

Compliance of Wastewater Standard by Textile Industries at Board of Investment - Biyagama Export Processing Zone (BOI - BEPZ)

T.S. Nanayakkara and N.P. Premachandra

Department of Science and Technology, Uva Wellassa University, Badulla, Sri Lanka

Untreated wastewater is responsible for variety of environmental and health problems. In BOI-BEPZ there are 11 textile and dyeing factories, and wastewater generation is approximately $7800 \text{ m}^3 \text{ day}^{-1}$. These industries have their own wastewater treatment plants to treat wastewater chemically in-house until it meets zone's tolerance limits for industrial wastewater discharge into common wastewater plant. However, these in-house treatment plants have many drawbacks and also the effluent water quality does not meet the tolerance limits given by the Board of Investment. These violations impair the performance of the common wastewater treatment plant. The main objective of this research is to investigate the compliance of the wastewater with the limits for discharge to the common wastewater treatment system in the zone and to identify reasons in case of noncompliance. In-house treated wastewater was collected from selected textile industries in the zone. Physio-chemical parameters such as pH, Temperature, Biochemical Oxygen Demand, Chemical Oxygen Demand, Total Suspended Solids were analysed. After analysing it was identified that ten out of eleven factories that were investigated, exceeded at least one of the above parameters. All treatment plants mainly use chemical treatment processes for wastewater treatment, and the amount of chemical needed to bring wastewater to compliance limit is high. Further, these chemical processes produce high load of sludge usually exceeding $50,000 \text{ kg month}^{-1}$, spending high amount of money on sludge disposal. Therefore, this study suggests alternative methods to treat the wastewater by which the amount of chemical usage is reduced so that the cost on the chemicals and the amount of sludge formed is reduced.

Keywords: Textile industrial wastewater treatment, Chemical treatment