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CONSTRUCTION AND CHANGES IN CANALS AND PUMPING STATIONS IN UZBEKISTAN

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ABSTRACT:

After the independence of Uzbekistan, special attention was paid to the issue of objective and scientific study of the history of our country, and the attitude to the past has changed radically. Among a number of historical topics, special emphasis is placed on the hackneyed study of the history of the historically formed irrigation system and the culture of irrigated farming on the basis of a theoretical and conceptual approach. The study of the modern history of the water management system in Uzbekistan is of great importance today. This article analyzes and summarizes the history of the construction and development of canals and pumping stations in Uzbekistan.

KEYWORDS: canal, pumping station, history, agriculture, water consumers' association, irrigation, farming, water resources.

INTRODUCTION:

In our country, agricultural production is directly related to the use of water. An average of 55 billion soums a year is allocated for irrigation of arable lands in the country. m3 of water is required, and this amount of water is almost half of the total water resources consumed in Central Asian countries. At present, more than 80% of the water used in agriculture in the country flows from neighboring countries, which limits the ability to organize the stability of the water regime. Therefore, the economic importance of water-efficient use is very high, which requires maintaining the usability of irrigation and land reclamation networks. In this regard, the First President of the Republic of Uzbekistan I.A.Karimov said: ... "Serves as a direction in the reform of the water management system" [1]. At the same time, a number of measures have been taken in recent years to improve the water use system. In particular, in accordance with the Decree of the President of the Republic of Uzbekistan dated March 24, 2003 PF-3226 "On the most important directions of deepening economic reforms in agriculture", the development of farms was identified as a priority. Significant changes have taken place in the water sector on the basis of the Resolution No. 1, which was transferred from the principle of administrative-territorial management of water resources to the principle of basin management.

METHODS AND RESULTS:

The research process uses such methods as comparative analysis, problem-chronological, objectivity, structural-systematic analysis, oral history.

As a result of the priority development of farms, the water use system has become much more complex. In particular, in the past, agricultural land was owned by company farms and they were also responsible for water supply to the area. The emergence of internal canals, hydraulic structures and reclamation equipment, many farms using property, as well as the emergence of many farms in the region as agricultural producers and water consumers naturally eliminates the need for the subject

regulating water use in the lower reaches. This issue is regulated by Water Consumers Associations (WCAs) in most developed countries. It is known that the agricultural sector plays an important role in the sustainable development of the country's economy. Therefore, the government of the republic pays enough attention to the development of this sector. Indeed, the sustainable development of the agricultural sector is directly related to the effective functioning of the water management system. In particular, investments in the modernization of the industry are aimed at ensuring the future development of the industry and its well-being as a leading industry. In this regard, taking into account the important role and importance of the water management system in the economy of our country, the next stage of organizational, structural and financial-economic reforms, technical and technological renewal, radical modernization of the industry has become one of the most pressing issues. According to the analysis of the current technical condition of water facilities, "... 23.5% of inter-farm and main canals, 17.4% of on-farm irrigation networks need to be repaired, 18 of the existing 42 water intakes need to be replaced and hydromechanical equipment needs to be modernized. 80 percent of large pumping stations, 50 percent of medium stations and 30 percent of small stations need to be repaired and rebuilt, about 19,000 km of open drains on domestic farms need to be cleaned, and more than 50 percent of closed drains do not work" [2].

Elimination of this situation requires the allocation of large sums of money to ensure the efficient operation of the water system. To do this, attracting domestic and foreign investment will provide an opportunity to resolve the situation. Therefore, as the First President I.A.Karimov said, "We all need to understand a simple truth - without investment, there will be no modernization and renewal" [3].

Based on the research conducted in the field of modeling management processes in the system of regional hydraulic structures, the following conclusions and recommendations were made:

1. The main crop areas of the lower part of the country are supplied with water by the Karshi main canal. The estimated amount of water resources indicates that this hydropower system will remain the largest water supply enterprise in the region in the long run.
2. In the context of the national economy, the issue of resources of the system of regional hydraulic structures and their use of fixed assets should be considered as a priority, reflecting the dynamic changes in processes such as system management.
3. The formation of a market economy has also affected the water supply sector, leading to changes in the use of fixed assets. Therefore, this study analyzes the factors that directly affect the efficiency and management processes of fixed and revolving funds in water supply enterprises and evaluates the analytical data on their change, which accelerates the attraction of investment in this area, including foreign investment.
4. Methods for analyzing the use of opportunities in the system of regional hydraulic structures, taking into account regional conditions, have been developed. This determines the level of development of the industry, taking into account the composition of fixed assets, personnel, costs and social and environmental relations, as well as management methods, creates new opportunities for the use of labor, material and natural resources.
5. The application of modeling techniques helps to have a clear economic idea of the whole production process. Defines the directions of

development of the enterprise, reflecting the regional conditions.

6. Due to the complex nature of the management of regional hydraulic structures, complex multi-parameter linear and nonlinear forecasting and optimal programming models were used to solve this problem, as well as new ones were developed. Therefore, the booklet provides iterative methods and algorithms for solving them, as well as directions for improving and developing models.

7. The application of econometric models in the management of the Karshi Main Canal has shown:

- Fixed assets in the water supply system are becoming obsolete, overall costs are rising, resulting in deteriorating economic and technical performance;
- In the current economic changes, the level of influence of key economic and technical indicators on the management of water supply systems is becoming stronger;
- the use of existing models, algorithms and programs to solve problems in the water supply system simplifies and accelerates the process of studying the object;
- Ways to apply existing models were identified and based on them, solutions were obtained for specific issues related to the Karshi Main Canal, and thus the availability of new opportunities was identified;
- The water supply of the Karshi Main Canal enterprise in the water supply system was forecasted, an increase in the volume of water compared to this day was revealed;
- The use of forecasting and optimization models to define the planning and management processes of the Karshi Main Canal system leads to a reduction in non-profit costs.

In the pre-independence period, 10-11 thousand cubic meters of water were used per 1 hectare of irrigated area, today this figure is 6-7 thousand cubic meters;

- A total of 4.3 million irrigated. 180 thousand km of irrigation networks, 160 thousand waterworks, including more than 800 large hydraulic structures, 55 reservoirs with a total volume of 19.2 billion m^3, total annual electricity consumption 8, There are 1614 pumping stations with a capacity of 2 billion kW, 4124 vertical irrigation wells;
- In the 80s and 90s of the last century, 4.0 mln. 2.0 million hectares of total irrigated land. hectare (50 percent) of cotton was grown, but now this figure is only 1.2 million. hectares or 30% of the total irrigated area;
- The area of rice has been reduced from 180,000 hectares to 40,000 hectares. The rest of the irrigated land was occupied by cereals, vegetables, melons, and other foodstuffs, which required little water and were necessary for human habitation;
- The transition from the principle of administrative management of water resources to the principle of basin management has allowed for efficient management and equitable distribution of water. Currently, there are 10 irrigation system basin departments, 63 irrigation systems and main canal departments. In addition, 1,501 Water Consumers' Associations were established to regulate water relations between farmers and farms.

In general, 88% of the total water used in the economy of the country is accounted for by agriculture, the rest - consumer services - 8%, energy - 1.5%, industry - 2%, fisheries - 0.5%. This includes the organization of efficient and rational use of existing water resources, improvement of reclamation of irrigated lands, improvement and modernization of technical facilities, large-scale introduction of water-saving technologies, strengthening the technical base of water management organizations, water consumers' associations. Further improvement of its activities requires reforms aimed at improving the skills of specialists in the field.

As a result of economic reforms in agriculture and water management in the context of modernization of the economy, in particular in accordance with the Decree of the President of the Republic of Uzbekistan dated October 27, 2003 "Concept of farm development in 2004-2006" and government decisions in 2004-2006 It was decided to liquidate the company farms, establish farms on their basis and further develop the infrastructure serving them. This process, in turn, necessitated the reform of the water management system. As a result, the process of water management reform has been carried out in three directions. The first direction is the establishment of Water Users' Associations (now Water Consumers' Associations) in order to strengthen the management of water resources within farms on reorganized farms.

The second direction is the modernization of materially and spiritually obsolete water facilities. The third direction - reforms in the management of water resources of the republic in order to coordinate the interaction of WCA's with the higher hierarchy of management. As a result, by the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated July 21, 2003 "On improving the organization of water resources management", the management of irrigation systems in the country was transferred from the administrative-territorial method to the basin principle. Implemented reforms have made it possible to eliminate redundancies between water sources and direct water consumers, to develop and implement scientifically based planning and distribution and management of water use, to control the targeted use of budget funds. At the same time, in accordance with the requirements of economic reforms in agriculture of the republic, a number of new systems have been introduced at the lowest level of water use. One such system is the establishment of Water Consumers Associations (SIUs). SIUs were established as non-profit, non-governmental organizations in accordance with the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated January 5, 2003 No. 8 "On measures to transform agricultural enterprises into farms" and in accordance with the requirements of Article 72 of the Civil Code of the Republic of Uzbekistan, finances its activities at the expense of water consumers.

Approved by Resolution No. 8, the "Procedure for Regulating Water Relations in the Territory of Reorganized Agricultural Enterprises" legally regulates the voluntary association of all water consumers located on the territory of the former company's internal irrigation networks for shared water use. Water Consumers' Associations allow the development of organizational and economic relations in the water management subsystem and serve the tasks of operation of irrigation and land reclamation networks owned by the former company farms, the timely supply of water to established farms. WCAs are mainly non-profit and non-governmental organizations that are formed and managed by voluntary water consumers who are connected to a specific irrigation and reclamation system. That is, the Water Consumers Association is an association of farms, dehkan farms and other water consumers engaged in economic activities related to the acquisition, efficient use and discharge of a certain amount of water. In agriculture, water consumers are farmers and dehkan farms, as well as other water consumers, engaged in economic and other activities related to the receipt of a limited amount of water, its use and inland water resources. The purpose of establishing Water Consumers' Association is to combine the technical and financial capabilities of consumers for the efficient use of water in the territory of the association through the establishment of fair water distribution at the

lowest level of water use in agriculture and efficient use of irrigation and land reclamation networks. Irrigation and reclamation systems, in particular reservoirs, hydraulic structures, irrigation facilities, canals and pumping stations, which are the objects of investment activity in the water sector, provide the activities of water management organizations. Therefore, their uninterrupted and uninterrupted maintenance and uninterrupted supply, as well as the provision of agricultural production with irrigation water on the basis of the construction of new irrigation systems depends on special conditions and the specific characteristics of the system. Also, the technical condition of constantly moving water resources and irrigation networks, as well as the need to regularly monitor the formation of water resources and sources of change, once again proves to take into account the characteristics of the system.

CONCLUSION:

After gaining independence, Uzbekistan has inherited a large water infrastructure, including large structures, unique pumping stations, dams, canals and other structures, as well as a number of problems related to the obsolescence of this infrastructure, its deterioration, disruption of water supply and distribution systems.

Between 1991 and 2001, public spending on agriculture fell from 27 percent to 8 percent, and on water almost fivefold. However, payments for electricity consumed by pumping stations increased from 13.6 percent to 48 percent. About 20 percent of the electricity used in the country and 70 percent of the budget of the Ministry of Agriculture and Water Resources falls on the electricity used for pumping stations and drainage. Allocation of operating funds to ensure the uninterrupted operation and use of irrigation and drainage infrastructure has sharply decreased, the volume of repair and cleaning of collectors and drains has been reduced, the reconstruction of canals and hydraulic structures has stopped. Financing of water infrastructure services decreased from 191 billion soums (2000) to 184 billion soums (2003).

Currently, the depreciation of the main fund of irrigation systems is 30-50 percent, the level of services provided for the irrigation of one hectare of land in a year with average wetness is around 30-31 percent. This indicates that there are major problems in the operation of irrigation systems. According to World Bank experts (2003), the disruption / loss of the resource base for agricultural production costs the country about $ 1.0 billion annually, according to economic estimates.

As a result of the measures taken, the water supply of 277,000 hectares of land has been improved.

In 2017, 2,765 pumping units (105% of the plan), 1,433 irrigation wells (109.8%), 1,847 (104.1%) domestic pumping units were repaired by the Pumping Stations and Energy Departments under the Ministry.

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