effective supply of clean and pure water. Supply of treated water to the residents of Mysore city began in the year 1896 by the Maharaja of Mysore. The water treatment plant located at Belagola (about 10km from Mysore) was supplying 2.27 mg/d of water to the city. In 1998 the water supply system was improved and the city got 140 mg/d of water. The piped water supply to the city also started in 1896 and 227 million liter per day of raw water was being pumped from Belagola pumping station and treated at VVWW (Vani Vilas Water Works) Yadavagiri, Mysore city.

Until recently, Mysore has never faced shortage of water. Even during in acute summer, the water level at Krishna Raja Sagara Dam (KRS) stands at 80 feet. Water can be pumped from the reservoir even when the water level at the reservoir is 64 ft. As per the CPHEEO (Central Public Health and Environmental Engineering Organization, New Delhi) guidelines, each resident has to be supplied 135 litre of water per day. The total quantity of water required for a population of 10 lakh is 192 million

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