


## Assessing the Effects of the 2003 Irrigation Policy Reforms on Andijan Region

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### Abstract

*This study undertakes a comprehensive examination of the scope, objectives, and broader implications of the irrigation reforms introduced in Uzbekistan in 2003. Drawing extensively on legislative acts, regulatory frameworks, and previously unexplored archival records, the research critically evaluates how these reforms reshaped water management structures, influenced institutional arrangements, and affected agricultural practices at both regional and national levels. Through this evidence-based approach, the study seeks to clarify the historical significance of the 2003 reform package and to illuminate its role in the transformation of Uzbekistan's irrigation governance system.*

Keywords: Irrigation, basin, Cabinet of Ministers, decree, decision, system, land reclamation.

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### 1. Introduction

Agriculture has long held strategic significance across the globe, serving as a foundation for economic development and a critical element of national food security—even in the world's most advanced economies. Beyond its role in generating economic growth, the agricultural sector ensures a stable and sustainable supply of food resources for the population. In the context of Uzbekistan, agriculture occupies an especially prominent position. Not only does it provide the essential food products required for domestic consumption, but it also contributes substantially to the country's overall economic stability and socio-economic development.

The sustainability and productivity of agriculture, however, depend on a complex set of interrelated factors. Among these, the availability and effective management

of water resources hold a particularly decisive role. Water is an indispensable natural resource, fundamental not only for crop cultivation but also for industrial activity and the everyday needs of the population. Given Uzbekistan's arid climate and its heavy reliance on irrigated agriculture, the question of water management becomes even more critical. For this reason, the state has placed considerable emphasis on modernising irrigation systems, promoting efficient water use, and implementing institutional reforms to ensure the long-term sustainability of the sector.

In this broader context, the study of irrigation reforms—particularly those implemented in 2003—offers valuable insight into how policy interventions shape agricultural development, resource distribution, and regional socio-economic outcomes.

## 2. Literature Analysis and Methodology

A comprehensive review of scientific literature and practical studies in the fields of agriculture and irrigation enabled the classification of the examined sources into three principal groups: scientific–theoretical works, legal documents, and practical or informational materials.

The first group consists of scientific and theoretical sources, including the National Encyclopedia of Uzbekistan[1] and The World Book Encyclopedia[2]. These works address irrigation systems, the theoretical foundations of water resource utilisation, and international experiences in irrigation management. They offer essential insights into the core principles of water resource governance, the functions of hydraulic structures, and the overall efficiency of irrigation networks. Consequently, these sources provide the theoretical basis necessary for analysing the water management system and understanding the conceptual frameworks that guide irrigation policy and practice.

The second group comprises legal sources (Lex.uz) [3][5], through which the study examines regulatory documents governing water management and irrigation systems in the Republic of Uzbekistan. These normative acts define the organisational structure of the Naryn–Qaradarya Basin Administration, outline the legal foundations of its operational activities, and establish procedures for water use, canal management, and the functioning of pumping stations. Such documents also include formal mechanisms and methodological guidelines for calculating water allocation, thereby serving as essential reference points for assessing state policy and institutional frameworks.

The third group involves scientific and applied research studies [4][6], which provide practical data on the operation of hydraulic structures within the Naryn–Qaradaryo irrigation systems, technical reports on infrastructure conditions, and assessments of modernisation efforts. These materials allow for a detailed analysis of rational water resource management practices, including canal concreting and the upgrading of pumping stations. Particularly valuable is the final technical report of the Naryn–Qaradaryo Basin Administration for 2003 [6], which documents the technical state, performance indicators, and practical outcomes of irrigation activities in the region.

In addition, informational and mass media sources [7][10] supply visual and descriptive evidence

concerning canal reconstruction, improvements in irrigation infrastructure, and region-specific achievements in Uzbekistan’s irrigation sector—especially in the Andizhan region. Footage broadcast by the Mening Yurtim TV channel [9] and the Andizhan Regional Television and Radio Company [10] illustrates on-the-ground progress and provides empirical confirmation of ongoing projects. These materials support the study by highlighting practical dimensions and reinforcing scientific conclusions with real regional examples.

Simultaneously, the study places significant emphasis on high-level regulatory and legal documents concerning the organisation and development of the national water management system, particularly presidential decrees and resolutions [3][5][8]. These texts play a central role in defining the institutional structure of basin administrations, the mandate of the Ministry of Water Resources, and the operational procedures of territorial water management bodies.

Overall, the reviewed literature integrates scientific, normative, and practical perspectives on water management and irrigation. This combined approach enables a comprehensive assessment of the activities of the Naryn–Qaradarya Basin Administration and provides a foundation for evaluating modernization efforts in irrigation systems within the Andizhan region.

Methodologically, the study employs comparative analysis and chronological sequencing, ensuring a systematic examination of reforms and developments over time. The article is grounded in scientific evidence and adheres to the principles of historical objectivity throughout its analysis.

## 3. Results

Irrigation – in Latin, means irrigation – irrigation [1. – B.]. This field is also defined as “the irrigation of the land by artificial methods. It provides water to growing plants for a long time, in areas where there is little or no rainfall. The water used for irrigation is taken from lakes, rivers, streams and other sources...” [2. –P. 456.]. However, today the task of this field is not only irrigation, but also the efficient, fast and economical delivery of water from one area to another.

The importance of the field is high on a global scale, and today various basin departments are actively working in each region of Uzbekistan. Among them, the Naryn–

Qaradaryo Irrigation Systems Basin Department (Naryn-Qaradaryo I.T.H.B.) in Andijan region is of particular importance. This organization was established in accordance with the Resolution of the Cabinet of Ministers No. 320 of July 21, 2003 “On improving the organization of water management” [4. –P. 48.], adopted in order to implement the Decree of the President of the Republic of Uzbekistan No. PF-3226 [3]. The Naryn-Qaradaryo I.T.H.B. included 5 irrigation systems departments [5]. They were Andizhansay, Shakhrixonsay, Ulugnor-Mazgilsay, Qaradaryo-Maylisay, Sawai-Aqburasay irrigation systems departments, and in addition to them, the regional hydrogeological land reclamation expedition, the department of pumping stations, energy and communication networks, the “Irrigator” forestry, and the 102nd K.M.K. [6. –P. 1.]. The main task of the basin administration was to ensure the efficient use of water resources and carry out irrigation maintenance work.

In accordance with the Resolution of the President of the Republic of Uzbekistan No. PQ-3172 of August 4, 2017 “On measures to further improve the activities of the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan”, the Main Department of Water Resources was established in the central apparatus of the Ministry of Agriculture and Water Resources of the Republic of Uzbekistan. This ensured the more effective functioning of the system.

On February 12, 2018, the Ministry of Water Resources was established in order to further improve the system and radically improve the irrigation system. More attention than ever began to be paid to the implementation of measures aimed at rational use and conservation of water resources.

On November 29, 2023, a videoconference meeting was held under the chairmanship of the President of the Republic of Uzbekistan Shavkat Miromonovich Mirziyoyev on the issues of rational use of water resources in the agricultural sector, their conservation and reduction of losses [7]. At the end of the meeting, 2024 was declared a “breakthrough year for canal concreting” in the water sector, demonstrating the growing attention paid to this area [8].

As part of the “2024 Year of Concreting Canals” program announced nationwide, the Naryn-Qaradaryo Irrigation Systems Basin Department also implemented large-scale infrastructure projects. Concreting works on 41

kilometers of main canals were carried out at the expense of funds allocated within the framework of State investment programs in the amount of 46 billion soums. These measures are aimed at increasing the efficiency of water resource use, reducing losses, and modernizing the water supply system, and have laid the foundation for significant changes in the agricultural sector of the region. As an example, we can cite the work carried out on the Qatortol canal, which has a total length of 16.5 kilometers, serving the Andizhan and Jalaquduk districts. As a result of concrete lining works on the Andijan district section of the canal, the irrigation water needs of 120 farms in this area have been regularly and sustainably met. At the same time, excess water losses due to water leakage and evaporation have been significantly reduced.

As a continuation of these works, the Naryn-Qaradaryo IHTB plans to concretize another 3.5 kilometers of the Qatortol Canal in 2025, which is recognized as an important stage in the consistent modernization of the water management infrastructure in the region and improving the land reclamation situation [9].

One of the most important projects in the modernization of the irrigation system in Andizhan region for 2025 is the concreting of the Andizhansoy Canal. This project is also being implemented by the Naryn-Qaradaryo IHTB. This canal is the central link in the regional water management system and supplies water to about a third of Andizhan region. In other words, vast agricultural areas and household plots in the Kurgan-Tepa, Jalakuduk, Andizhan and Altyn-Kul districts are irrigated through this canal. Therefore, the issue of improving the technical condition of the Andizhan-Say canal and reducing water loss is of strategic importance.

The geological structure of the canal is unique, its lower part consists of layers of gravel and large stones. Under natural conditions, such layers easily absorb water into the soil, which increases the water seepage coefficient and reduces irrigation efficiency. Therefore, in 2025, concreting work was started on the initial section of this canal, 8 kilometers long, passing through the city of Khanabad [11].

According to official data, as of August 26, 2025, more than half of the planned work was completed. During the concreting process, the canal was rehabilitated to a width of 6 meters and a depth of 2.10 meters. At the same time, the gradient was optimized in accordance with technical

standards, maintaining the flow rate and hydraulic stability. As a result, the total throughput of the canal remained unchanged, and it was able to continuously transfer 50 cubic meters of water per second.

After the completion of this project, the quality of water supply in the areas irrigated by the Andizhansay Canal will significantly improve, water waste will be reduced, and the land reclamation will be stabilized, which will serve as an important factor in increasing the efficiency of the agricultural sector of the region [10].

#### 4. Conclusion

Throughout its operational period, the Naryn–Qaradarya Irrigation Systems Basin Directorate (ITHB) has played a pivotal role in advancing the efficient management of Uzbekistan’s water resources and supporting the development of its agricultural sector. By improving water distribution mechanisms, rehabilitating canals and hydraulic structures, and ensuring the effective operation of pumping stations and irrigation networks, the Directorate has made a substantial contribution to meeting the population’s essential food supply needs.

Since its establishment in 2003, the Naryn–Qaradarya ITHB has implemented a series of initiatives aimed at enhancing the technical condition of regional irrigation systems, promoting the rational use of water resources, and modernizing water-related infrastructure, including canal concreting and the upgrading of hydraulic facilities. These efforts have had significant implications not only for the Andizhan region but also for the broader national agenda of agricultural development and reliable water provision.

In summary, the activities of the Naryn–Qaradarya Integrated Water Resources Management (IWRM) system demonstrate effective alignment with national and regional water management priorities. Its contributions have played an essential role in strengthening Uzbekistan’s agricultural productivity, ensuring sustainable water resource governance, and supporting the country’s overall socio-economic development.

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