

## **ENRICHMENT OF ARSENIC IN QUATERNARY SEDIMENTS FROM ANKALESHWAR AREA, INDIA: INFLUENCE OF ANTHROPOGENIC ACTIVITIES**

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Arsenic contamination is well known in Bengal, India and some of the eastern and central regions of the country. The enrichment of Arsenic in the western region of the country in general and quaternary sediments of Ankaleshwar area, Gujarat, India, in particular, has been reported for the first time in the present article. The study on soil contamination has been undertaken in Ankaleshwar, which is one of the biggest industrial townships of India. About 25 near-surface sediment/ soil samples were collected from top 10 cm, representing entire study area and 5 profile samples in order to study the vertical distribution of Arsenic in the sediments. The finer fractions (<63 $\mu$ ) were used to analyze for arsenic (As), using X-ray fluorescence spectrometer (XRF). The sediment samples were compared with the upper continental crust representing in the UCC normalized plots and standard shale to find the geo-accumulation index (I-geo) as well as pollution index (Pi). Almost all samples exhibit substantial enrichment of arsenic and those around industrial areas show significantly higher values of it. The data reveals that the soil resources in the region, particularly around the industries, urban areas, agricultural lands and effluent carrying streams are considerably contaminated, exhibiting elevated levels of As. The arsenic contamination of the sediments has posed intensive stresses and pollution risks to the quality of groundwater resources of the area, besides immediate perils for human health and ecosystem. The study emphasizes the need to mitigate the intensity of arsenic pollution and to maintain the productivity of soil resources on which majority of local population depends for livelihood.

**Keywords:** Ankaleshwar, Quaternary sediments, arsenic pollution