

ABSTRACT

As industrial development in Sri Lanka is expanding rapidly, it could be expected that industrial pollution will increase in future even with the existing legislation.

Greater Colombo Economic Commission which is responsible for acceleration of industrial development, is also responsible for environmental protection through management and pollution control within its Area of Authority.

The present study was carried out to identify polluting industries on the banks of Dandugam Oya and some of its tributaries flowing within the Area of Authority of the GCEC with a view to better management and pollution control.

Seventeen (17) industries generating industrial effluents were identified, out of which six industries were selected each of which representing a different category. The industries were categorized depending on the type of operation. The six industries selected comprised of a tannery, textile processing industry, chemical industry, battery manufacturing industry, distillery and a fibre mill. The central sewage treatment plant of Katunayake Export Processing Zone which treats effluents of seventy six industries were also included in this study.

The study includes observation of processes and monitoring of effluents of the selected industries. Further, water quality of Dandugam oya at selected locations were analysed to cover upstream and downstream of point sources and other vulnerable areas.

The physical and chemical parameters chosen for monitoring were: temperature, pH, conductivity, dissolved oxygen, total suspended solids, BOD, COD, Ammonia, Silica, Chlorides, Phosphates, Nitrates, Sulphide, Chromium, Nickel, Zinc, and Mercury.

Results indicated that effluents discharged from all the industries that were monitored except for the KEPZ, are not within the relevant CEA Tolerance Limits specified for effluents discharged into Inland surface waters with regard to certain parameters.

The tannery effluents was found to be significantly high in comparison to CEA Tolerance Limits for tannery effluents with regard to BOD, COD, Total Suspended Solids, Chlorides, Ammonia and Sulphide.

The effluents discharged from the textile processing industry were found to be significantly high in comparison to CEA Tolerance Limits for textile effluents with regard to BOD, COD, Total Suspended Solids, Ammonia and Sulphide. High concentrations of Sodium and Silica were found in effluents of the chemical industry, BOD, COD and Mercury were found to be present in significant quantities in relation to the CEA Tolerance Limits in effluents of the battery manufacturing industry and the distillery effluents were found to be significantly high in comparison to CEA tolerance limits (General standards) with regard to temperature, BOD, COD, Total Suspended Solids. Further, effluents from the fiber mill were found to be significantly high in BOD in comparison to CEA Tolerance Limits (General standards).

Effluents discharged from the central sewage treatment plant at Katunayake was found to be in conformity to the CEA Tolerance Limits (General standards) for discharge of industrial effluents into inland surface waters for all the parameters tested.

It is evident that except for the effluents discharged from the KEPZ, all the other industries that were selected for the study pollute the environment.

In view of the above, industries are recommended to carry out in-plant and ex-plant pollution control measures to minimise pollution.

The high organic matter concentrations recorded at the Raddoluwa water supply scheme intake point which abstracts water from Dandugam oya, is of a serious concern as the water distributed to approx. 15,000 people could be contaminated by tri-halo methanes which are known to be carcinogens. These substances could be formed on chlorination of water without conventional treatment.
