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**Determination of heavy metals in bed sediments of selected water bodies in the Greater Colombo area**

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Sediments are sinks for many types of pollutants in aquatic systems. However, there are certain environmental conditions under which these pollutants can be released back to the water. Of these pollutants, heavy metals are of particular importance due to their environmental persistence. The aim of this study was to determine the levels of Zn, Pb, Cu, Fe, Ni, Cr and Cd in the sediments of selected water bodies in the Greater Colombo area. Samples were collected during Aug. 2006 - March 2007 under dry and calm weather conditions from Beira Lake (8 stations; 4 close to inlets, 2 close to banks, 2 from middle), St. Sebastian Canal (10 stations; 4 close to inlets, 6 near banks), Dematagoda Canal (5 stations; 2 close to inlets, 3 near banks), Wellawatte Canal (5 stations, 1 close to inlets, 2 close to banks, 2 from middle) and Heen Ela (5 stations; 2 close to banks, 3 from middle). Three - five samples were collected from each station. The metals were extracted as acid extractable (total) and exchangeable fractions using the standard “HNO<sub>3</sub> acid digestion method” and “ammonium acetate buffer solution method” respectively, and metal ion concentrations were determined using Flame Atomic Absorption Spectrophotometry.

The highest polluted water body in terms of acid-extractable (total) fraction of Zn, Pb, Cu, Cd and Fe was St. Sebastian Canal (Zn: 560 to 1553 µg/g of dry wt., Pb: 120 to 299 µg/g of dry wt., Cu: 111 to 521 µg/g of dry wt. and Cd: 3 to 6 µg/g of dry wt., Fe: 35.8 to 59.3 mg/g of dry wt.) while Heen Ela contained the highest levels of total Ni (25 to 50 µg/g of dry wt.) and Cr (75 to 114 µg/g of dry wt.). The standard deviation was less than 3% of the value in all instances. All the metals were present at the sites sampled in all the water bodies, except for Cd at Dematogoda Canal. With the exchangeable metals, Zn and Fe were detected in all the water bodies. Pb and Cu were not detected in Heen Ela and Wellawatta Canal respectively. These metals were also not detected at several sampling points in St. Sebastian Canal. Cd, Cr and Ni were detected only in Beira Lake, except for Ni being detected at one sampling point in Dematogoda Canal. This more bioavailable exchangeable fraction as a percentage of the total metal concentration, was less than 50% for all the metals, with the exception of Cd, Ni and Cr in Beira Lake. With most of the metals, significant variations were observed between sampling stations within a water body, for total as well as exchangeable metals. The levels of many of these heavy metals were higher than those obtained from a similar study carried out in 1999. The source/s of these heavy metals should be determined in order to take appropriate pollution control measures.