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Nutrient Fluxes into Coastal Waters via Sri Lankan Rivers:

A Comparison with Other Asian Rivers

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ABSTRACT

The concentrations of total dissolved salts (TDS), and primary nutrients (nitrate-N, total phosphorus and dissolved silica) discharge into mangrove-estuarine ecosystems via seven rivers of different catchment geochemistry and land use patterns in Sri Lanka were determined using standard methods. The concentrations were coupled with discharge, runoff and watershed area and computed respective loads and yields. The results were compared with the data documented in GEMS database for several other rivers draining tropical Asia.

Mahaweli river with the largest discharge volume empties 2.24 x 10 6 tons (=Mg) of TDS per annum which is 11.2 times of the Mi Oya which has 3% discharge volume of the Mahaweli. The annual loads of TDS into Indian Ocean via Sri Lankan rivers are extremely low compared to large Asian rivers. A more or less similar trend with highly significant linear relationships was found with respect to fluxes of nitrate-N, total phosphorus and DSi. In contrast, the yields of TDS, nitrate-N, total phosphorus and DSi varied in Sri Lankan rivers draining different watersheds with intensive land use and hydrological alterations but fall within the Asian range with a few exceptions. The results clearly indicate that Sri Lankan rivers carry relatively low amounts of fluxes into the coastal waters of the Indian Ocean because of little discharge volume but the yield is determined by geomorphology, climate and weather characteristic to tropical Asia.

Key Words : Nutrient Flux, TDS, Nitrogen, Phosphorus, Dissolved silica.