

WATER RESOURCES ASSESSMENT OF THE SELENGA-BAIKAL RIVER SYSTEM

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SUMMARY

Paper provides basin-scale integrated assessment of water resources of the largest tributary of Lake Baikal (the Selenga River) extending from northern Mongolia into southern Siberia in Russia with special emphasis on total flow of water through a basin, its quality, structures, laws and economic factors that control its use for the present and future. The water quality and flow data were obtained from historical measurement campaigns, long-term national monitoring, and a novel field campaign done in 2011-2012. The results provide evidence on a very low water availability in upper parts of the basin and insufficient water quality exhibiting high concentrations of dissolved and suspended heavy metals in downstream parts of the Selenga River where elevated concentrations of dissolved and suspended forms of Mn, Fe, Cu, Mo are observed with local 10-20-fold increases of maximum permissible concentrations MPC below large industrial and mining centers. The main pressure on water resources is reported for some Mongolian (Tuul below Ulanbaatar and Zaamar goldfield and the Khangal River below copper-molybdenum mine-mill complex Erdenet) and Russian rivers (Modonkul-Dzhida River system below Zakamensk wolfram-molybdenum mining and processing factory). We concluded that future water resources will depend on general socio-economic trends in both Mongolia and Russia with special focus on development of mining concessions which overlap with current or planned hydropower projects and population changes and thus water consumption in the region. Political and economic dialogue between two transboundary countries will determine status of water resources in the near future. We argue that water conservation in the Selenga River Basin should benefit from introduction of market-based mechanisms in water policy.

Keywords: Selenga, water availability, water quality, transboundary river