

Trend and Distribution of Heavy Metals in Soil and Sediment: North of Thailand Region

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Abstract : Heavy metals in the environment can be occurred by both natural weathering process and human activity, which may present significant risks to human health and the wider environment. A number of heavy metals, i.e. Arsenic (As) and Manganese (Mn), are found with a relatively high concentration in the northern part of Thailand that was assumptively from natural parent rocks and materials. However, scarce literature is challenging to identify the accurate root cause and best available explanation. This study is, therefore, aim to gather heavy metals data in 5 provinces of the North of Thailand where PTT Exploration and Production (PTTEP) public company limited has operated for more than 20 years. A thousand heavy metal analysis is collected and interpreted in term of Enrichment Factor (EF). The trend and distribution of heavy metals in soil and sediment are analyzed by considering altogether the geochemistry of the regional soil and rock. . In addition, the relationship between land use and heavy metals distribution is investigated. In the first conclusion, heavy metal concentrations of (As) and (Mn) in the studied areas are equal to 7.0 and 588.6 ppm, respectively, which are comparable to those in regional parent materials (1 – 12 and 850 – 1,000 ppm for As and Mn respectively). Moreover, there is an insignificant escalation of the heavy metals in these studied areas over two decades.

Keywords : contaminated soil, enrichment factor, heavy metals, parent materials in North of Thailand

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