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**SOME ASPECTS OF LIMNOLOGICAL CHARACTERISTICS
AND BENTHIC COMMUNITIES OF HULU GANGA,
A TRIBUTARY DRAINING THE KNUCKLES RANGE.**

A thesis presented by

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ABSTRACT

Hulu Ganga, one of the major left bank tributaries of the Mahaweli River, drains 160.5 km² of the southwestern segment of the Knuckles Range. Watershed of the Hulu Ganga has been subjected to a variety of land use patterns and the remaining natural forest is less than 41%. A dam was built across the confluence of the Hulu Ganga and Mahaweli River at Victoria fall creating the Victoria Reservoir, the largest and deepest hydroelectric power reservoir in Sri Lanka.

Ten sampling sites, including eight sites in the main stream of the Hulu Ganga and two sites in the main tributary stream, Kotta Ganga, representing the major land used types were randomly selected to determine the limnological characteristics. Sampling was carried out monthly for a period of fifteen months from July 1996 to September 1997. Physicochemical characteristics of stream water (i.e., water temperature, pH, electrical conductivity, turbidity, and flow rate), major ions (i.e., Na⁺, K⁺, Ca⁺⁺, Mg⁺⁺, Cl⁻, SO₄⁻, HCO₃⁻) and nutrients (i.e., DP, TP, NO₃⁻-N, NO₂⁻-N, NH₄⁺-N) were determined monthly for sampling period. Community structure of benthic macroinvertebrates and epilithic algae was also examined from each sampling sites during the study period. Results were analyzed graphically to identify the seasonal and spatial trends in limnological and other ecological parameters in the Hulu Ganga.

Except in few instances, the stream water was slightly acidic and physicochemical characteristics fell within the ranges characterized for an undisturbed tropical stream during the study period. However, the concentrations of micronutrients were relatively high and showed monthly fluctuations.

The seasonal pattern of the limnological parameters of the Hulu Ganga was primarily regulated by the rainfall and the catchments geochemically.

Inter month fluctuation and relatively high concentrations of micronutrients in the stream water may be attributed to fertilizer application to tea plantations.

Macro-invertebrates of the Hulu Ganga were primarily consisting of aquatic insect larvae. Community structure of macro-invertebrate shows marked variation from headwaters to downstream, but it was not the case in epilithic algae. River water discharges a substantial amount of phosphorous and nitrogen to the Victoria Reservoir.

