



1 Present hydrological state of the collector waters in the lower reaches of Amu-Darya river

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The Aral Sea whose principal tributary is Amu-Darya river has been desiccating since 1961. The newly dry former bottom of the Sea is presently known as the Aral-Kum desert. New artificial small lakes have been formed in Aral-Kum because of the collector water damping. The years 1982, 1986, 1989, 1997, 2000, and 2001 were particularly dry, and the agricultural farms in the Northern Karakalpakstan in the lower reaches of Amu-Darya river experienced severe shortages of water for irrigation. The diversions of the Amu-Darya runoff for irrigation are mainly realized through a system of canals such as Kyzketken, Suenli, Pakhtaarna, Raushan, and others. The most important of those are the integrated irrigation systems Kyzketken which supplies water for the lands at the right bank of Amu-Darya, and Suenli which feeds the left bank of Amu-Darya. The net capacity of the drainage collector systems is about 300 m³/s, or up to 2.978 km³ per year, and the annual mean mineralization of the water is up to 3-5 g/l. The total length of the collector drainage systems of Karakalpakstan is about 19,800 km. The technical conditions of nearly 30% of the system are unsatisfactory. Before the onset of the Aral Sea desiccation, there were about 120 small and medium size lakes in Karakalpakstan. Presently, only about 40 of them remain, partly fed by damping of collector waters. About 120,000 hectares of vegetation was lost, as well as many fish, animal, and bird species.