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Comparison of pollution scenarios of East (including Floating market), West, South-West Beira Lakes and Galle Face Lakes

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Beira Lake is a crucial landmark situated in the center of Colombo. Due to its spread through different parts within the city, the Beira Lake is categorized into four major basins; East Lake (including floating market), West Lake, South-West Lake and the Galle Face Lake. This study was conducted to quantitatively analyze, understand and compare the water quality status and dynamics of the different basins of Beira Lake. One-time water sampling from chosen sample stations within the Beira Lake was carried out, followed by laboratory experiments to assess the water quality. The samples were tested for temperature, pH, total dissolved solids, electrical conductivity, salinity, dissolved oxygen, Secchi depth, nitrate, nitrite, reactive phosphorous (orthophosphate), ammoniacal nitrogen, biochemical oxygen demand, chemical oxygen demand and Chlorophyll-a. Results indicated the Floating Market area to be highly polluted and nutrient enriched with reactive phosphorous (1.116 mg/l) and ammoniacal nitrogen (0.66 mg/l), giving the highest mean values of all four sites studied. Rapid urbanization, rainwater runoff and anthropogenic activities such as untreated wastewater influx into the lake on a daily basis can be identified as the reasons for these obtained values. For successful restoration of Beira Lake, careful targeting of the root causes of pollution and their mitigation is needed. This can be done by obtaining detailed understanding of the Beira Lake catchment land use and their contribution to the pollution of the lake.

Keywords: Chlorophyll-a, eutrophication, wastewater inflows, water quality

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