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Integrated water resources assessment and management in the Kharaa River Basin, Mongolia

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A comprehensive study on hydrology, hydro-morphology, climatology, water physico-chemistry and ecology was conducted in the Kharaa River Basin (Mongolia) between 2006 and 2013. The assessment provided a detailed characterization of water resources for the first time and serves as a scientific basis to develop an integrated water resources management (IWRM) in the region. Following European water management approaches we identified "water bodies" as the smallest management sub-unit within the river basin, based on characteristic abiotic and biocenotic features. Four clearly identifiable water bodies in the Kharaa River main channel and seven water bodies in the tributaries were delineated. In order to achieve a good ecological status of the surface water bodies, type-specific undisturbed reference states of various aquatic ecosystems were identified and current deviations thereof were assessed. Based on the assessment a set of water management measures was developed.

With regards to water quality and quantity, the upper reaches of the Kharaa River basin were classified as having a "good" ecological and chemical status. Compared to these natural reference conditions in the upper reaches, the initial risk assessment identified several "hot spot" regions with impacted water bodies in the middle and lower basin. Therefore, the affected water bodies are at risk of not achieving the good ecological and/or chemical status for surface waters. The use of natural references conditions offers a sound scientific base to assess the impact of anthropogenic activities across the Kharaa River basin.

Based on the scientific results and practical experiences from a seven-year project in the region, the potentials and limitations of IWRM implementation will be discussed in the presentation.