

THE AQUATIC CHEMISTRY OF NUTRIENT LEVELS OF MAHAWELI RIVER:
A QUANTITATIVE APPROACH

by

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The Mahaweli River is now the focal point of a multi-million rupee river basin development project involving the construction of five large dams and moving over one million people into new project areas. In view of the fact that five dams would impound 3,271,470 acre-feet of water, there has been a grave concern expressed over the ecology and environment. In this study, the nutrient and pollutant levels of the river were investigated giving special attention to nitrate content. It was observed that the chemical quality of water is largely controlled by natural factors. Among the elements however, vanadium zinc and copper showed higher concentrations. The lack of correlation of lead and cadmium with total dissolved solids (TDS) indicates an anthropogenic input of lead and cadmium into the aquatic environment. The variation of the nitrate level along the river was also studied in detail. It was observed that the distribution of nitrate along the river shows a seasonal variation. By studying the discharge - concentration relationship, we could identify a major input from the leaching of soils for discharges lower than $200 \text{ m}^3 \text{ s}^{-1}$. For discharges above $200 \text{ m}^3 \text{ s}^{-1}$ the nitrate concentration decreases with excessive dilution.