

713 A. C. Vimalatharay.

Miscellaneous

International Workshop
on
Environmental Management
in North-East of Sri Lanka

December 1- 4, 2003

Venue :

**Kailasapathy Auditorium,
University of Jaffna, Sri Lanka**

Abstracts of Papers

©21 222 3969

Jointly organized by

**UNIVERSITY OF JAFFNA
EASTERN UNIVERSITY OF SRI LANKA
&
THE ECONOMIC CONSULTANCY HOUSE (TECH)**

Quality of Ground Water in Jaffna Peninsula

R. Mageswaran

More than 80% of diseases that affect humankind are water born. Good quality drinking water is of primary importance for human health and well being. Even though a person needs only about 4 litres of water per day for drinking purpose, if water needs for cooking cleaning utensils etc are also included a person will need more. Water supply level for drinking and domestic use, fixed by ' Safe water 2000' programme is 40 litres per day.

In Jaffna Peninsula, ground water is used not only for drinking and domestic purposes but also for agricultural purpose. Quality of water is normally assessed by physical, chemical and microbiological parameters. Physical characteristics such as turbidity, colour, odour, pH and taste are important. Chemical components could be either inorganic or organic in origin. Normally the inorganic components (except Fe and Mn) will be in the dissolved form (particle size $< 0.001\mu$). Total inorganic salts present are roughly estimated by either electrical conductivity or total dissolved solid (TDS) or by both.

Organic components could be either in dissolved form ($< 0.001\mu$), colloidal form ($0.001\mu - 0.5\mu$) or suspended solids ($> 1\mu$). Out of several organic substances identified, natural organic (Humic and Fulvic acids) and pesticides are the most harmful ones. Most important microbiological parameter is pathogens. Normally water is examined for total coliforms, faecal coliforms and *Escharichia coli* (E. Coli).

Water samples from twenty one areas in Jaffna Peninsula were tested for physical, chemical and microbiological parameters. The pH of all water samples studies ranged from 6.8 – 8.2 which is slightly alkaline, the total alkalinity reflects the same. Water samples from Karaveddi, Thondamanaru, Sarasalai, Madduvil, Koddikamam, Kachchai and Mirusuvil areas were coloured (light brown) and also had high turbidity, dissolved organic solids and iron content.

Water samples from all areas except Kachchai were found to be odourless. Samples from Kachchai had sour taste whereas samples from Karaveddy, Ponnalai and Thondamanaru areas had salty taste. Ground water from Kondavil, Urumpirai, Valveddithurai, and Velanai where there is agricultural activity taking place the amount of nitrate is above the safe level (45 ppm).

However these amounts were less than what was reported in 1983. The amounts of calcium, magnesium, chloride, phosphate, sulphate, sodium and potassium present were also determined.

This amount of dissolved organics present in water samples from Valvettithurai, Point Pedro, Karaveddy, Thondamanaru, Sarasalai, Madduvil, Koddikamam, Kachchai and Mirusivil areas were high and therefore the presence of Humic acid and Fulvic acids cannot be eliminated. Since Humic and Fulvic acids will produce poisonous trichlorocarbon on chlorination (which is used as disinfectant) care should be taken.