



STATE OF WATER RESOURCES IN THE UPPER YENISEI RIVER BASIN

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The study region covers the upper part of the Yenisei River basin, from the riverheads to the city of Abakan, including the Big and Small Yenisei Rivers and large tributaries such as the Abakan River and others. Data from weather and gauging stations, cartographic documents, social and economic statistics were used. Field work included water sampling and hydrochemical measurements on different sites from wildlands to regional industrial centers and expert interviewing in the ministries of natural resources and administrative centers of the Republics of Tyva, Khakassia and the south of the Krasnoyarsk Territory.

An inventory of surface water resources, the hydrological regime of objects, the role of particular sources of nourishment in the formation of river runoff, water balance features as well as hydrochemical composition and quality of water were described. In addition the role of water resources in the social-economic system and anthropogenic impact of mining industry, electric power engineering, agriculture, housing and utility sector were analyzed. The availability of water resources for the population is assessed as sufficient or excessive and in general problems of water use in the region are of local character.

Rivers as a whole are characterized by a great potential for self-purification due to the high rate of water exchange. This natural feature, in addition to a relatively low level of anthropogenic load, allows large rivers to remain conditionally clean in terms of hydrochemical parameters. Nevertheless, the excess of the maximum permissible concentration of aluminum, iron, manganese, copper, zinc, cadmium and petroleum products on several sites in the water bodies of fishery significance was revealed. The main sources of pollution in the region are mining complex, gold mines and in some measures wastewaters of various origins near major population centers.

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