

## **WATER FACTOR IN MAINTENANCE OF FOOD SECURITY IN THE CONDITIONS OF CHANGE OF AGROCLIMATIC RESOURCES AND CLIMATE AND CREATION OF ADAPTATION MECHANISMS**

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The problem of food safety is important for any country and at any time. Its maintenance is necessary not only with economic but also from social and political positions. The state which is not providing food independence, can't feel safe in the modern world. The modern situation has aggravated a problem of food safety which is characterized by rather inconsistent processes occurring in global economy. On the one hand, is an increase in consumption of the foodstuffs in developing countries with another is an economic and financial crisis which has caused slump in production and population incomes. Among calls which the whole world has faced, climate change poses serious threat for all natural-economic complexes including of water and lands resources. The air temperature rise at reduction of precipitation conducts to strengthening of the climate dryness. The most part of the Central Asia is in arid environmental conditions, for which poor deposits, exclusively low humidity, high intensity of evaporation and superfluous solar radiation are characteristic. Sharp growth of the population concerns serious calls in the countries of the Central Asia which exceeds world rates. Population growth has caused processes of an intensification of economy which have led to increase of technogenic loading on water and land resources. The food products manufacture in Tajikistan already faces many serious difficulties caused mainly prompt growth of the population, mountain topography, limitation of farmlands accessible to grain crops and livestock because of abrupt inclinations both high eminences and improper microclimates. The average mean arable land on the person makes 0.14 hectares on the person who at comparison with global average 0.26 ha/person is low enough. Besides degradation of the lands - proceeding as a result of infringement of norms of land tenure, cutting down of woods, degradation of pastures, together with other processes, such as a soil erosion, events of a torrential rain, flooding, salting soils and desertification promote annual reduction of volume of articles of food. One of ways of achievement of the minimum food safety in the vulnerable countries of region is development of the new lands and escalating of manufacture of agricultural products. In Tajikistan, for example, are available to 800 Th.ha of the suitable lands for irrigation. the Elementary analysis shows that for achievement of an average regional indicator on the specific area of an irrigation per capita about 0.2 ha/per it is necessary for Tajikistan to 2015 will master to 650-850 Th.ha of the lands. However for this purpose it is annually necessary to place in operation 10 Th.ha in of the new irrigated earths. However, such possibility of expansion of the irrigated lands in Tajikistan while is absent. However, another economically more favorable and ecologically useful decision of given problem is an increase of efficiency of the irrigated hectare and water. Increase of efficiency of water is a two-uniform problem – increase of fertility of soil and productivity at economy of water. Increase of efficiency of water is a complex problem in Tajikistan. The power along with agriculture is one of key basic branches of economy. The Republic of Tajikistan possesses inexhaustible stocks of water-power engineering. Total annual potential resources of water-power engineering make 527 Bln. kWt·h and now are used only on 5 %. The fact of presence of large supplies of water-power engineering testifies about coming in the near future building a number of hydroelectric power stations with reservoirs. It also is reflected in Strategy of development of power branch of the Government of the Republic of Tajikistan. Hence at planning of development of agriculture in areas adjoined to water reservoirs it is necessary to consider fact that water reservoirs promote transformation of thermal and

radiating balances that in turn causes changes of climatic characteristics over a reservoir and territories adjoining on it. The meteorological mode under the influence of a water table will most essentially be transformed usually in a coastal zone and in several hundreds meters from it, then intensity of the such influences sharply decreases. However in a direction of dominating winds the remote climatic influence of a reservoir can extend to 10 and more kilometers. Researches of change of a temperature mode of water on length of the river after the expiration from reservoirs shows that influence of large reservoir on water temperature are most significant: distinction in daily and decade sizes of water temperature before and after a reservoir reaches 8-12°C. The greatest difference of average monthly water temperatures in tail water of reservoirs before and after a construction of reservoirs to fit to November-January and for the Vakhsh River is equal 4.2-3.4°C. Thawing influence of waters dumped from large reservoirs proceeds 8 months and cooling four month (February-May). Thus thawing influence on length of the large rivers is traced on distance in 1.74 times more (209 km) than at dump of cooled waters (120 km). Researches of dynamics of change of climatic parameters in three agricultural areas adjoining to the Nurek reservoir have shown that the mid-annual temperature for 20 years (1968-2000) has raised 1.0-1.5 °C that has led to decrease in relative humidity on 3-6 % and to increase potential evaporation on 10-26 % in annually and 12-30 % in the period of May –September at decreases of humidity. However in Javan area dynamics of changes of the listed indicators has an opposite tendency: the air temperature and evaporation decreases accordingly on 0.5 and 7.2 % and relative humidity and humidifying factor raise on 7.2 % and 10 % accordingly. Reduction of evaporation in vegetative period in Javan area reaches 12.2 %. Taking into account occurring climatic changes it is necessary to introduce corresponding corrective amendments in water use planning. By working out of the irrigation regime it is usually considered of meteorological indicators for all period of supervision. But it conducts to essential errors. On the old irrigated lands and files of perspective irrigation by ignoring of the general warming of a climate mode the irrigation regime don't consider growing requirements for water. For example, in the Javan valley of the Republic of Tajikistan recommended irrigation regimes are connected with the over-expenditure of water resources. Last specifications on irrigation modes to take the Javan valley on mean annual value of humidity (0.35) to the category of droughty areas. But as show the obtained data, for last 20 years evaporation in a valley has decreased almost on 300 mm (17 %), and the amount of precipitation has risen on 70 mm (11 %). As a result value of humidity has risen to 0.45. Hence present irrigating norms for cultivation of cotton in the Javan valley -1100 m<sup>3</sup>/ha and 3000 m<sup>3</sup>/ha for a Lucerne are overestimated. Calculations show that unproductive losses of water only on two valleys make more than 60 Mln.m<sup>3</sup>.