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IRRIGATED AGRICULTURE: CURRENT STATUS, PROBLEMS AND PROSPECTS

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Abstract. *The current state of irrigated agriculture is considered. The main problems hindering the development of the reclamation industry are highlighted. Directions for overcoming the crisis in irrigated agriculture have been formed.*

Keywords: global warming; irrigation; drip irrigation; perspectives.

In 2020, agricultural producers in the Odessa region alone suffered losses from the effects of the drought by at least UAH 6.6 billion[1]. Given the impact of global warming, the situation will only get worse over time (especially in the southern regions of Ukraine). Under such conditions, the only way to prevent the negative impact of moisture deficiency is irrigation. In 2020, Ukraine actually irrigated about 550 thousand hectares of irrigated land, or 3.6% more than in 2019. 1.5 billion m3 of irrigation water was spent on these needs. The main irrigation areas are located in Kherson (256.7 thousand hectares), Zaporizhzhia (66.8 thousand hectares), Odessa (41 thousand hectares) and Mykolaiv (34.6 thousand hectares) regions.

Among the various methods of irrigation, drip irrigation has a number of advantages and provides high efficiency, which has led to an increase in these areas. In 2020, 69.8 thousand hectares were under micro-irrigation, or more than 13 times more than in 2002 (Table). In the structure of areas under micro-irrigation of agricultural crops, 53% are vegetables and melons, 24% – fruits, 9% – grapes, 5% – berries, 9% – other crops [1].

Table 1

Irrigated areas

	1990	1995	2000	2005	2010	2015	2020
Actual irrigation area, million hectares	2,29	1,85	0,89	0,62	0,59	0,47	0,5
Area under micro-irrigation, thousand hectares			5,1*	11,6	49,4	65,1	69,8

* Data for 2002

Source: formed by the author on the basis of data from the State Statistics Service of Ukraine and [1].

It should be noted that both farmers and government officials are becoming increasingly aware of the importance of irrigation for the development of the agricultural sector. Therefore, from 2021, the Government of Ukraine envisages the implementation of a nationwide irrigation and reclamation project, the implementation of which is planned in the southern regions of Ukraine. Such a step is timely, because at the moment agricultural producers do not have sufficient state support and all their intentions to increase the area under irrigation remain intentions. According to the EBRD, the annual losses due to the limited use of the irrigated potential of Ukraine amount to 1.5 billion dollars, that is, the prospects for the development of the reclamation industry are obvious.

In addition, local programs are adopted at the oblast level. In particular, the complex Program of development of water management of Mykolaiv region for 2019-2021 which provides increase of efficiency of use of reclamation systems and revival of reclamation branch is accepted. As for the sources of funding for the Program, it provides for expenditures of state and local budgets, as well as funding from grant projects.

It should be noted that mainly irrigated lands are concentrated in solvent large farms, while on the distributed lands due to the fragmentation of land plots and lack of understanding between owners and tenants,

[1] As of the end of 2020, Odesa farmers have not received compensation payments from the state for drought losses.

hydro-ameliorative measures are not carried out. In addition to the problem of violation of the technological integrity of the irrigation network, the main reasons that stop farmers from implementing land reclamation measures are the high cost of irrigation. Therefore, without state support measures (soft loans, compensations, etc.) the development of irrigation reclamation is complicated.

At the same time, the problem of forming legal, organizational and economic bases for the establishment and operation of water user associations with the transfer of long-term use of internal networks to them is especially relevant today. In addition, state-owned pumping stations do not have modern energy-efficient equipment and need major repairs and upgrades. With the creation of water user associations, agricultural producers will be able to work together to ensure proper maintenance and modernization of equipment.

Only by uniting can agricultural producers solve the most painful problems. In particular, agrarians of Mykolaiv region were compelled to pay additional 0,05 UAH for each cubic meter of water for consulting services and water quality analysis. Within one farm, which uses 5 million m3 for irrigation, this is an additional UAH 250,000 per year. Dissatisfaction of agricultural producers was heard only after they united and began to collectively refuse to pay for this service. Currently, almost no one in the Mykolaiv region[2] pays these funds [2], and the problem of non-transparent formation of water prices has been eliminated.

As already mentioned, the largest array of irrigated lands is located in the Kherson region, which irrigates more than 90% of the irrigated water of Ukraine. Under drip irrigation there are 44.5 thousand hectares, under rice checks – 7.5 thousand hectares [3]. Kherson region produces about 40% of domestic rice, but due to the rising cost of irrigation water and the formation of low purchase prices for cereals, which barely pay for production costs, the area under rice is reduced.

In addition, the problem is the quality of irrigation water, the class of which depends on the quality of crop products and the ecological condition of irrigated lands. According to the State Water Agency of Ukraine in 2015, 84.2% of the total area of actually irrigated land in the country (461.8 thousand hectares) was irrigated with water of class II quality ("limited suitable"), while water of class I – 13.1%. The rest of the area was irrigated with class III water (unusable). The largest areas irrigated with class III water were concentrated in Donetsk, Kirovohrad and Dnipropetrovsk regions. The use of low quality water leads to the development of degradation processes in the soil, due to which the expediency of monitoring and controlling the quality of irrigation water is actualized.

Conclusions. The statement about the relevance and prospects of the development of irrigated agriculture in Ukraine is indisputable, especially in the context of the impact of global climate change. The main problems in the development of the irrigation industry include: lack of state support, violation of the technological integrity of the irrigation network, high cost of irrigation infrastructure, non-transparent pricing of irrigation water, irrigation with low-quality irrigation water and more. The removal of these obstacles in order to preserve the reclamation fund requires a comprehensive set of interrelated measures of state support. The revival of irrigation will at least double the productivity of lands and form a full-fledged food security system of the state.

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[2] In 2019 the cost of irrigation water in the Mykolaiv region was 2,21 UAH/m3, in 2020 – 1,68 UAH/m3.