

ABSTRACT

«Groundwater resources of Kazakhstan and water supply tasks for agrarian sector of the economy (state, prospects)»

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For the optimal solution of problems facing the agrarian sector, it is necessary to help farmers to overcome the existing difficulties in restoring normal conditions for increasing output of the agricultural sector by using all the achievements of science, improving water and land relations in agriculture and state co-financing.

The aim of the thesis is to conduct field studies and to give scientific justification in prospects of water supply for irrigation and flooding of pastures based on using modern technologies for effective use of local groundwater resources.

The relevance of the work lies in research devoted to the urgent problems of agrarian sector water supply by groundwater. Dissertation work implemented for priority areas of the agro-industrial complex, related to watering and irrigation in the southern regions of the arid zone of Kazakhstan, where were fixed assets of meliorated lands and cultural pastures, which are the basis for food and livestock security of the State.

Based on a comprehensive analysis of state, reporting and published scientific works of domestic and foreign specialists and scientists, focusing on carrying out field studies, given prospects for using groundwater as an additional source for irrigation of already implemented and planned hydro-reclamation systems.

Purpose and objectives of the work are in scientific substantiation of groundwater resources effective use for flooding pastures in natural and technogenic conditions of arid zones of the Republic of Kazakhstan, methods and technologies for creating low-cost irrigation systems using groundwater aquifers arising from irrigation, based on full-scale research in conditions of real agricultural development.

The second direction of research devoted to the study of groundwater pastures, assessment of their fodder reserves, use of shallow natural annual renewable groundwater resources and the development of measures to improve ecological conditions of pastures.

Results of the work. Developed scheme, geo-information and analytical technology and methodology for the creation of small low-cost hydro-reclamation systems using groundwater aquifers arising from irrigation. Technology tested on the irrigated lands of the demonstration polygon in Baiterek village, Enbekeshi-Kazakh district of Almaty region and recommended for implementation to the Ministry of Agriculture of the Republic of Kazakhstan.

On the topic of the thesis, 11 articles were published, 2 of them in the international journals included Scopus database, 3 articles published in the national specialized publication journals recommended by MES RK Education and Science Control Committee, as well as 6 articles in collections of reports of republican and international conferences.

Application area- hydrogeology and engineering geology.

Scientific novelty of the results obtained in the work:

- for the first time tested scientifically the optimal depth of groundwater level bedding, ensuring full-value feeding of the root system of zoned agricultural crops with the absence of intra-soil evaporation and processes of secondary salinization;

- the scientifically grounded prospects for the restoration of the destroyed water infrastructure of pastures in the arid zone of the Republic of Kazakhstan on the basis of extensive use of the explored reserves of groundwater, effective use of pasture rotation in the seasons of the year.

- scientifically substantiated prospects of destroyed water infrastructure restoration of pastures in the arid zone of the Republic of Kazakhstan on the basis of extensive use of explored groundwater resources, effective use of pasture rotation by the seasons of the year.