

ASSESSMENT OF HEAVY METAL POLLUTION (Cu, Pb, Cr, Zn) IN THI VAI RIVER ESTUARY SEDIMENTS, SAI GON - DONG NAI RIVER SYTEM

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Summary

Heavy metal pollution in river and estuarine sediments is a major environmental problem because of the potential toxic of pollutants to biological resources. Thi Vai river, located at 10.598N, 107.02E, starts from Long Thanh district then flows south-east through Nhon Trach district to Tan Thanh district (Ba Ria – Vung Tau city). There, it heads south and reaches the ocean at Ganh Rai bay. As Thi Vai river is at the heart of the southern commercial center, influenced by a multitude of socio-economic activities-especially those from industrial zones and factories-, metal contamination in its estuary's sediment need special attention. Therefore, this study carried out sediment sampling at seven sites in the estuary to assess the potential for heavy metal contamination of Cu, Pb, Cr and Zn. The results showed that the fluctuations of pollutants concentration in sediment were as follow: Cu (6,8 - 14.8 mg/kg), Pb (16.6 – 27.9 mg/kg), Cr (27.7 – 60.9 mg/kg), Zn (27.7 – 60.9 mg/kg). According to QCVN 43:2015/BTNMT standard, the pollutants such as Cu, Pb, Cr and Zn were within the acceptable limits. According to the TEC-EPA standard, only Cr exceeded the acceptable limit at 5/7 samples. Based on the EF index, Cu and Zn had natural originsas the EF index was less than 1.5 while Pb, Cr contaminants were of artificial source. Based on the I_{geo} index, Cu, Cr and Zn were considered unpolluted as the I_{geo} index was less than 0 and Pb had a tendency to become polluted as the I_{geo} index was greater than 0 and less than 1. The C_f value showed that only Pb was contaminated at sampling sites, and some sites such as TV3 and TV4 are contaminated with Cr, Cu, Zn were not contaminated at the sampling sites. Based on the PLI index, samples were considered unpolluted with PLI values was less than 1. PLI values were as follows: (TV4)> (TV2)> (TV6, TV7)> (TV3)> (TV5)> (TV1).

Key words: *Sediment, heavy metal contamination, estuary sediment, Thi Vai river, Sai Gon - Dong Nai river.*