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Water crisis in central Asia: Cooperation or conflict?

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Abstract

Water crisis is considered in international politics as a multifaceted and complex phenomenon. Following events such as industrial development, population growth, climate change, global warming, etc., water and resources have been the focus of strategic debate more than ever before. This is particularly important in areas of water stress and hazardous areas of water scarcity and can be regarded as a serious factor in the relationship between states. Central Asia as one of the crisis-prone areas is no exception. The region is in a complex situation due to multiple historical, political, climatic and economic factors. Hence, tensions over water resources are likely to happen. The main question of this article is: what are the consequences of water crisis within the framework of Central Asian security relations? This research hypothesizes that reaching a consensus about water resources in the Central Asian is difficult, and water scarcity would lead to conflicts in region.

Keywords: water crisis, Central Asia, cooperation, conflict

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1. Introduction

Water crisis has been one of the major challenges that societies faced in recent years. Growing and expanding the world's population and increasing population density in inhabited areas, along with issues such as global warming, its negative impacts on global water reserves, industrial growth and growing urbanization have all increased the role and the importance of water in the present human life. In fact, water at present is not only considered as a biological agent but also as a strategic commodity, which in many cases has the potential to affect the equations and relations between the international and regional entities.

Especially in crisis-prone areas, governments take into account the uncontrollable dimensions and consequences of the water crisis, and try to prevent the danger threshold in their areas. Accordingly, during the last decades, two issues of the security of water resources and ensuring the availability of water resources for the development and sometimes even survival of the political unit and social order in a certain territory have been among the main concerns of some states in areas susceptible to water stress. The importance of these issues is recognized, when the findings and reviews of quantitative researches on the relationship between water stress and a wide range of political, ethnic, social and security crises are considered.

Central Asia, as a dry region with continental climate, is no exception. Large parts of the area, due to land and climate characteristics, usually face water shortages. There are several issues that make the situation worse and bring the tensions caused by water scarcity to the brink of crisis. These are firstly, the sustainability of natural crisis factors, and secondly, the drivers of human action in the context of crisis escalation. Disproportionate distribution of water resources along with the traditional agricultural production pattern, urbanization growth and the like are among the drivers that have been exacerbated by tensions associated with factors such as global warming and the reduction of strategic water resources in the region.

On the other hand, the Central Asian republics have not yet been able to formulate a coordinated decision-making system due to the weakness of state-building and regionalization processes, as well as the lack of the spirit of cooperation and convergence. Moreover, domination of nationalist views and the desire for national self-esteem in the subject matter have led to the tensions caused by water scarcity which have an extraordinary potential in shaping political conflicts among regional governments. During the last two

decades, Central Asia has witnessed political disputes over water resources. Hence, the increasing effect of water crises on economic and social life can drastically affect the security of the region.

Water crisis not only might lead to international, political and even military conflicts, but also it might alter various regional security dynamics in the midterm and long-term, for instance through widespread immigration.

2. Theoretical Framework: The Copenhagen School

With the collapse of the bipolar system, non-military factors such as economy, environment, migration, population, health, ethnic and race issues, and cyber-crime (in recent years) led international relations theorists to revise their perspectives on security. During the cold war, security was studied in the framework of nuclear strategies. The Cold War was a serious obstacle to the emergence of civilian dimensions of security. Hence, serious attention was not paid to these dimensions, and the IR theory was merely focused on military matters. This was the result of the international system dominated by two superpowers, the nuclear arms race and the need to avoid war. During the Cold War, as politicians and army generals realized the consequences and destructive results of a potential war and conflict of the two superpowers, they focused on scholars (Ebrahimi, 2000, p. 4).

After the Cold War, the relationship between professors and politicians put together a set of moderating theories on the agenda of international security studies in the light of the new needs arising from the structural changes in the international environment. Thus, following the collapse of the Soviet Union, thinkers refocused on civilian dimensions of security such as terrorism, human rights, the environment, democracy, education, nation-building issues, economic poverty, population growth, civil wars. Such problems are studied alongside traditional issues such as disarmament, arms control, and defensive deterrence (Ebrahimi, 2000, p. 6).

Despite the importance of the Copenhagen School in analyzing international security issues, no single definition of security has ever been given by the school. According to Buzan, security is an underdeveloped concept. This is due to the method of its literary application that takes into account mostly the military and power aspects. The second reason is the nature of the protests against the extreme realism school. The third reason is the nature of strategic studies. The fourth reason is the deliberate policy of governments to keep the concept of security ambiguous. To Buzan, these factors have led to a minimal understanding of the concept of security (Buzan, 2016, pp. 26-

28). He expands the dimensions of security to five aspects: military, economic, political, social, and environmental. In this regard, Buzan noted that "human beings are affected by five political, economic, military, social, and environmental factors, and any kind of threat (military, political, etc.) must be confronted with" (Rabiei, 2008, p.19).

3. Theoretical application

The water crisis as a new and emerging threat on the one hand, and paying attention to the components of the security complex in Central Asia, on the other hand, can provide an insight into the application of the theoretical framework of research. Indeed, the potential of water scarcity to become a ground for tension and conflict in the world needs a model and theory which is able to describe the evolution of security views and the transition from classical security (and insecurity) to the modern components of security and insecurity in the present world. From this perspective, the Copenhagen School view of security and its constituent components, particularly bio-security, can provide a suitable framework for analyzing the water crisis at the regional and international levels. A look at the security of the environment and the need to pay attention to environmental threats, along with the link between these threats and other quadruple threats to security (military, political, economic and social) provides a series of concepts that can be used to explain the effects of the water crisis on other security sectors in a country, region, and even the international system.

On the other hand, key findings from studies of regional security, especially security sets, can clarify the political and economic dynamics of a particular region in relation to the subject of the research. The study of the system of friendship and hostility and the type of relationship between units based on geographic proximity, sharing of resources, perceptions of identity, and the way of looking at oneself and the other in a particular region is of much importance. The historical perspective of the Copenhagen school on the formation of grounds for actions towards friendship, competition or hostility, provides an organized framework for problem analysis.

Findings of the study provide a cognitive tool for understanding the changes in the Central Asian region during the post-Soviet years. In other words, if the Central Asian region is assumed as a security suite, using the insights from the theoretical literature of security suites, one can examine the inclination of Central Asian countries for cooperation and convergence, the extent of interactions and partnerships, perceptions of threats and com-

mon interests, and ultimately political behavior towards other entities in a geographic environment. At the same time, security and insecurity, especially the issue of the water scarcity in the region are factors that can be explored through the insights obtained from the theoretical efforts of the Copenhagen School.

Thus, Central Asia as a region characterized by authoritarian, secular, non-democratic structures, economic poverty, territorial disputes, and ethnic and religious conflicts has a significant potential for crisis. According to the Copenhagen School view, sustainable security threats in the form of environmental threats can escalate security crisis in the region. That is, the water crisis can seriously challenge the security of the entire region, in the mid-term and long-term.

In short, the Copenhagen school as a third way in security studies can provide a proper analytical framework for researchers in the field of security in a dynamic way. The school focuses solely on post-Cold War security studies, and it seems to be useful as a model for understanding the security issues at the three levels of national, regional and international use. It puts forward a third way in the security views between positivism and post-positivism, and focuses on issues such as identity, history, culture, and norms, and can be effective in many areas of security studies. Also, paying attention to regional security studies and a comprehensive approach to security has made the Copenhagen School an important security school.

4. Factors Affecting the Water Crisis in the Central Asia

4.1. Centralized management of water resources in the Soviet Era

Central Asia studies show that many of the current issues and problems in the region are rooted in the policies and plans of the Soviet Union. The centralized management system of the Soviet Union and the division of work based on Moscow's needs created a unique status in the economy, industry and issues related to these sectors. The water resources management is no exception, and the quality and quantity of access to water in the five republics of the Central Asia to them has been developed under this management system.

Irrigation has always been important in the history of water exploitation in Central Asia. In the nineteenth century, Russian colonialists developed agriculture in Central Asia- particularly, particularly in cotton production. The Soviet Union went further and developed an irrigation network

(Koolae, 1999, p. 74) to maximize agricultural production (Saleh Abadi, 2014, p.336). The Soviet Union took advantage of the Central Asia water resources to produce hydroelectric power. Although water resources management was one of the first components of the Kremlin's policy in Central Asia, it was not the only factor in creating crisis in this region. In 1924, the Central Committee of the Communist Party put the national separation of Central Asian ethnicities (as ethnicities policy) on the agenda. This policy, which was carried out by Stalin until 1936, triggered major disputes over water resources in Central Asia ever since (Koolae and Soltani, 2013, p. 5). Indeed, the development of the hydroelectric system could be considered as the first step taken by the Soviet Union to create a rift between the five Central Asian republics, which during the Second World War experienced a growth in irrigation facilities and electricity production.

Local ministries of agriculture and water management were in charge of water resources management planning on behalf of the Ministry of Water Resources in the Soviet era. These plans which limit the use of water resources from rivers, water supplies and water channels, have remained as the basis of water resources management in the region after the collapse of the Soviet Union (Koolae & Soltani, 2013, p. 6). Given the Kremlin's centralized management system, the exchange and circulation of water resources and energy between the upstream and downstream countries was aimed at feeding the population. This division was a task that was responsive to the economy of the Soviet Union and its satellite republics. (Mamackanov, 2008, p. 3).

Although during the Soviet era the main purpose of the water management system was to maximize the exploitation of land, water and energy resources in the region, the Central Asian republics did play any role in this management (Koolae & Soltani, 2013, p. 6). Moscow supervised and paid for water and energy management during the Soviet era. After the collapse of the Soviet Union, Moscow stopped financial contributions to the Central Asia water management. In addition, climate change has negatively affected water resources in Central Asia.

4.2. Climate change

The size and volume of ice and snow reserves as well as the melting point are very important for the rate and reliability of the Central Asian reservoirs. Glaciers have a very stabilizing impact on river flows. This is especially re-

markable in farm irrigation seasons in the Central Asian republics. Although slush always steadily flows in the north and the west of the region and have been largely in flow in recent decades, studies have shown that the glacial system of the Central Asian Mountains is declining in size and volume. Compensation mechanisms such as those from melting snow-covered water that are accumulated underground can be seen in areas that are subject to reduced flow of water. Climate change and its associated developments have also affected the magnitude water currents over the past 20 years, indicating a significant relationship between climate change and water availability in the region (Mirzabayev, 2013, pp. 239-240).

According to these trends, projections show a sharp fall in water resources between 2030 and 2050, which will range from 100 to 200 milliliters per year. High temperatures and increased heating in the climate of this region melt the ice in the glaciers and possibly increase the temperature even more by 2010. Projections based on this trend indicate further evaporation rates, drought and eventually desertification in the region (ECE, 2011, p. 121).

4.3. Agricultural production pattern

As said before, in the centralized Soviet system, the Central Asia was responsible for producing the agricultural crops needed for the country at large. The persistence of the general state of economic structures in these republics after the collapse of the Soviet Union perpetuated this dominant form of economic production in the republics. So, today it can be argued that the highest water consumption in the Central Asian region is related to the agricultural sector (Amir Ahmadian & Naseri, 2013, p. 11).

The importance of agriculture and the high volume of water consumed in this sector require improvement of irrigation and water transportation methods. The traditional irrigation system is only 25-30 percent efficient. The transfer of water from the rivers of Amu Darya and Syr Darya to downstream countries, unprocessed extraction and irregular drainage for irrigation lead to the overconsumption of water in the mentioned countries.

5. Security aspects for water shortage in Central Asia

The distribution and management of water resources in the Soviet era, along with ethnic, religious, and environmental differences, were among the most

important issues facing the newly independent states after the collapse of the Soviet Union. In the Soviet era, water, fossil fuels and energy were exchanged between the downstream and upstream countries. In the summer, water was transported to downstream countries for cultivation. In the winter, downstream countries provided fuel and energy for the countries of the upstream (Mamackanov, 2008, p. 3).

After the collapse of the Soviet Union, the countries were divided into two categories of upstream countries (Tajikistan & Kyrgyzstan) and downstream countries (Uzbekistan, Kazakhstan & Turkmenistan) in terms of access to water resources. Consequently, the new states severely competed over water access.

6. Measures taken to resolve disputes (regional level)

In the Central Asian region, especially after the collapse of the Soviet Union and the independence of the five republics, a large number of bilateral agreements have been signed to resolve the issue of water. Chief among them is the Almaty-based 1992 agreement on cooperation for joint management and conservation of intergovernmental water resources among the five countries of the region. This agreement was the first major political step taken by Central Asian countries to initiate a new international water resources management plan (Papeli Yazdi & Vosoughi, 2011, p. 160).

The establishment of an entity in the form of the Intergovernmental Commission for the coordination of water resources management on regulatory issues, logical use and conservation of water resources was among these agreements. The parties also agreed to abide by the quota of the Soviet period, on the basis of which Tajikistan and Kyrgyzstan, from where the two rivers of Amu Darya and Sir Darya originate, have the lowest share in the use of these rivers. Despite the fact that all five countries in the region signed the treaty, the studies indicate that this document is very optimistic, and except for some parts, other parts are not mandatory. According to the 1992 agreement, only the water flowing in these rivers, Vakhsh, Kafarnahan and Amu Darya are subject to intergovernmental water allocation and management (Koolae & Soltani, 2013, p. 15).

The 1993 Convention was signed in March 1993 by the leaders of the five countries of the region in the city of Qazil Arday, Kazakhstan. It was a part of joint actions to solve the problems of the Aral lake and adjacent territories for sanitation of wastewater and economic development of the Aral

region. In this context, measures such as "rational use of limited water resources to ensure the socio-economic development of the Aral", "the revitalization of the complex ecosystem of the Gihon and Seihun delta" and "development of water quality and health status of the residents of the region" were recommended. In order to coordinate these actions, the Intergovernmental Council was formed for issues related to the Aral lake bed, in which the Russian Federation was appointed as the ultimate supervisor and final supplier of scientific and technical assistance.

Another agreement is an intergovernmental agreement on the "use of hydro-energy resources of the Syr Darya river basin signed on March 17, 1998. The agreement was signed between Kazakhstan, Kyrgyzstan and Uzbekistan, which sought to provide a framework for exploiting the Abshar Toktogul hydropower (Stephen Hodgson, 2010). In this text, the parties presented a temporary definition of agricultural, non-agricultural, and also water years to create a framework for supplying and storing water upstream. At the same time, it was agreed that "the surplus of electrical energy generated by the Narin-Syr Darya dam hydroelectric power plant" would be equally distributed between Kazakhstan and Uzbekistan.

7. Water challenge and conflicts among countries in the region

By diminishing of natural resources, we see the alteration of the areas of tension and insecurity from the ideological to the crisis over natural resources. Uzbekistan, Kazakhstan and Turkmenistan possess fossil resources which Tajikistan and Kyrgyzstan as the upstream energy countries need most. On the other hand, the main rivers in Central Asia flow from the latter countries and are needed by downstream countries. The major problem in Central Asia is the lack of consensus on how to use water reserves. The most important problem is water use in irrigation. In fact, upstream states such as Kyrgyzstan and Tajikistan use water for energy and production, and in summer, as a result of excessive use of water, they consume a significant amount of water in the lower regions (Forooghi, 2005, p. 181)

The control and monitoring of Tajikistan and Kyrgyzstan over water resources needed by Uzbekistan and Kazakhstan have given commercial importance to these resources. In particular, the former two countries have focused their attention on generating electricity from these resources. Hydraulic power can supply 90% of the electricity needed by Kyrgyzstan and Tajikistan, and it is even economically important to export this energy. Com-

petition over using water streams in the agricultural sector and in generating electricity create disparity among the countries, turning water into the heart of the conflict in the region. These issues have led to differences between the upstream and downstream countries.

Reviewing the capabilities of these countries shows that power generation in this area is distributed unequally. Tajikistan and Kyrgyzstan, as the upstream countries of the existing rivers in Central Asia, control more than 80 percent of the current water in the area, and by constructing facilities along these routes, are producing electricity by water turbines. But it is interesting to note that the dominant side changes in these talks throughout the year. As touched upon before, in the summer, downstream countries need the water resources of the upstream countries, while in the winter, upstream countries' need for coal, gas, oil and transportation routes, downstream countries have the upper hand in negotiation.

Uzbekistan's gas and Kyrgyzstan's water are the most important weapons to take advantages in these relationships. In addition, Uzbekistan has imposed restrictions on its water resources, which flow into the southern parts of Kazakhstan, causing the protest of angry villagers of Kazakhstan and the subsequent political disputes at the upper levels between the two countries.

In the meantime, border disputes have aggravated these problems. This is especially true with Uzbekistan, which has old border problems with its neighbors (Koolae and Soltani, 2013, p. 14). The most severe border tensions between Uzbekistan and Kyrgyzstan are in two parts, which originally belonged to Kyrgyzstan. Uzbekistan and Tajikistan also claim parts of the territory of each other. There have been numerous confrontations across Tajikistan-Uzbekistan and Kyrgyzstan-Uzbekistan borders. Despite the signing of a number of water agreements, the results are not significant, and some countries, especially when more influential have repeatedly ignored their obligations. They believed they could better secure their own interests in this way. The leaders of these countries are under domestic pressure to gain economically and politically as much as possible. Farmers on the both sides are most affected. Extensive poverty in rural areas has led to the spread of militant and separatist groups. Fergana Valley is filled with a poor population of cotton producers, which accounts for 20% of the region's total population. Since 1989, this region has been the subject of many violent incidents (Jorde, 2009, p. 5). Nevertheless, we should not overlook the influence of international actors.

8. Impact of the water challenge on the relations of the countries of the region

The management of water resources in the Soviet period aimed at maximizing agricultural profits continued in the post-independence period. In this period, water was exchanged with fossil fuels and energy between downstream and upstream countries (Mamackanov, 2008, p. 3). Central Asia's characteristics and the long-standing conflicts in the region have been the cause of many crises, and in such a situation, the water crisis could be the source of more insecurity. In the wake of Kyrgyzstan's refusal to pay the price of gas to Uzbekistan, the latter cut off gas flow to the country; and in the summer of 1994, Kyrgyzstan announced in a reciprocal move that it had a plan to fill the water reservoirs to increase the capacity of hydroelectric power generation, which prompted Uzbekistan to protest. In 1997, citizens of South Kazakhstan protested against Uzbekistan over the low level flow of water from the country causing drought in Kazakhstan's southern farms of cotton and corn (Kasaei, 2004, p. 213).

In 1998, water as a political leverage made situation critical in Tajikistan, as the guerrillas' commander threatened to blast a dam if they failed to fulfill his demands. Water as a socioeconomic instrument in 2000, affected Kyrgyzstan, Kazakhstan and Uzbekistan. Kyrgyzstan cut off the flow of water to Kazakhstan, because the latter refused to provide Kyrgyzstan with coal. It also cut off water flow to Uzbekistan because of not paying its debt. In 2004, Uzbekistan requested Kyrgyzstan to pay its \$2 million debt for buying natural gas, and threatened to interrupt its exporting gas (Kasaei, 2004, p. 213). In 2012, Uzbekistan prevented the flow of natural gas from Tajikistan to prevent the construction of a dam, which severely exacerbated the water crisis.

The Almaty agreement of 1992, which perpetuates the water-sharing scheme of the Soviet era, is seen by Kyrgyzstan and Tajikistan as an obstacle to their economic development. The Intergovernmental Council of Aral Lake tried to resolve disputes through several agreements. One of these was the 1993 agreement, in which the members confirmed the need for the development of the irrigation system; and at the summit of the leaders of Uzbekistan, Kyrgyzstan and Kazakhstan in Bishkek, all of them emphasized the speed for development of a new strategy for water allocation and economic mechanisms in the field of water resources distribution.

Regarding these issues, it seems that by solving two problems, namely a change in the water-sharing scheme among the countries of the region, as

well as eliminating and minimizing the damage caused by it, it is possible to prevent the deterioration of conditions and relations in the region. However, so far, there has been no significant improvement in relations. For example, Kyrgyzstan is not capable of expanding its agricultural land with a large amount of water resources and agricultural capacity and is unable to ensure its own food security (Mamackanov, 2008, p. 143).

In addition to the distribution of water resources among the countries of the region, consumption is also among other critical factors. Uzbekistan and Turkmenistan, with more than half of their water resources allocated to the cotton sector, have their largest share of foreign currency from this product. Kyrgyzstan and Tajikistan have doubled their use of water resources in the industrial sector.

To address the just distribution of water resources among countries, the 1998 agreement was signed between Kyrgyzstan, Uzbekistan and Kazakhstan, and emphasized the swap of water and energy between the upstream and downstream countries. However, it was not implemented, because Uzbekistan's and Kazakhstan's commitments were only for the spring period when they needed water. The agreement also lacked a system of control over the implementation of the agreement, and did not pay any attention to climate change. For example, with the onset of Kyrgyzstan's drought, the country was forced to reduce the amount of abandoned water in the summer, while causing flooding in the downstream countries during the winter by increasing it. In 2000, an agreement was signed between Kazakhstan and Kyrgyzstan on the shared use of the Chu and Talas rivers, which had the same fate (Spechler, 2002, p. 4).

Despite the signing of various agreements and the efforts of many institutions to resolve water-related problems, none has ever produced any results. No government has committed itself to the strict implementation of the provisions of the agreements; and this has led to the ineffectiveness of many of the measures taken to resolve the crisis. For example, a conference in London by the Organization for Security and Co-operation in Europe met with the opposition of both Turkmenistan, which did not consider London a suitable place for such a conference, and Uzbekistan, which preferred bilateral talks (Khamidov, 2001).

Among the Central Asian republics, Uzbekistan and Turkmenistan are heavily dependent on water resources in maintaining their security. Water scarcity threat is now added to border disputes, Islamic extremism, high population growth, ethnic tensions, tribal rivalry, human rights abuses and

political instability. These issues could threaten the integrity of the region, triggering other problems and engaging all the republic countries (Swanstorm, 2010, p. 11).

9. Conclusion

The present study investigates the effects of the water crisis in the Central Asian region. In this regard, the water crisis is considered as an ecological issue, which at the same time has economic, political and security implications that can be extended to other thematic areas and can potentially cause a lot of adverse effects on the security of the region.

The water crisis in central Asia, in conjunction with other destructive factors and trends, can have negative impacts on regional security and conflict and reduce security and cooperation in Central Asia. In fact, the issue of water and water resources disputes are the most important issues in the relations among Central Asian countries. These problems intensified after the independence of the republics in the 1990's, and has continued up to now.

By examining all existing and effective factors in relations between the countries of the region, it can be concluded that despite all the cooperation agreements and the efforts of the organizations to improve the relations and commitment of the countries in the region to increase the level of cooperation, in the field of water resources, we see a disregard for such contracts. What can be seen is the spread of conflicts among the countries, which in the long run could lead to widespread security crises in the Central Asian region.

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