

D-59: Assessment of trophic status of some Mahaweli hydropower reservoirs

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Kotmale, Victoria, Randenigala and Rantambe are interconnected hydropower reservoirs which have been constructed under the accelerated Mahaweli project. These reservoirs were subject to human interaction due to usage of their catchment areas for agriculture, plantation, settlements and industries.

Investigations were carried out since 1987 on Chlorophyll-a, phosphate, nitrate, water transparency, plankton population, indicator species and species diversity. The results showed that the values for Secchi disk transparencies were lowest (below 2.0 m) for Kotmale reservoir, whereas higher values were recorded for Victoria, Randenigala and Rantambe. All the reservoirs showed thermal stratification with oxygen depletion in the deeper hypolimnetic waters.

Chlorophyll-a concentration in the waters of Kotmale reservoir reached values > 100 mg/l during the dry season of 1991, whereas in other reservoirs, the concentration was < 5 mg/l. The intensive nutrient circulation, high allochthonous input and high temperatures had all enhanced the eutrophication process and *Microcystis* bloom formation in the Kotmale reservoir, particularly during the dry season.

Species diversity in other reservoirs was also high, but with low densities of *Microcystis* and *Anabena* indicating that these reservoirs had not yet reached the eutrophic status.