

## ARSENIC CONCENTRATION IN URINE OF RESIDENTS LIVING IN KANDAL PROVINCE, CAMBODIA

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### ABSTRACT

To assess arsenic contamination in the Mekong River basin of Cambodia, urine sample collection and field interview were conducted in an arsenic-affected area of Kandal province in Cambodia. Urine samples were analyzed for total arsenic concentrations by inductively coupled plasma mass spectrometry (ICP-MS). Field survey aimed to gather the demographic and socio-economic information and the behaviors of water consumption of the local residents. As a result, arsenicosis patients (n = 127) had urinary arsenic concentrations ranged from 3.76–373.20  $\mu\text{g L}^{-1}$  (mean =  $78.74 \pm 69.84 \mu\text{g L}^{-1}$ , median =  $60.22 \mu\text{g L}^{-1}$ ). Asymptomatic villagers (n = 108) had urinary arsenic concentrations ranged from 5.93–312.10  $\mu\text{g L}^{-1}$  (mean =  $73.04 \pm 52.24 \mu\text{g L}^{-1}$ , median =  $60.47 \mu\text{g L}^{-1}$ ). A survey found that females and adults were more likely to be diagnosed with arsenicosis symptoms than males and children, respectively. Among all respondents (n = 246), 42.3 % were illiterate, 64.6% were farmers and 84.6% could earn less than 8,000 Riels (USD 2.0) per day. The majority (72% in dry season and 91.9% in raining season) drank water from various alternative sources (i.e. rainwater, piped water and open well/pond). This study suggests that Kandal residents are currently at risk of arsenic although some mitigating actions have been implemented in this area.

**Keywords:** Arsenic; urine, field survey, social implication, Kandal province, Cambodia

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