

Conference Name:CHI International Conference on Stormwater and Urban Water Systems
Modeling in Toronto, ON February 26 - 27, 2014 (Oral presentation-5B)

Title:Assessment of trace metals contamination in industrial waste water and river sediment from the urban area of Dhaka, Bangladesh

Md Saiful Islam^{1,2}, Md Kawser Ahmed³, Mohammad Raknuzzaman^{1,3}, Md Habibullah-Al-Mamun^{1,3} and Shigeki Masunaga¹

¹*Faculty and Graduate School of Environment and Information Sciences Yokohama National University, Yokohama, Japan*

²*Department of Soil Science, Patuakhali Science and Technology University, Patuakhali-8602, Bangladesh*

³*Department of Fisheries, Dhaka University, Dhaka-1000, Bangladesh*

The present study was conducted to assess the contamination of trace metals in the industrial waste waters and river sediments collected from the industrial belt of Dhaka city, Bangladesh. Three urban rivers “Turag, Buriganga and Shitalakha” have been considered as the major recipients of untreated industrial effluents. These rivers have been experiencing severe pollution due to the simultaneous effects of unplanned industrialization and urbanization. Total and dissolved metals were analyzed using inductively coupled plasma mass spectrometer (ICP-MS) and compared with different international standard values. In 32 waste water samples, ranges of total concentration of Cr, Ni, Cu, As, Cd and Pb were 0.17-7910, 1.5-11, 4.4-13, 0.85-16, 0.05-9.3 and 0.22-11 mg/L, respectively. Corresponding ranges of dissolved concentration were 0.43-1994, 0.82-5.2, 1.3-6.4, 0.26-5.7, 0.002-3.7 and 0.07-4.5 mg/L, respectively. In sediments, ranges of Cr, Ni, Cu, As, Cd and Pb concentration were 112-2471, 139-606, 65-405, 12-58, 8.5-29 and 45-1846 mg/kg dw, respectively. The study revealed that the unplanned activities of tanneries, dyes, metal processing, battery manufacturing and textile industries are contributing to the metal contamination in the surrounding aquatic environment. The concentration of trace metals exceeded the acceptable environmental quality standards due to continuous discharge of untreated waste waters posing severe threat to the aquatic environment and human health. The results of the present investigation give emphasis to implement a compatible policies and programmes for the construction of the industrial waste water treatment facilities in the urban area of Dhaka City.