

SAFETY OF HYDRAULIC ENGINEERING CONSTRUCTIONS OF THE REPUBLIC OF KAZAKHSTAN

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In Kazakhstan there are 643 hydraulic engineering constructions, from them 340 гидроузлов and the hydraulic engineering constructions functioning in system of a water management. Including 270 reservoirs with a complex of hydraulic engineering constructions, from which 62 reservoirs of republican value and 208 local values. By the decree of the President of the Republic of Kazakhstan of 57 reservoirs and 29 water retaining hydraulic engineering constructions are included in the list of the objects having special strategic value.

In the country about 800 rivers in extent of 50 and more kilometers on which under the influence of natural and economic factors there are floods are. Floods are noted annually, but their distribution and scale year from a year vary very essentially. Approximately time in 50-100 years on the rivers of Kazakhstan there pass catastrophic floods. Floods can be also caused by emergency dumpings of water from reservoirs, breaks of ponds stores and other artificial water economic constructions. Over the last 10 years in Kazakhstan more than 300 floods of a various origin from which 70 % were is the share of the floods connected with a spring high water are registered, 30 % are caused by rains and 10 % - other reasons.

Existence of a large number of pressure head soil hydraulic engineering constructions (70 %), accumulating huge stocks of water energy, create potential threat of safety to social and economic infrastructure and environment. If to consider that the probability of failures on hydraulic engineering constructions starts to raise sharply and thus danger of their destruction increases, today they demand immediate reconstruction. The actual wear of the majority of water economic objects already makes for today 60 % and more. On the called and many other objects since their input in operation repair and recovery works therefore their reliability and safety from year to year decreases weren't performed.

The considerable part of reservoirs is calculated on seasonal regulation of a drain. The majority of hydraulic engineering constructions is presented by constructions of the IV class of solidity (over 90 % of their total number), constructed, generally in the economic way. Many of them are maintained without repair and reconstruction of 30-40 and more years and are objects of the increased danger. They intended mainly for needs of agriculture and new owners have now no sufficient means for maintenance them in technically working order.

According to the Ministry of Emergency Situations in Kazakhstan I 268 hydroconstructions, including 28 large - need urgent repair. In a republican property there are 24 percent of large hydraulic engineering constructions (61 reservoirs, 91 гидроузлов and the main channels), the others – on balance of the municipal, industrial and agricultural enterprises. A serious problem are the small hydraulic engineering constructions which part is thrown, has no owners or operational service. Their technical condition the extremely unsatisfactory. The annual damage from an unsatisfactory condition of regulating and protective constructions from harmful effects of waters (high waters, floods, floodings) is estimated as a whole about the country at tens of millions US dollars. Besides, approximately in the damage to water resources is as much estimated.

The executed calculations of sizes of risk of catastrophic refusals of hydraulic engineering constructions of RK showed that: from 67 reservoirs being in a republican property at the 5th level of safety of GTS doesn't correspond to norms and rules (7,5 %); from 146 reservoirs being in a municipal property at the 33rd level of safety of GTS doesn't

correspond to norms and rules (22,6 %); from 148 reservoirs being in a private property at the 13th level of safety of GTS doesn't correspond to norms and rules (8,9 %); the best situation with safety of GTS is noted at constructions being in a republican property, situation with GTS with private form of ownership and very low level at municipal GTS is slightly worse; though satisfactory compliance to norms and GTS safety rules, the majority showed the majority of reservoirs from demand urgent repair and reconstruction; any of the surveyed reservoirs can't be estimated as completely corresponding to norms and GTS safety rules.