

Distribution of ground water quality in South gobi area

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39 ground water samples were collected from wells in August to September 2013 in South gobi, Mongolia. Sampling sites were located in Oyu tolgoi (Cu mine and Au mine), Tavan tolgoi (coal mine) which were large-mining activity has been conducted. In addition, samples are collected in northern area of Mongolia for comparison. PH, EC, the concentration of fluoride (F^{2-}), chloride (Cl^{-}), sulfate (SO_4^{2-}), nitrate (NO_3^{-}), sodium (Na^{+}), potassium (K^{+}), calcium (Ca^{2+}), magnesium (Mg^{2+}), mercury (Hg), manganese (Mn), nickel (Ni), zinc (Zn), cadmium (Cd), lead (Pb), chromium (Cr), arsenic (As), selenium (Se), lithium (Li), aluminium (Al), vanadium (V), cobalt (Co), molybdenum (Mo), indium (In), antimony (Sb) and tellurium (Te) were measured. We characterize the water quality and human health risk. In Tavan tolgoi and Oyu tolgoi, HQ (Hazard Quotient) showed >1 , which is considered at risk. In Oyu tolgoi, HQ of NO_3^{-} (29.6+-20.1 mg/l) and As (6.63+-5.69ug/l) showed >1 . In Tavan tolgoi, HQ of NO_3^{-} (47.1+-36.2 mg/l) showed >1 and it contributes the most (44 %) to the average HI, followed by As (17 %, 2.57+-3.72ug/l) and Mo (17 %, 17.8 +-11.1ug/l). On the other hand neither HQ nor HI showed >1 in Northern area. Result from the nitrogen and oxygen stable isotope ratio, NO_3^{-} contamination in Oyu tolgoi and Tavan tolgoi was caused from livestock waste.