

A COMPARISON OF WATER QUALITY CHANGES IN KANDAWALA LAKE BEFORE AND AFTER RESTORATION

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Kandawala Lake is a shallow urban manmade lake located at Ratmalana area, about 17 km south of Colombo, Sri Lanka. The lake was constructed in 1920's and it served as a water source for agricultural, domestic and commercial purposes, a retaining place for flood water during wet season and a breeding place for birds and other aquatic life forms. However, the lake had been highly polluted during last decades due to effluent discharges from domestic and industrial establishments around the lake, resulting in eutrophic conditions with the growth of algae and sedimentation of the lake, proliferation of aquatic plants hence, confining the utilization of lake water. Therefore, restoration of the lake was done by dredging, strengthening the bank and managing the wastewater effluents from surrounding industrial and domestic establishments. The restoration was done by Sri Lanka Land Reclamation Development Corporation from January to November 2013. The objectives of this study were to measure the water quality characteristics before and after the restoration of the lake and to determine suitability of the lake for water for recreational activities. The water quality data were first measured in 2004 at the Environmental Engineering laboratory of Kotelawala Defence University. The data were collected at three different locations of the lake and the average values of BOD, pH, turbidity, temperature, and dissolved Oxygen were 60 mg/L, 9.5, 83.9 NTU, 31.6 °C, and 3.1 mg/L respectively. The quality of water was again measured in 2013 after the restoration of the Lake and the average values were 24 mg/L (BOD), 7.6 (pH), 91.3 NTU (turbidity), 32.5 °C (temperature) and 83.8 mg/L (DO), respectively. The results of water quality tests before and after the restoration of the Lake revealed that the quality of water has increased significantly and they were within the ambient water quality standards for inland surface waters. Hence, the lake can be used for water recreational activities after the restoration process.

Keywords: Kandawala Lake, Rehabilitation process, Water quality