

Temporal observation of molybdenum concentrations in rivers from Erdenet mining area, Mongolia

*Solongo Tsetsgee¹, Keisuke Fukushi¹, Altansukh Ochir², Takahashi Yoshio³, Ariuntungalag Yunden², Enkhjin Odgerel², Noriko Hasebe¹

1. Kanazawa University, 2. National University of Mongolia, 3. The University of Toyko

Erdenet mine is one of the world's largest copper-molybdenum mine. This study is conducted the temporal observation of Mo concentrations in river waters. The waters were collected from three rivers, flowing through Erdenet city, during 9 months in 2018 March to November.

During the summer Mo concentration was increasing with temperature and pH. On the other hand, When the winter was starting low concentration of Mo with low temperature and pH. The Mo concentration is positively correlated with pH and temperature. The tailing pond sample pH slightly lower than rivers due to it couldn't be increase of pH in river water. And also, sediment result showed that Mo concentration is lower than water. Therefore, another possibility of reason could be relating to the white dust and it can be increase pH of water.

A huge tailing pond is located in the north of the Erdenet area. It is recognized that the dried precipitates formed by the neutralization of the acidic mine water in the tailing ponds are dispersed widely in the Erdenet area by wind. The dried precipitates (so called white dust) are mainly composed with lime or carbonates containing high amount of Mo. It can be expected that the white dust may dissolve with rainwater. The increase of Mo concentrations associated with the increase of pH may be caused by the dissolution of the white dust at summer rainy season.

Keywords: Molybdenum , pH, Erdenet mine, River water, Temporal observation