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Hydrogeological and Relation Conditions of Plain Crimea

Dnieper water is used to irrigate about 400 thousand ha (20%) of agricultural land. However some years later after canal operation, negative processes have begun to be controlled that has become more difficult than just to construct hydrotechnical facilities. Water is filtrated through floor and edges of a canal, level of ground waters increases, settlements are impounded and lands become marshy (for example, round Jankoy); one can observe secondary salination of irrigated lands. Drainage water from irrigated fields is discharged into Sivash and Karkinitsk bay that results in change in their degree of salinity and water ecosystems in general. Currently as specialists note only 33% of waters of the Severo-Krymsk canal are used efficiently.

Reclamative and hydrogeological and relation conditions of Plain Crimea and first of all of Near-Syvash area require measures on preventing and controlling increased level of ground waters and land salination within the area of the Severo-Krymsk canal. It is required to sink a network of wells to control the behaviour of ground water level under natural conditions and on the irrigated and adjacent territories.

Due to unfavourable hydrogeological conditions of Near-Syvash area land salination and the available sodic soil it is obvious that reliable filtration canal lining and irrigating net is required otherwise significant water losses from the canal can result in the increase of ground water level and salination of separate irrigated area within 3-5 years. In this relation it is required to develop the facility of drainage and collector network first on areas with close (3-5 m) and later with deeper (5-10m) level of ground waters. Besides it is required to sink drainages on the irrigative territories beforehand.

Important measure for preventing the increase of ground water level is biological drainage with the help of development of forest belts and gardens. Deep root system of trees along the canals captures filtration and ground water and uses it for transpiration.

Large territories of plain Crimea are covered with sodic soils. Their specific peculiarities should be taken into account while irrigating. Thus heterogeneity of forms of microrelief of the territories with sodic soils requires planning for land leveling. While irrigating sodic soils, there can be temporary bogginess of separate areas so specific methods of reclamation should be used here.