

# Pollution sources and occurrences of selected persistent organic pollutants (POPs) in sediments of the Mekong River delta, South Vietnam

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**Abstract:** The Mekong River delta is one of the largest agricultural land in the Southeast Asia. It plays a very important role for agriculture and fisheries in South Vietnam. However, comprehensive studies on the environmental pollution of persistent organic pollutants (POPs) in Mekong River delta have not been carried out in recent years. In this study, we collected sediment samples from the Mekong River to evaluate the contamination and ecological risks caused by several POPs. The contamination pattern of POPs was DDT > PCBs > CHLs > HCHs > HCB. DDTs are the most abundant pollutants, their concentration ranging from 0.01 to 110 ng/g dry wt, followed by PCBs (0.039-9.2 ng/g dry wt). DDTs and PCBs concentrations were higher in sediment from adjacent to urban areas than those from rural and agricultural sites, suggesting urban areas as important point sources of DDTs and PCBs to the river. Ratio of p,p'-DDT/p,p'-DDE was lower compared to those previously reported. However, some samples still had the ratio higher than 0.5, indicating recent input of DDT into the aquatic environments. This result shows that although the magnitude of contamination decreased over time, recent inputs of DDTs to the river still occur. Some sediment samples had concentrations of DDT compounds higher than the standards from the Canadian Environmental Quality Guideline, suggesting continuous monitoring for POPs contamination in the Mekong River is necessary. © 2006 Elsevier Ltd. All rights reserved.

**Author Keywords:** Mekong River; Pollution source; POPs; Sediment; Vietnam

**Index Keywords:** Concentration (process); Contamination; Ecology; Environmental impact; Risk assessment; Sediments; Persistent organic pollutants (POP); Pollution sources; Soil surveys; chlordane; chlorophenotane; hexachlorobenzene; hexachlorocyclohexane; polychlorinated biphenyl; Concentration (process); Contamination; Ecology; Environmental impact; Risk assessment; Sediments; Soil surveys; DDE; DDT; environmental risk; HCH; hexachlorobenzene; organic pollutant; PCB; pollutant source; sediment pollution; urban area; agriculture; article; comparative study; ecology; organic pollution; pollutant; river; rural area; sediment; urban area; Viet Nam; water contamination; water pollution; Cities; DDT; Ecology; Environmental Monitoring; Environmental Pollutants; Geography; Geologic Sediments; Hydrocarbons, Chlorinated; Industry; Polychlorinated Biphenyls; Public Health; Risk Assessment; Rivers; Time Factors; Vietnam; Asia; Canada; Eurasia; Mekong Delta; North America; Southeast Asia; Viet Nam

Year: 2007

Source title: Chemosphere

Volume: 67

Issue: 9

Page : 1794-1801

Cited by: 17

Link: Scopus Link

Chemicals/CAS: chlordane, 12789-03-6, 57-74-9; chlorphenotane, 50-29-3; hexachlorobenzene, 118-74-1, 55600-34-5; hexachlorocyclohexane, 608-73-1; DDT, 50-29-3; Environmental Pollutants; Hydrocarbons, Chlorinated; Polychlorinated Biphenyls

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ISSN: 456535

CODEN: CMSHA

DOI: 10.1016/j.chemosphere.2006.05.144

PubMed ID: 17223174

Language of Original Document: English

Abbreviated Source Title: Chemosphere

Document Type: Article

Source: Scopus

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