

On the problems of water quality in Russia and some approaches to their solution

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Abstract An overview of water resources in Russia is presented in terms of the problem of water scarcity. It is shown that physical water scarcity, defined as insufficient resources to satisfy demand, is a feature of water security in very few regions of Russia, whereas most regions have enough water to meet industrial, agricultural and household needs, as well as environmental constraints. Inadequate water quality creates, to a larger extent than physical availability of water, the most serious water scarcity problem in the country. A synopsis of some water quality problems in Russia is presented. As the predictable consequence of increasing anthropogenic impact, many water bodies in the industrial and urbanized regions of Russia are badly polluted. The main sources of surface water pollution, as well as changes in the relative contributions of these sources over the last two decades, are analysed. As a specific concern, the problem of drinking water supply and sanitation is presented. A rising gap between the research and engineering communities is considered as one of the reasons for the water quality problems and bridging this gap is one of the main research challenges in water quality management in Russia. Two examples of effective implementation of research findings into practice are demonstrated: (1) new modelling tools for water quality prediction, and (2) new technology for monitoring of organic xenobiotics.

Key words water quality; anthropogenic pollution; water supply and sanitation; modelling; monitoring