E2-30 Analytical studies of Valaichchenai paper mills effluent and surrounding lagoon

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Most of Sri Lanka's requirement of paper is provided by the paper mill situated at Valaichchenai in the Eastern province. A general suspicion among the public is that, the lagoon is polluted by the effluent from the Valaichchenai paper mill. Therefore, a necessity arose to monitor the level of pollution in Valaichchenai lagoon.

Samples were collected for a 7 month period (September 96 to March 97) from Vahaneri raw water which is used for the paper manufacture, paper machine outlet and Valaichchenai lagoon where the paper machine outlet is mixed. One sample was collected monthly from each location for the analysis. The pH, conductivity, salinity and turbidity were measured by using portable meters. Standard methods were used in the determination of chloride, sulphide, sulphate, fluoride, total suspended solids, dissolved oxygen and biological oxygen demand (BOD).

The results of the analysis elucidate that, the parameters such as pH, salinity, BOD and the anions (S^{2-}, F^-, NO_3^-, PO_4^{3-}) were within the tolerance level in all the samples tested. Dissolved oxygen concentration (6.3 ± 0.423 mg/l) was in the tolerance range for lagoon and raw water. Lagoon sample showed high turbidity (>500 mg/l) and this condition may be a drawback for the survival of prawns and other living organisms. However, the seasonal rainfall enables a certain dilution of the pollutants to a level which helps to prevent the death of the entire water body. The recorded values of SO_4^{2-} and Cl^- for the lagoon were 151 ± 14 mg/l and 2271 ± 349 mg/l respectively.