

Water diplomacy and geopolitics: restoration and development

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Abstract: The present article delves into the political processes concerning water in Central Asia, with a specific focus on Uzbekistan, spanning from ancient times to the contemporary era. The analysis is based on research findings from various scientific literature sources. The agricultural, livestock, and artisanal activities of the Central Asian population have historically been intertwined with water resources. Furthermore, the geopolitical theories of N. Spykman and H. Mackinder, such as the Heartland and Rimland models, have been meticulously examined. In the current global context, water-related issues are increasingly becoming a focal point for many nations, with predictions of potential political conflicts arising from water scarcity. Among the environmental challenges confronting the world today, water scarcity has emerged as a pressing concern. The next decade is anticipated to witness a pragmatic approach to water diplomacy in Central Asia, characterised by a foundation of close-neighbour diplomacy and mutual trust dialogues among the region's leaders. The relevance of scientific research offering clear analytical and prescriptive insights on these matters is underscored by their increasing significance in the present day.

Keywords: Central Asia, water, water diplomacy, geopolitics, globalization, pragmatism, Heartland, Rimland, water resources, environmental problems.

Introduction: Given that the 21st century signifies the pinnacle of human progress, the matter of our stance towards nature, particularly water, demands significant consideration. Water, being an unparalleled element in the natural world, serves as a crucial resource for various sectors of the economy, notably agriculture and industrial enterprises. Moreover, it plays a pivotal role in upholding ecological equilibrium and meeting the daily requirements of individuals.

Throughout the course of human history, it becomes evident that water has served not only as a vital resource for quenching thirst in various historical eras,

but also as the foundation of their economic practices, daily routines, religious and secular beliefs, and even as a subject of ecological enlightenment.

The issue of water availability is a concern for the future. The majority of water on our planet, approximately 96%, is found in the form of saltwater in the oceans and seas, leaving only 3% as fresh water. Projections suggest that within the next decade, the reserves of freshwater worldwide could be reduced by half. Presently, 80 countries are facing a scarcity of fresh water, impacting around two billion individuals. Central Asia, a region characterized by a rapidly

expanding population and limited water resources, holds significant geopolitical importance in the context of water scarcity. With the global water crisis intensifying, there is a valid basis for discussing the emergence of water geopolitics [1].

Throughout the centuries, the people of Central Asia have developed and refined their agricultural practices, including the irrigation of crops and the construction of both surface and underground irrigation systems. Ancestors in this region were known for their efficient use of water resources, ensuring a harmonious and prosperous existence along waterways. By managing riverbeds, digging ditches, harnessing water sources, growing diverse crops, and enhancing settlements, they recognized the immense value of water as a crucial blessing that promotes peace and prosperity among the various peoples of Central Asia.

In the present era of advanced human civilization, the demand for good health is incessantly rising. Simultaneously, the interconnectedness of waterways and water sources among all nations in the Central Asian region necessitates the practice of "water diplomacy" with neighbouring countries, leaving no room for neglect.

Indeed, during the 20th century, the population experienced a threefold increase, while the need for clean water escalated by a staggering seven times. Now, let us envision the 21st century, where we find ourselves standing at the precipice of environmental challenges like global warming, the melting of glaciers, and desertification. The repercussions of these issues are not arduous to anticipate. It is undeniable that approximately forty nations reside in arid climates, relying on external sources for 50% of their water supply. Consequently, this reliance becomes a potent tool for exerting economic and political pressure on countries grappling with water scarcity.

In recent times, there has been a significant emphasis on promoting collaborative efforts to ensure the sustainable utilization of transboundary water resources in Central Asia. This includes initiatives aimed at strengthening inter-state bilateral and multilateral relationships, particularly in the realm of inter-parliamentary cooperation, to maximize the effectiveness of water diplomacy mechanisms.

The progress of Central Asia has historically relied on artificial irrigation, and this element is expected to remain fundamental in the future.

METHOD

In recent years, there has been a significant amount of scientific research conducted to shift the perception of water in a favourable direction. It is anticipated that

this research will persist in the future. The topic of water perception is not only explored through a scientific lens, but also through the national literature of various cultures, folk art examples, and traditional practices. In our scientific examination of water perception, we have successfully employed methodologies including historicity, comparative analysis, content analysis, and evidence.

The examination of the literature indicates that studies focusing on water-related issues are among the most prevalent, with numerous scientists worldwide producing scholarly research and publications in this field.

Throughout history, water has played a significant role in geopolitical processes. A careful examination of historical conflicts reveals that, particularly since the Middle Ages, battles have been waged over ports and waterways due to the expansion of trade through these routes. N. Spykman, another influential figure in the field of geopolitics, has contributed to the discourse on water by presenting his own version of a geopolitical framework. In contrast to H. Mackinder's model, Spykman proposes that the path to global dominance lies not in the Heartland, but in the Rimland, which encompasses coastal regions. Consequently, Spykman modifies Mackinder's formula, stating that "Whoever rules over Rimland, rules over Eurasia, who rules Eurasia, he takes the fate of the world into his hands." This statement can be further refined to suggest that "He who controls the waters of Eurasia controls the world." Undoubtedly, the geopolitical concepts surrounding the control of water areas remain highly relevant in contemporary times.

Numerous studies are currently underway in this particular area. N. Ochilov delved into the irrigation and reclamation projects in the Republic between 1946 and 1964. Q. Nasritdinov's doctoral dissertation and subsequent publication shed light on the global issue of the island in an objective and scientific manner during the late 1990s and beyond [3].

Z. Ashirboeva's study examined the rise in the number of families who were relocated from Andijan and other areas to the newly allocated lands in Mirzachol. This relocation was a result of the resettlement policy implemented by the Soviet government. The analysis was conducted using primary sources and materials from periodical press. On the other hand, O.K. Komilov's doctoral dissertation titled "Development of the Irrigation System in Uzbekistan and its Consequences (1951-1990)" [4] provides insights into the irrigation and land improvement system in the Surkhandarya region.

O.K. Kamilov's investigation into the "Development of

the irrigation system in Uzbekistan and its consequences (1951-1990)" is based on an analysis of primary and historical sources from the period of 1951-1990. The study examines the development of the irrigation system in Uzbekistan, the results of the implemented irrigation measures, and their subsequent effects. Scientific commentary is provided on the influence of surface flows and water exchange between the aeration zone and seepage water on the biological and geological water cycle in irrigated agriculture.

The scientific research conducted by N.Ch.Makhmatkulova examines the irrigation-reclamation system implemented in the Surkhandarya region between 1960 and 1990. This study focuses on the socio-economic consequences of this system and provides valuable insights into enhancing water supply and land reclamation practices in the agricultural sector of Uzbekistan.

The emergence of early human societies can be attributed to the presence of flowing water on the Earth's surface and its utilization in agricultural practices. It is widely acknowledged that ancient civilizations such as Egypt, Mesopotamia, India, and China, known as the cradles of civilization, were predominantly situated along riverbanks. Furthermore, it is evident that the majority of national capitals and major urban centres are also located adjacent to rivers. The development of irrigated agriculture is more pronounced in riverine areas, a phenomenon influenced by geographical latitude. In regions with hot climates and limited natural moisture, prolonged growing seasons, and abundant sunshine, artificial irrigation becomes essential. The implementation of artificial irrigation systems necessitated the construction of irrigation infrastructure, as well as the application of mathematical, astronomical, engineering, geodetic, geological, and geographical knowledge and research.

RESULTS

Water systems were developed in antiquity. In Central Asia, the regulation of water was a matter of national significance as it greatly influenced the economic advancement of the region. There were ongoing attempts to harness water resources for human use. Within the borders of Uzbekistan, a variety of water structures including reservoirs, dams, wells, springs, aqueducts, and canals have been erected since ancient times.

In Central Asia, particularly in Uzbekistan, the practice of irrigated agriculture developed over millennia, similar to ancient Egypt and Mesopotamia. The shift towards agriculture necessitated the utilization of

improved water sources and the adoption of more efficient labour techniques.

The initial centres of irrigated farming culture emerged in regions such as Khorezm, Fergana, and Zarafshan within the country.

The emergence of early state structures in Ancient Khorezm, Bactria, and Sogdiyona within the borders of Uzbekistan significantly contributed to the advancement of agricultural practices centred around artificial irrigation.

The rapid development of irrigated farming culture and the establishment of the first irrigated farming culture in our country between the 2nd millennium BC and the 6th centuries AD were influenced by several key factors:

1. The emergence of submergence farming is influenced by a combination of natural and social factors.
2. The regions where the initial farming culture originated can be identified.
3. Various types of crops can be categorized as primary crops.
4. Different methods of land cultivation and irrigation are employed.

The intensive implementation of agriculture, specifically tailored to the irrigation system, has had significant implications in Central Asia. Russia, in particular, has played a role in exacerbating water problems in the region. A confidential letter dated November 14, 1872, from Turkestan Governor-General von Kaufman in Tashkent to Emperor Alexander II sheds light on the early recognition of the Aral Sea issue as a grave concern. The letter explicitly states the intention to prevent the waters of the Amudarya and Syrdarya rivers from reaching the sea, instead diverting them to irrigate cotton fields until the very last drop. The consequence of this approach would be the complete desiccation of the Aral Sea once the water seeps entirely into the cotton fields. The proposed solution was to redirect Siberian rivers to replenish the sea, thereby ensuring Turkestan's perpetual dependence on Russia. This historical context raises concerns about the potential for contemporary Russia, driven by imperialistic ambitions, to exploit water as a geopolitical weapon in Central Asia. The idea of diverting Siberian river tributaries to the Aral Sea remains a topic of interest among scientists. However, the implementation of such a project comes with a substantial cost and necessitates a mutually beneficial agreement between Russia, Kazakhstan, and Uzbekistan.

Central Asia, known as one of the oldest civilizations

that heavily relies on water resources, is commonly referred to as the Aral Sea basin. This region is nourished by two major rivers, namely the Amudarya and Syrdarya. Throughout the history of Central Asia, water resources have consistently played a crucial role in supporting socio-economic advancement. The towering mountains, valleys, and expansive deserts of Central Asia have been witnesses to the rise and fall of ancient cities and civilizations, often disappearing due to water scarcity, transforming once lush gardens and irrigated lands into barren deserts. The sustainability of any civilization in the Aral Sea basin has always been intricately linked to its ability to effectively utilize water resources.

During the colonial era of the Soviet Union, it is important to highlight that the issue of water scarcity was a significant concern.

Water continues to play a crucial role in the socio-economic advancement of Central Asia in the present day. The arid climate and the establishment of water supply systems have led to a significant reliance on water resources within the region. The presence of water is a key determinant of economic progress, societal structure, and political equilibrium.

The Central Asia region possesses an annual water resource volume of approximately 116 km³, with a significant portion of 90% originating from the Amudarya and Syrdarya river systems [2]. Additionally, the region also harbors an estimated 43.49 km³ of underground water [3]. The allocation of these water resources is primarily directed towards agricultural activities, accounting for 80% of the total volume. A smaller proportion, around 7-8%, is utilized for industrial purposes, while the remaining portion is allocated for daily life, service, and other miscellaneous uses.

The environmental consequences resulting from the indiscriminate use of water in the region are widely recognized. Throughout the Soviet era, ecological considerations were largely disregarded, leading to the emergence of the Aral Sea. Once the fourth largest lake globally, it has now completely dried up, leaving behind a vast desert known as Orolkum, spanning an area of 5 million hectares. The immense quantities of sand that have risen from the desiccated seabed are causing detrimental effects on salt irrigated lands, public health, and mountain ice caps. Moreover, the persistent issues of land and water resource salinization and crisis pose an ongoing threat to the economic stability of the countries in the region.

Water plays a crucial role in driving economic development in the region, but it also poses limitations. The anticipated climate change is expected to

exacerbate the issue of water scarcity, which is projected to reach 8-10% of the current water consumption [4]. Depending on various scenarios, the per capita water supply in the region is estimated to decline from the current 2500 m² to 1400 m² annually. Moreover, the lack of efficient water usage practices and the significant wastage during the supply process will further deteriorate the situation in the region.

It is often said that the water issues in Central Asia remain unresolved among the neighboring republics. Our stance is in favor of the regional countries coming to an agreement on transboundary waters through mutually beneficial proposals, without any external interference. However, the situation becomes more complex when the upstream countries in the region consult with the "big countries" instead of engaging with the downstream countries. According to numerous foreign and domestic political scientists, unlike other regions, the Central Asian countries have the potential to resolve the water problem through mutual agreement, without any external interference. This approach is considered crucial for maintaining a strong diplomatic relationship among close neighbours in the future. Nevertheless, neighbouring nations with a shared history and culture are also considered fraternal nations.

In 2023, the longstanding water issue between Uzbekistan and Kyrgyzstan was finally resolved through a mutually beneficial agreement. This agreement effectively settled the border disputes that have plagued the two neighbouring countries for years. Central Asia's border conflicts often revolve around water-related factors, such as the utilization of the Kambirabad reservoir. Uzbekistan's diplomatic strategy, which prioritizes "land for water," aims to proactively address potential water-related conflicts. This approach exemplifies preventive diplomacy and underscores Uzbekistan's success in navigating these complex issues without suffering any setbacks.

Many politicians and experts have expressed concerns about the possibility of a "water war" erupting in Central Asia by 2050 due to various factors. This potential conflict could pose a significant threat to the region. Notably, countries like Turkmenistan (206m³) and Uzbekistan (625m³) are among those with a per capita water availability of 1000m³ per year, which is the minimum requirement to meet basic needs. The World Resources Institute's research highlights Turkmenistan, Uzbekistan, Moldova, and Azerbaijan as four of the thirteen countries worldwide with the lowest water supply. In light of this situation, it is crucial to acknowledge that Uzbek diplomacy aims to address issues like the Kampirabad reservoir and other similar concerns, in order to prevent potential geopolitical

pressures and safeguard national interests in the future.

Historical records indicate that prior to and during the early Christian era, small reservoirs in the form of ponds were constructed in the Central Asian region. Subsequently, the construction of these small reservoirs gained significant significance. Presently, extensive efforts are still being undertaken in these areas to gather rainwater and channel it towards agricultural fields.

The Abdullah Khan Bandi water reservoir, constructed near Okchop village in the Samarkand region, stands as a prominent example of the expansive water reservoirs built during the Middle Ages. Meticulously designed special projects served as the foundation for the construction of the dams, as evidenced by the archeological data meticulously gathered by experts.

In this domain, numerous eminent individuals from our nation have made significant contributions. Scholars like Ahmad al-Farghani (797-861), Muhammad al-Khorazmi (783-850), Abu Nasr Farabi (873-950), and Abu Rayhan Beruni (973-1048) conducted extensive scientific research and made remarkable advancements in the realm of construction. Notably, Ahmed al-Farghani devised a device called the "nilometer" to gauge the water level of the Nile River in Egypt, while a manual titled "Miqyosi jadid" was authored to guide its utilization. These endeavors have undoubtedly left a lasting impact on the field.

During the Middle Ages, the primary source of sustenance for the population and the subsequent economic growth led to a surge in the need for artificial irrigation. Over time, irrigation systems underwent enhancements, giving rise to a group of skilled individuals known as mirobs. These individuals acquired knowledge on optimal crop sowing techniques, appropriate timing for field irrigation, crop rotation, and the utilization of natural fertilizers.

Significant advancements were achieved in the realm of irrigation in Uzbekistan during this particular era. Various types of irrigation systems were established, each serving the crucial purposes of acting as barriers, facilitating water collection, and enabling efficient storage. For example:

The Khanbandi River, originating in the 10th century from the northern slopes of the Nurota mountains after merging with the Osmonsoy and Ilonchisoy Rivers, the Gishtband River, originating in the 12th century from the western slopes of the Zarafshan ridges, and the Tosinsoy dam, located south of the Nurota mountain, all contribute to collecting rainwater in the Bukhara, Navoi, Samarkand, and Jizzakh regions. Various hydrotechnical facilities have been constructed to

manage these water resources effectively.

Agricultural farms have increasingly adopted the utilization of underground water, resulting in a depletion of underground water reserves. Extensive research has been conducted on the practices of Turkey, Israel, and Iran, and as a result, the implementation of drip irrigation technologies is being pursued in order to maximize efficiency and ensure the prudent utilization of available water resources.

Water has played a crucial role in the survival of civilizations throughout history. The development of sophisticated hydraulic structures such as underwater channels, cisterns, and channels has been instrumental in the formation of new societies in various regions.

Throughout the recent history of Central Asia, spanning several decades until 2017, the region has faced significant challenges concerning the equitable utilization of water resources. During the 72nd session of the UN General Assembly on September 19, 2017, the President of Uzbekistan, Shavkat Mirziyoyev, delivered a speech that specifically emphasized this issue. He expressed his conviction that the only viable approach to resolving the water problem is by considering the interests of the countries and peoples within the region.

During the inaugural consultative gathering of the Central Asian nations in Astana on March 15, 2018, the leader of our nation underscored the interconnectedness between addressing crucial matters concerning Uzbekistan's progress and its neighboring countries. Given that Uzbekistan shares a contiguous border with all the republics in the region, ranging from border security to the judicious allocation of water resources, the head of our country emphasized the significance of fostering strong relations with neighboring nations.

During the consultation meeting in Tashkent on November 29, 2019, the President put forth a proposal to foster collaborative approaches in addressing water usage issues. The prudent policies, dedicated efforts, amicable relations, and dependable partnerships forged with neighboring nations over the past five years have laid a strong groundwork for the cooperative utilization of transboundary water resources in the Central Asian region. The topic of jointly harnessing these resources was deliberated at the highest echelons during visits to neighboring countries, signifying the elevation of close neighborhood diplomacy to a new pinnacle.

Uzbekistan has been actively enhancing its relationships with Central Asian nations regarding water-related matters through collaborations facilitated by the International Fund for Island Rescue

and the Intergovernmental Water Management Coordination Commission. Additionally, progress has been made in the enhancement of water supply in the Syrdarya and Amudarya basins due to successful cooperation and agreements with Kazakhstan, Tajikistan, Kyrgyzstan, and Turkmenistan in recent years.

The Republic is currently engaged in a systematic effort to achieve national sustainable development goals by 2030 through collaboration with the parliament, government, public, and international organizations. This includes the expansion of programs and projects focused on environmental protection and the sustainable use of natural resources and water.

In Uzbekistan, particular emphasis is placed on addressing ecological stability and rational water management, as well as creating a comfortable natural environment for the population. The effective use of natural resources, especially water resources, and the prevention of environmental issues are also key priorities. As a result of this study, specific proposals and recommendations have been developed.

1. Examining and implementing the most effective methods from foreign nations in water management, while upholding the essence of national water specialists' traditions.
2. Enhancing water consumption efficiency in Central Asian countries through collaborative assistance based on the principle of close proximity. Exploring creative solutions by integrating advanced water management technologies.
3. Addressing the regional water scarcity issue collectively by cultivating new plant varieties that demand less water in agriculture and widely adopting drip irrigation systems.
4. Enhancing the effectiveness of seasonal water resource utilization - essentially, mastering the art of preserving water accumulated during the rainy season. Water harvesting is gaining popularity worldwide, and refining this process by aligning it with the natural ecosystem.
5. Young individuals are encouraged to perceive national identity as pathways towards nurturing a culture of patriotism, respecting the homeland's worth, and adopting a rational approach towards environmental conservation.
6. In the current era of rapid globalization, innovations and novel technologies are assuming significant roles in humanity's daily life and developmental trajectories. Simultaneously, the swift integration of new innovative technologies into practical endeavors is demonstrating an unparalleled pace. We believe that such

circumstances contribute to fostering the capacity to comprehend and mitigate global challenges not only in the present but also in the future.

CONCLUSION

Water plays a crucial role in shaping the economic development of the region, acting as both a facilitator and a constraint. The significance of water in human history dates back to the advent of productive economies. Over time, individuals have viewed water through contrasting lenses, perceiving it as a source of sustenance and vitality, as well as a potential threat and calamity.

While 5/3 of the Earth's surface is water, it should not be forgotten that the usable part is very little.

Instead of a general conclusion, it is feasible to acknowledge the significance of the pressing issue of water resource preservation in today's world. Water is widely recognized as the fundamental source of human life, and it is crucial to achieve efficiency in its usage and promote sustainable practices in agriculture. Particularly in Uzbekistan, where the available water resources fall short of the annual consumption, there is a necessity to broaden the scope of scientific research focused on the rational utilization of water. Embracing a transformative mindset towards water will undoubtedly aid in averting numerous global challenges that lie ahead of us.

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