

Source Identification of Molybdenum in Natural Water Around Erdenet City, Mongolia

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Erdenet city is second biggest city and located northern part of Mongolia. Increase of population, the environmental pollution is becoming serious concern. Erdenet mine is one of the largest copper –molybdenum mine in the world and mainly produced Cu –Mo. Surface water contaminated with high concentrations of molybdenum (Mo), but amount of Cu concentration is lowest with neutral pH. This study was systematically determining the source identification of Mo from rivers in Erdenet city. The water samples were collected from three rivers. Govil river flows from north west of the study area and merge to the Erdenet river. That two rivers are become a Khangal river.

Based on the spatial and temporal distribution of Mo concentration indicated the contaminated area and source of Mo was derived in August 2019. Govil river and Erdenet city centers are less than 30 $\mu\text{g/L}$. On the other hand, Erdenet and Khangal rivers are exceeds the WHO guideline 70 microgram per liter ($\mu\text{g/L}$) and higher than the world average. The tailing pond and ash pond seepage water was continuously drain to the downstream of the Erdenet and Khangal rivers. Due to sources of Mo is coming from mine tailing pond and ash pond of the power plant ranging 280 - 1700 $\mu\text{g/L}$. Groundwater was containing high concentration of Mo about 600 $\mu\text{g/L}$. Results suggest that the pond seepage water and groundwater are may main source of Mo contamination in the surface environment.

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