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Water Cleaning Test in Aral Sea Region with the Purpose of Obtaining Drinking and Irrigation Waters

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Abstract

Almost all states in Middle Asia face a fresh water deficiency. The problem of the fresh water, especially, drinking water has been a major concern in the Aral Sea region, where desiccation of the Aral Sea has become an ecological catastrophe.

The Aral Sea, once the fourth largest lake in the world, has shrunk more than 60 % since 1960 through the massive cotton irrigation. Drying-out the Aral Sea is resulting in growing concentrations of chemical pesticides and natural salts; these substances are then blown from the increasingly exposed lake bed and contribute to desertification.

Deficiency of quality drinking water is due to the inaccessibility and poor water quality from natural sources, but also due to the poor water treatment technologies in major cities of the region. Within the framework of the project "Improvement of the quality of drinking and irrigation water in the Aral Sea region by cleaning equipment and sorbents produced in the Czech Republic" testing of various types of water treatment technologies has been conducted in order to find the most advantageous method of water treatment, taking into account the quality of water but also considering the maintenance costs of the equipment.

In order to take into account the various seasonal changes of preliminary characters of water, the testing of the water treatment equipment has been conducted during the winter and summer time of 2006.

As a result of these testing and laboratory analyses the optimal water treatment method has been found, which can be used in the region.

Keywords: Aral Sea region, dissolved substances, drinking water, irrigation water, reverse osmosis, Uzbekistan, water treatment technologies

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