

## **Rational Use of Water Resources**

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**Abstract:** Effective reclamation and water management plays significant role in fostering the economic growth of a country. Water, as a vital natural resource, is important in strategic enhancement of water management practices and the revitalization of irrigated lands to optimize resource utilization and sustainably support economic development.

**Keywords:** reclamation, water management, irrigation units, land fund, irrigation system, water distribution units, irrigation of new lands.

The continuous efforts in land reclamation and water management are pivotal in fostering the economic development of our country. Given its critical significance, water resources hold a unique position among natural resources, being fundamental to life itself. Water finds extensive application across all sectors of the public economy and in people's daily lives. Notably, irrigation stands out as a cornerstone of agricultural development, exerting a profound influence on bolstering the economy.

In order to improve the use of land fund for irrigated agriculture, it is of great importance to improve the rational use of water in a planned manner. These practical measures are considered one of the most important preventive measures that help to increase the coefficient of water use from irrigation systems and improve the land reclamation condition.

Presently, the water utilization coefficient of irrigation systems remains within the range of 0.67 to 0.84, indicating some inefficiencies in water usage. Annually, a substantial volume of water, ranging from 1.8 to 2.0 billion cubic meters, is consumed within this context.

The primary canals and their water distribution branches significantly influence the water utilization coefficient of irrigation systems. These distribution branches transport water from the main canal through soil valleys, absorbing over 6.6 million cubic meters annually, as reported by the canal authorities. However, each year, more than half of this water is lost due to seepage.

While significant progress has been made in implementing planned water usage, there's still work to be done. Practical solutions for enhancing water utilization and increasing land water supply shouldn't be viewed in isolation from the irrigation of new lands; rather, they should be integrated thoughtfully. Alongside efforts to improve existing irrigation areas, acquiring new lands emerges as a pivotal strategy for advancing irrigation infrastructure.

Although engineering methods play a crucial role in addressing deficiencies in irrigation management and land utilization, they alone are insufficient to achieve full and rational

utilization of irrigation resources from the land fund without a scientifically sound irrigation farming system.

In addition to underground and surface water sources, water lost through filtration poses significant challenges to agriculture, exacerbating land degradation and contributing to the formation of swamplands. Notably, a substantial portion of water in household branches is lost to filtration, accounting for 85.5% of the total length of household water branches.

The General Department of Irrigation Systems of the Republic of Karakalpakstan carries out exploitation works on the main and inter-farm canals. Irrigation systems, inter-household canals are under the control of district administrations and are financed by the state.

Households should clean all the irrigation channels in the farms themselves. Many farms do not have enough resources to maintain irrigation systems in good condition, which leads to their seasonal preparation and unnecessary wastage of water.

Planned use of water should be carried out in accordance with the regulations for the use of water produced by agricultural crops. The mouth of the canals increases the real demand for water every year. The study of the problem shows that the reason for the unplanned water loss of irrigation systems is the violation of the order of planned distribution of water in the irrigation zone.

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