D7 A PHYSICO-CHEMICAL AND MICROBIOLOGICAL INVESTIGATION OF WATER USED FOR DOMESTIC PURPOSES IN AND AROUND COLOMBO

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Water used for domestic purposes in three highly congested areas namely Thotalanga, Mattakuliya and Kirillapone were investigated over a period of seven months commencing in August 1984.

Six sites were selected for sampling. Site A_1 was a deep protected well; Site A_2 , a shallow unprotected well, and Site B_3 was the point at which untreated sewage effluent entered the Kelaniya river located in the Henemulla camp, Thotalanga, Site B_4 was located 50 ft. away from the east bank of the Kelani estuary at Kakkadiwa, Mattakuliya. Site A_5 was a shallow protected well located in the Kirillapone tennement area, while site A_6 a deep protected well at Kelaniya was taken as the control.

Sites A_1, A_2, B_3, and B_4 were grossly polluted and BOD_5 ranged between 22.2-42.0 mg/l. The BOD_5 values at sites A_5 and A_6 when ranged between 2.1-9.6 mg/l also indicated that the water was unsuitable for domestic purposes. Site A_1 in addition, recorded nitrate levels of 1.3-10.6 mg/l indicating nitrate toxicity in the water.

All sites with the exception of Site A_6 were faecally contaminated throughout the period of sampling and MPN counts of Escherichia coli exceeded permissible levels of 0-10/100 ml (IHD-WHO, 1978) for potable water. Sites A_2 , B_3 , and B_4 which recorded faecal coliform counts of 1.2-433/100 ml were also found to be unsuitable for any domestic purposes. Therefore of the sites sampled, Site 6 the control, although faecally contaminated during the rainy period appeared to be the only satisfactory source of water for domestic purposes.