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Mining industry impact on suspended sediment concentration of the Selenga River Basin*Ekaterina PROMAKHOVA, Sergey CHALOV (Russian Federation)*

There are a lot of mineral deposits are developed in the Selenga River Basin, in particular non-ferrous metals and coal. Ore washing and discharge of sewage increase suspended sediment concentration (SSC) of river water. The impact of mining on the SSC was studied during field expeditions in 2011-2014. Researches were conducted on the Zaamar placer gold fields in the Tuul River valley and Boroo placer gold fields in the Boroo River Basin, at the Erdenet copper-molybdenum mining and processing works on the Khangal River, at the Dzhidinsky tungsten-molybdenum combine in Zakamensk on the Modon-Kul River (closed in 1998) and on the Sharyn Gol brown-coal field in the Sharyn Gol River Basin. Extraction of placer gold increases the SSC in the Tuul River by 1,6 times (to 136 mg/l) and by 2,7 times (to 289 mg/l), in the Boroo River by 1,6 times (to 64,2 mg/l) and by 8,8 times (to 212 mg/l) during low water stage and floods respectively. In the Khangal River Basin the SSC multiplies 17,5 times (to 266 mg/l) below a tailings pond. 15 years later after closure of Zakamensk enterprise passing of rains still leads to washing away of the mineral particles through a tailings dam, for this reason the SSC growths in the Modon-Kul River in 13-fold (to 148 mg/l). The greatest increase in the SSC by 37 times (to 455 mg/l) is recorded in the river Sharyn Gol. Discharge of wastewaters from the mining enterprises into rivers causes increase the amount of suspended fine fractions (clay and silt) from 75 to 95-99%. Along the Tuul River downstream from the Zaamar Goldfield reduction of the SSC by 1,7 times occurs due to decreasing the transporting capacity. For other studied small rivers the SSC decreases only after a confluence with larger rivers. This study is financially supported by Russian Fund for Basic Research (project 14-05-31351 mol_a) and Russian geographical society grant "Expedition Selenga-Baikal".