

“Water Wars” as a Source and Instrument of International Conflicts

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Abstract. Water resource shortage is one of the global problems of our time. The article presents the results of studies of international conflicts due to the lack of fresh water, and analyzes the possible consequences of the growing crisis that may affect the world political system. The prerequisites for the emergence of water conflicts on the political map of the world and the most informative indicators that make it possible to judge the conflict potential between countries (the share of transit river flow, the level of use of water resources and the degree of climate aridity) are considered. The existing and predicted geo-ecological consequences caused by the degradation of water bodies and the deterioration of the water resource situation in the context of weakening research cooperation between neighboring states are analyzed. Successful examples of solving problems in the field of water use based on the basin approach, both between entities of the same state and between individual countries, are considered.

Keywords: water resource shortage, international conflicts, global modern problems, climate change, fresh water shortage, overpopulation of the earth, transboundary territories, international rivers, water use problems, water conflicts, water policy, Central and Central Asia, Foreign Asia

For citation: Kochetkov V.V., Medvedkov A.A., Kuzmenko E.A., Nessar O.M. “Water Wars” as a Source and Instrument of International Conflicts. *Russia & World: Scientific Dialogue*. 2023; 4(10): 118-133, [https://doi.org/10.53658/RW2023-3-4\(10\)-118-133](https://doi.org/10.53658/RW2023-3-4(10)-118-133)

Introduction (E.A.Kuzmenko)

The struggle for fresh water supplies has determined many international conflicts over the last hundred years. Competition for water resources has even become more intense than competition for energy resources. To one degree or another, the contradictions between Jordan, Israel and Syria are “water-based”; Turkey and Syria; Kazakhstan, Turkmenistan, Uzbekistan and Tajikistan and Kyrgyzstan. The problem of water scarcity has been studied for several decades by organizations such as the London International Institute for Strategic Studies and the Pacific Institute for Environmental Development and Security Studies.

Despite Russia’s comparative abundance of water resources, its partners in the CIS and other integration associations are acutely aware of the problem of water shortage, which affects international relations. Limited water resources in countries provoke not only external, but also internal political conflicts among elites maneuvering between national interests, foreign policy conditions and the needs of different sectors of the national economy. Therefore, the shortage of water resources in Central Asia is directly related to Russia’s position in this region and ensuring its security.

However, in the Russian academic community the topic of water wars is studied fragmentarily; there is practically no systematic interdisciplinary research on this topical topic. The round table, held by the National Research Institute for the Communications Development in partnership with the Russian Military Historical Society in September 2023, was aimed at updating the discussion of issues such as:

- natural and geographical preconditions for water conflicts in Central Asia and the South Caucasus;
- problems of transboundary water basin management; technology in the service of water conservation;
- unilateral policies of countries regarding water resources; effectiveness of international organizations in preventing water wars.

Selected reports from this round table are presented in the article.

Materials and methods (E.A.Kuzmenko)

The multifaceted nature of the problem required the involvement of different types of sources and led to the choice of several methodological approaches for their interpretation. From the standpoint of political realism, the focus of which is the balance of power and the struggle for power and resources on the part of major actors (states or blocs of states), V. V. Kochetkov examines major interstate clashes over water resources. It uses as sources reports from international research institutions on the dynamics of water conflicts, scientific works on individual regional water conflicts, and methodological articles. In the

report, V. V. Kochetkova analyzes the influence of the theory of balance of threats, in which the threat to security (in this case, water security) is understood as aggressive intentions to defend one's own interests in combination with military, economic and geographical dominance [6:79]

Systemic and geosystemic analysis [2:72] underlies the political-geographical research of A. A. Medvedkov, who considers the natural-geographical factor to be a key component of international relations. To analyze environmental conflicts, the author draws on material from both the natural sciences and social and humanitarian fields of geographical knowledge; a probabilistic method is used to analyze the potential for water cooperation between regions.

O. M. Nessar presented an analysis of Afghanistan's water policy from a case-study perspective with elements of modern political regional studies. The report has practical significance not only for the countries of Central Asia, but also for large regional integrations. O. M. Nessar proposes to include the "water issue" on the agenda of the SCO and CIS meetings, since using the medium-term forecasting method, the report speaks of the inevitability of an international conflict between Afghanistan and other countries in the region, and the water issue in this conflict will be key.

Results

Water resource shortage as a global modern problem (V.V.Kochetkov)

Water, not oil, is the most valuable liquid in our lives. Life itself on Earth originated from water and it continues to depend on water. If we run out of oil or other fossil fuels, we can use alternative energy sources. If we don't have clean drinking water, our days are numbered. Without oil, our usual way of life will only change, and without water we will die in a few days [11: 40].

The main problem of humanity is the worldwide shortage of fresh water. Water occupies ¾ of the Earth's surface. Despite this, usable water cannot always be found in places where it is needed, especially in the required quantities. Most of the water resources – 97.5% – are found in the oceans. Such water is undrinkable and too salty for irrigation. Another 2% of fresh water is ice and snow in Greenland and Antarctica, groundwater deposits. And 0.01% of all water on Earth is considered suitable for human use [10:35].

In the first quarter of the 21st century, about a billion people on the planet do not have access to safe drinking water. About 2.4 billion people – 40% of the world's population – do not have enough water for proper hygiene, and 3.4 million people die every year from water-related diseases.

A constant feeling of thirst is characteristic not only of the inhabitants of the Sahara and the Middle East, but also of the inhabitants of Korea and Botswana. Today, Australia's population is experiencing water shortages like never before. Residents of the northern

states of the United States are watching with alarm as green lawns become dehydrated at the end of a dry summer, and water levels in reservoirs drop lower and lower.

There are three main factors that threaten international water basins: 1) "internationalization" of water basins in connection with the emergence of new independent states; 2) development plans adopted unilaterally (primarily dam construction projects without prior bilateral legal agreements); 3) general tension in relations between countries, not related to "water" problems.

The first factor speaks of the emergence of new independent states, poorly supplied with water, such as Tajikistan, Kyrgyzstan, Uzbekistan, Kazakhstan, Turkmenistan. Conflicts arose in connection with the use and consumption of water from the Amu-Darya, Syr-Darya, Jordan, Nile rivers, as well as the Aral Sea basin, etc.

The second factor is that at some point one of the states sharing a transboundary water basin, usually a regional power, decides to implement a project that seriously prejudices the interests of at least one of the other bordering states. A regional power may take such a step expecting to meet its water needs in order to avoid declining availability of water resources. Examples include Egypt's plans to build a high dam on the Nile River and the diversion of the Ganges River by Indian authorities to protect the port of Calcutta.

The third factor is the conflict, which is heating up the political situation. There is great tension in relations between Palestinians and Israelis, including for religious reasons. But the struggle for water resources plays a big role in this conflict.

The problem of fresh water shortage has long roots. The first international conflicts over water occurred before our era. But they became widespread in the twentieth century, transferring the causes of armed conflicts from the struggle for land to the struggle for water. As humanity develops, the struggle for water resources takes on increasingly threatening forms and leads to interstate conflicts. The real reasons for the war are sometimes disguised as religious components, but it is easy to see the true basis of the conflict from the actions taken by the parties. For example, in the case of conflicts between Arabs and Israelis, one can see that the occupation of Palestinian territories was caused by Israel's desire to control groundwater.

The situation will only get worse. Competition for increasingly scarce resources will give rise to conflicts within countries and "water wars" between countries. Conflicts over water will also arise in the future due to global warming, climate change turning the earth into desert, melting ice and poisoning water resources. Climate change will lead to floods, desertification, thawing of permafrost, followed by the destruction of economic infrastructure, loss of agricultural land, and poisoning of water supplies.

The problem of water shortage will not be solved even if humanity finds new reserves of water resources, and they will help ease the pressure on rivers and lakes. The human community will begin to live as usual again; this discovery will only delay the day of "sentence" for people and all other living beings. Humanity has long been mistaken about the fact that the lack of water reflects only temporary problems in its distribution. Both developed and developing countries must finally realize that the world's supply of clean water is a finite and vulnerable resource.

Transboundary river basins – areas of existing and potential conflicts over water resources (A.A.Medvedkov)

Prerequisites for conflicts over water resources: the scale of the problem. Transboundary river basins are separated by the borders of two or more states. According to the United Nations Environment Program (2016), 60% of the world's river flows and more than 40% of the world's population are concentrated in transboundary areas. These are areas of both existing and potential conflicts over water resources, which become challenges to the security of countries and territories. A significant part of the countries in the world (more than 150) have transboundary river basins (286 rivers) and aquifers, there are about 600 of them (IGRAC/UNESCO IHP, 2015). And only 24 states (out of 153 countries) use cross-border cooperation practices.

The transboundary rivers in whose basins water use conflicts are recorded include such well-known rivers as the Colorado, Rio Grande, Nile, Jordan, Tigris and Euphrates, Amu-Darya and Syr-Darya, Irtysh, Indus, Ganges-Brahmaputra, Mekong, etc. Amazon basin is also transboundary, but so far there are no water use conflicts here; in the future they may arise due to hydraulic engineering construction on the tributaries of the Amazon and the consequences of large-scale destruction of tropical rainforests, which play a large role in regulating water flow.

Indicators of water conflicts. In accordance with the classification of water conflicts [9], the main contradictions, the most problematic and widespread, are related to water use and water consumption. Quantitative indicators make it possible to assess the severity of the water resource situation in countries with transboundary river basins. The share of transit flow is one of the key indicators of the indicator type, showing the share of river flow generated outside the territory of the desired country. The highest values of this indicator are in the following countries (among the largest by area): Bangladesh – 91%, Brazil - 34%, Venezuela – 41%, DRC (Congo) – 30%, Egypt – 97%, India – 34%, Pakistan – 76%, Uzbekistan – 77%, etc.[7]. The higher this indicator, the more dependent the country is on the water management activities of states located upstream. States with a high share of transit flows are particularly sensitive to the activities of their upstream neighbors if these activities involve hydraulic engineering, which allows the upstream country/countries to control river flows. This situation creates conflicts between countries. Thus, the Turkish project "Southeastern Anatolia" caused discontent in Syria and Iraq due to a decrease in the volume of water flow in their parts of the river basin. It is understandable that talk about the development of hydropower in Kyrgyzstan and Tajikistan causes concern in the countries of Central Asia. For Kazakhstan, Uzbekistan and Turkmenistan, this means a deterioration in the situation in their agro-industrial sector due to the drying up of agricultural lands and irrigation systems in their territories.

The level of water resource use is an informative indicator that reveals the relationship between the river flow resources available on the territory of the country (it is by this component that the water resource situation is assessed, taking into account the relatively rapid nature of the resumption of river flow) and the level of their economic consumption.

Of the countries with a significant share of transit flow, the most difficult situation is in Pakistan, India, Bangladesh, Egypt, Uzbekistan, etc. [7].

The aridity (aridity) of the climate is a factor that influences not only the appearance of landscapes, but also the volume of water consumption. The degree of aridity can be assessed using an indicator such as the humidification coefficient, determined by the ratio between the amount of all atmospheric precipitation that fell in a given territory and the amount of evaporation within its boundaries. In countries with arid climates, there will be greater attention to controlling river flows, which are controlled by upstream states.

Problems of water use in the Russian border region. Let's consider the problems associated with Russia. In Transcaucasia, this is a conflict situation with the Samur River; in the Lake Baikal basin, a potentially acute problem is caused by the planning of the construction of hydraulic structures on the Selenga River, and a very difficult situation with the Irtysh River, the upper reaches of which are located in the arid territory of China [13]. The Samur and Ob-Irtysh problems are discussed further in more detail.

Azerbaijan, on whose border the Samur River flows, intensively uses the river's resources, threatening the existence of the unique Samur forest, which worries the population of Russian Dagestan [13]. This river basin also covers part of the groundwater in the zone of active water exchange [3]. Therefore, groundwater reserves are also depleted, which is also facilitated by their extraction; as a result, the water level in the river decreases, sea water enters its bed and underground aquifers, which ultimately affects the state of vegetation [13]. Dagestan generally experiences problems with groundwater due to its quality, which is due to the natural specifics of the geological environment of the Eastern Caucasus [1]. The given examples help to consider the problems of transboundary water use broadly, not to be limited to analyzing the situation only with surface water bodies within the boundaries of their catchment areas, but also to take into account the state of the underground aquifers that feed them. Let us recall the presence in international law of such concepts as "transboundary aquifer" and/or "system of transboundary aquifers", parts of which are located in different states. This makes the problem of regulating groundwater flow in transboundary conditions even more complex.

The Ob-Irtysh basin is also potentially conflicting, because The Xinjiang Uyghur region, followed by Kazakhstan, is increasing water intake for irrigation. As a consequence of this, for a number of Russian regions, especially for the Omsk region, there are potential threats associated with water supply in the coming years. In the case of the Omsk region, this situation is due to the fact that its territory is very poorly provided with local river flow resources (16%), the bulk of it comes from outside. In the Omsk region there is a deficit not only in surface water reserves, but also in its groundwater resources [1]. A decrease in the flow of the Irtysh River in the forest-swamp zone of Western Siberia can cause drainage of wetlands and, as a result, mineralization of peatlands, which will lead to an increase in the growth of fires in the Western Siberian taiga and will require significant resources to combat them [13].

Water-ecological problems in the Aral Sea basin. The Aral Sea basin covers almost the entire Central Asia, which indicates its special role in the region. Since the mid-1970s. The

Aral Sea is a source of dusty salt storms that arise on the dried seabed, where pesticides and mineral fertilizers washed away from fields accumulate. The drainage that continued after 1990, during which the eastern part of the Greater Aral practically ceased to exist as a body of water, increased the area of the new desert, which is called Aralkum. Aralkum is a source of light and dangerous dust, which is carried by the wind over considerable distances, up to 700-800 km, reaching the territory of Russia (Orenburg and Chelyabinsk regions), but the most difficult situation has developed in the Aral Sea region itself. Dust storms cause an increase in illness among the local population, the death of orchards, and also delay the development of vegetation, incl. and agricultural crops [12].

Model calculations performed for different altitudes [20, 14], actual data collected during the expedition [14], indicate the influence of Aralkum on a much larger territory; a significant part of Western and Central Siberia falls into this zone. Under the conditions of modern climate change, there is an increase in meridional transport, which contributes to the strengthening of the influence of Aralkum on the territory of Russia [14]. The most significant impact on the territory of Russia is manifested in winter, for the population of the southern Urals - in summer.

This state of the Aral Sea is the result of irrational water use (construction of primitive irrigation systems, without the necessary lining and consolidation of the soil; significant losses of water due to evaporation from the surface of numerous reservoirs built in the Amu-Darya and Syr-Darya basins and as a result of its seepage into the ground; salinization of lands due to the formed high groundwater level near irrigation canals and in areas of excess irrigation, which subsequently required leaching of saline lands, etc.), and not simply a consequence of the assignment of water-intensive specialization to this region. Irrational water use contributed to an increase in the irrevocable withdrawal of river waters from the Amu-Darya and Syr-Darya, which disrupted the water balance of the Aral Sea. Its degradation occurred against the background of an increase in the area of irrigated land in the second half of the twentieth century. And today, the development of agricultural lands in the Aral Sea region is characterized by an extensive nature, an increase in cotton yields is achieved due to the ever-increasing expansion of the irrigation network with the overall low quality of their design and construction. This continues the irrational use of water. Using the same scheme, the Taliban government is building the Kush-Tepa irrigation canal in northern Afghanistan, the banks and bed of which are not concreted or even compacted. If construction is completed, water will be drawn from the Amu-Darya River basin, which is already causing concern in the countries of Central Asia; this is a serious challenge for the water-scarce region.

Thus, the Aral Sea and its basin are an area of environmental interests of different states (and Russia). The atmospheric ecological influence of the newly formed desert is very strong; the implementation of scientifically based forest reclamation measures is required. The effect of these measures can only be achieved with a significant increase in the area of forest plantations, taking into account geological and geographical conditions; current hydrogeological, soil and landscape maps are required, which do not exist today. All this requires the participation of Russia, its scientific schools on arid territories and its active research involvement in processes in the region.

Potential for cooperation. Transboundary river basins can provide a basis for international cooperation, which can be used to mitigate the potential for conflict in transboundary areas. Despite the difference in the management of environmental conflicts between Western countries and the states of Asia and Africa [4], the European one is useful (Convention on the Regime of Navigation on the Danube, 1948; Bucharest Declaration for the Protection of the Danube, 1985; International Commission for the Protection of the Rhine, 1950; Program of Action according to the Rhine, 1987; the Rhine Convention, based on integrated management of water resources and water management, 1999, etc.) and the Canadian-American (Treaty between the USA and Canada on Boundary Waters, 1909) experience in managing river and lake basins. There is also known relatively successful experience in the post-Soviet space, for example, in the development of Russian-Ukrainian cooperation in the Severskyi Donets basin [8]. Successful examples of collaboration occur more easily within countries, such as between states in the Tennessee River Basin. The basis for constructive interaction was the creation of basin commissions for integrated and coordinated management of water resources in catchment areas. The basin experience in regulating water conflicts in river basins later became widespread in Western Europe, but only 30-40 years after its introduction in the USA [15]. The implementation of climate change adaptation plans in such transboundary water use areas can be effective with mutual understanding between stakeholders and a systematic approach to river basin management. This will help save resources involved in the implementation of water management activities. Awareness of climate risks and increased preparedness for their manifestation requires the creation of an institutional framework for cooperation between the riparian countries.

Afghanistan and the water problem (O.M.Nessar)

From the point of view of the formation of water resources, Central Asia can be divided into two groups: countries located upstream of rivers - upstream countries (Afghanistan, Tajikistan and Kyrgyzstan), and countries located downstream of rivers - downstream countries (Uzbekistan, Turkmenistan, Kazakhstan, Iran and Pakistan). Afghanistan is upstream to Iran and Pakistan. Afghanistan is upstream to Iran and Pakistan.

Afghanistan is a country with complex natural and geographical features, most of whose territory is occupied by highlands and foothills. Only a small part of Afghanistan's territory is located below 300 meters above sea level.

Table 1. Share of high-altitude areas of Afghanistan

Territory share (%)	Altitude (m)	Territory share (%)	Altitude (m)
9		300 – 600	
46		600 - 1800	
33		1800 - 3000	
10		> 3000	

Source: Compiled by the author on the basis of the studied materials (Yezhov, 1990; Okimbekov, 2016).

Afghanistan's water resources are formed mainly in five water basins: Amu Darya, Harirud-Murghab, Helmand, Kabul and the Northern River Basin.

4 of the water basins listed above are connected via 5 transboundary rivers with neighboring countries:

- the source of the Amu-Darya River is located in the mountainous regions of Afghanistan and Tajikistan (in the Pamir Mountains), and is the largest river in Central Asia. In total, about 43 million people in six countries use the water resources of the Amu-Darya basin. More than 80% of the basin's waters are shared by Afghanistan and Tajikistan, and a small part by two other republics (Uzbekistan and Turkmenistan).
- the source of the Murghab River is in the Afghan province of Ghor, flowing from Afghanistan to Turkmenistan.
- the source of the Gherirud River is located in the province of Ghor. The Harirud flows into the border areas, first between Afghanistan and Iran, and then along the border between Iran and Turkmenistan.
- the source of the Helmand River is located in the central part of Afghanistan, flows 40 km west of Kabul and passes through the southern provinces of the country, and then enters the Iranian province of Sistan.
- the Kabul River is considered the largest transboundary river between Afghanistan and Pakistan.

Modern situation. After the election of A. Ghani as President of Afghanistan in 2014, the water issue became a priority area of his policy, including in relations with neighbors¹. Under Ghani, construction of the Kamal Khan hydraulic dam on the transboundary Helmand River was accelerated, and at the commissioning ceremony of this dam, he announced that Afghanistan would no longer give water to anyone for free².

5 months after this loud statement, Ghani's government collapsed and the Taliban came to power; Ghani's "water policy" can be considered the main reason for the regime change. However, under the Taliban, the situation has worsened and now Kabul's "water policy" is causing concern not only in Iran. One of the first major economic projects of the new authorities of Afghanistan was the construction of the Kush-Tepa canal in the north of the country, which is actually a "back-up" of the Amu-Darya. It begins in the Kaldar district of Balkh province, bordering Uzbekistan and Tajikistan, and passes through the provinces of Jawzjan and Faryab bordering Turkmenistan. The canal's water intake capacity is estimated at 9 billion m³ of water per year. Since Uzbekistan and Turkmenistan take most of the water from the Amu Darya, it can be predicted that tensions will increase between the Afghan authorities and these states.

¹ Ghani A.: Our water resources require more effective management. Bakhtarnews.af, 24.03.2021. Available from: <https://bakhtarnews.af/dr/%D9%85%D8%AD%D9%85%D8%AF-%D8%A7%D8%B4%D8%B1%D9%81-%D8%BA%D9%86%DB%8C-%D8%B1%DB%8C%DB%8C%D8%B3-%D8%AC%D9%85%D9%87%D9%88%D8%B1%DB%8C-%D8%A2%D8%A8-%D9%85%D8%A7-%D8%A8%D8%A7%DB%8C%D8%AF-%D8%A8%D9%87/>

² <https://pajhwok.com/2021/03/24/afghanistan-no-longer-relinquish-free-water-ghani/>

Conclusions (E.A.Kuzmenko)

While instability, insecurity, external control and other factors prevented Afghanistan from using water resources, neighboring countries developed their economies. A situation has arisen where the withdrawal of even that part of the water that rightfully belongs to Afghanistan can lead to environmental and economic consequences in neighboring countries.

The systematic deterioration of the socio-economic situation in the Sistan-Baluchistan province of Iran, which is supplied by the transboundary Helmand River, gives reason to consider the water issue as a factor in destabilizing the internal political situation. This increases the interest in water resources of external actors, who may view the situation as an instrument of political destabilization.

We can predict an aggravation of the situation around water in the region. For the countries of Central Asia and the Middle East, the water problem is especially acute, which is caused by a number of factors: rapid growth in population size and density; natural-geographical features of the region; irrational water use; political contradictions. The issue of sharing the waters of transboundary rivers is relevant and its solution requires special attention. The time has already come to include the solution of this issue on the agenda of regional organizations (for example, the SCO, the CIS).

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The authors contributed equally to this article.

The authors declare no conflicts of interests.

Article info

Received: October 15, 2023. Approved after review: November 2, 2023. Accepted for publication: November 15, 2023. Published: December 15, 2023.

The authors have read and approved the final manuscript.

Peer review info

«Russia & World: Scientific Dialogue» thanks the anonymous reviewer(s) for their contribution to the peer review of this work.