WATER DIPLOMACY OF KAZAKHSTAN: PROBLEMS OF COOPERATION AND POSSIBLE WAYS OF SOLUTION WATER CONFLICTS

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Manuscript received: 18/12/2023
Revised: 28/02/2024
Accepted: 29/02/2024

DOI: 10.52123/1994-2370-2024-1152
UDC 341.22 (574)
CICSTI 11.25.67

Abstract. During 30 years of independence, the Central Asian countries have been making significant efforts for rational and equitable management of water resources of transboundary rivers. However, judging by the fact that the situation in the Aral Sea basin continues to deteriorate, it should be recognized that the water diplomacy tools of the countries of the region are not sufficient and not so effective. The purpose of the article is to consider the possibility of transition of the countries of the region to the format of bilateral cooperation using the Water, Energy, Food-nexus concept. The paper will use a literature review method with some examples of international implementation. As a result, it can be said that bilateral cooperation in the region is used partially, many countries rely on multilateral relations, which are difficult to control and monitor water flows. As for the WEF-nexus concept, certain conditions are necessary for its implementation, which are difficult to establish in the region without establishing mutually beneficial and trusting relations.
Keywords: Central Asia, water conflict, bilateral cooperation, WEF-nexus, transboundary rivers.

Аңдатпа. Орталық Азия елдері тәуелсіздік алған 30 жыл ішінде трансшекаралық өзендердің су ресурстарын ұтымды және әділ басқаруға айтарлықтай күш салды. Алайда, Арал теңізі бассейніндегі жағдайдың шиеленісуін жалғастырып жатқанына қарап, аймақ елдерінің су дипломатиясының құралдары жеткіліксіз және соншалықты тиімді емес екенін мойындау керек. Мақаланың мақсаты Water, Energy, Food-nexus (WEF-nexus) тұжырымдамасын пайдалана отырып, аймақ елдерінің екіжақты ынтымақтастық форматына көшу мүмкіндігін қарастыру болып табылады. Мақалада халықаралық тәжірибенің кейбір мысалдарымен әдебиеттерді шолу әдісі қолданылады. Нәтижесінде, аймақтағы екіжақты ынтымақтастық ішінара қолданылып жатыр, көптеген елдер көпжақты қатынастарға сүйенеді, оның аясында су ағындарын бақылау және бақылауда қиындықтар бар деп айтуға болады. WEF-nexus концепциясына келетін болсақ, оны жүзеге асыру үшін өзара тиімді және сенімді қарым-қатынастарды орнатпай, аймақта құру қиын белгілі бір жағдайлар қажет.
Түйін сөздер: Орталық Азия, су қақтығыс, екіжақты ынтымақтастық, WEF-nexus, трансшекаралық өзендер.

Аннотация. На протяжении 30 лет независимости страны Центральной Азии прилагают значительные усилия для рационального и справедливого управления водными ресурсами трансграничных рек. Однако, судя по тому, что ситуация в бассейне Аральского моря продолжает ухудшаться, следует признать, что инструменты водной дипломатии стран региона недостаточны и не столь эффективны. Цель статьи - рассмотреть возможность перехода стран региона к формату двустороннего сотрудничества с использованием концепции Water, Energy, Food-nexus (WEF-nexus). В статье будет использован метод обзора литературы с некоторыми примерами международной опыта. В результате можно сказать, что двустороннее сотрудничество в регионе используется частично, многие страны полагаются на многосторонние отношения, в рамках которых существуют сложности контроля и мониторинга водных потоков. Что касается концепции WEF-nexus, то для ее реализации необходимы определенные условия, которые сложно создать в регионе без установления взаимовыгодных и доверительных отношений.
Ключевые слова: Центральная Азия, водный конфликт, двустороннее сотрудничество, WEF-nexus, трансграничные реки.

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Introduction

To date, water diplomacy in Central Asian countries faces various problems in addressing issues of equitable distribution of water resources and their rational use in agriculture. During the Soviet period, water resources in the region were distributed centrally, according to quotas of barter relations between water suppliers and water consumers. Centralized management of transboundary rivers did not imply building any relations and establishing water diplomacy in the region. Tensions between the Central Asian countries emerged after the collapse of the Soviet Union, when centralized management of barter supplies was replaced by market relations and the resulting increase in prices for natural resources such as gas, oil and coal. In addition, given that water resources in the region are not evenly distributed, the water agenda among the countries has become more acute, in some cases political claims of the leaders of the countries have turned into local conflicts among the population of riparian settlements.

During 30 years of independence, the countries of the region have not been able to fully create a legislative framework for proper functioning of water infrastructure, and water is in many cases used as an instrument of political pressure and shatnage. In other words, the leaders of the countries pursue only their own interests, without taking into account the impact of these interests on the ecological state in the region, which led to the terrible consequences of the disappearance of the Aral Sea. Despite the signing of multiple multilateral agreements, the situation around water resources of transboundary rivers in Central Asia remains tense, which may eventually lead to both small and large conflicts.

Under these conditions, Central Asian countries need to search for new ways of cooperation, which will be beneficial for all parties to the conflict and can change the attitude of the heads of states to the problems of water, its quality, quantity and rational use in all spheres of the economy. It is necessary to change the agenda of the conflict, when countries pursue personal state interests and direct it towards joint cooperation on mutually beneficial conditions.

In this article I intend to consider the question: What methods and approaches can have a positive impact on water diplomacy to avoid water conflicts in Central Asia? For this purpose, I suppose to explain in the literature review the basic concepts and methods of modern water diplomacy tools in the world. In the main part, I propose to consider two international examples, one of which will be aimed at discussing the experience of bilateral cooperation of the Scandiava peninsula countries, and the other will present the experience of Jordan in implementing the WEF-nexus concept as a tool for water diplomacy.

Methodology

This article uses two methodological approaches which contain the following methods: firstly, a literature review, the sources of which are related to issues of water diplomacy and the management of water resources of transboundary rivers; secondly, a set of examples of the impact of bilateral cooperation approaches and the WEF-nexus concept on water diplomacy in different regions of the world.

A literature review relevant to the field of water diplomacy and water resource management was chosen for several reasons. First of all, the literature review made it possible to reveal the main definitions and concepts related to water diplomacy and water resources management. Further, work was carried out to identify explanations and differences in the selected definitions and concepts. Analysis of the studied literature provided an opportunity to identify three main challenges for water diplomacy of the Republic of Kazakhstan, as well as made it possible to compare ways to solve these problems in other basin organizations around the world. In addition, the literature review identified a number of promising areas for solving existing problems in water diplomacy and water cooperation in Central Asia, which may be applicable in building effective and mutually beneficial cooperation in the future [1].

The choice of case study in this article is due to the fact that this approach is most often used as a research method in the social sciences [2]. Even despite some

opinions that case study has several disadvantages compared to other research methods, this approach still remains the most popular among scientists [3].

The first case examines the successful experience of managing the water resources of transboundary rivers on the basis of bilateral cooperation on the Scandinavian Peninsula. For many years, Finland has been cooperating effectively and mutually beneficially with bilateral agreements with the countries of Norway, Sweden and the Russian Federation on water resources management with the involvement of local authorities, civil society, entrepreneurs and other stakeholders without switching to multilateral cooperation. The experience of the Scandinavian countries and the Russian Federation helped to understand the advantages and disadvantages of bilateral cooperation and the application of this approach to agreements between the countries of Central Asia.

The second case presented the experience of Middle Eastern countries in the conservation and rational use of water resources in arid climates. The Jordanian authorities applied a water-energy-food (WEF-nexus) approach to the use of Jordan River water resources, which included the involvement of stakeholders in the fields of energy, irrigation and wastewater treatment in the process of water resource management. These actions of the Jordanian authorities made it possible to attract the attention of other riparian countries to the rational management of shared water resources and strengthen Jordan's water diplomacy in resolving problematic issues in the management of transboundary rivers. The WEF-nexus approach is a striking example for the countries of Central Asia, which has shown that in critical climatic conditions and high dependence on food imports, it is possible to build an effective water distribution system in different areas of the economy.

Literature review

Water in Central Asia, as in the rest of the world, is the main source of life and prosperity. Most of the region's water resources are used to supply and grow crops over vast areas. Given that the territory of Central Asia is more than 4 million square kilometers problems of access to water and its rational use are an important aspect of solving water conflicts in the region. That's because of political boundaries change very often in the world, many countries gain independence, which makes previously shared water resources international. Thus, it is necessary to define the basic concepts of water diplomacy, its types and approaches. Also, it is necessary to review the concepts of bilateral relations in transboundary river management between countries and the concept of WEF-nexus, its difference from other methods.

First of all, it is necessary to understand what diplomacy is in general and water diplomacy in particular. Molnar et al. argues that diplomacy, depending on the involvement of actors, has various directions, such as cultural diplomacy, scientific diplomacy, information diplomacy. In theory, diplomacy means the art of dialogue between states and people. In international practice, diplomacy is defined as the art of negotiating, concluding alliances and reaching agreement. Water diplomacy can be used in two forms, as a preventive tool and as a conflict resolution tool. As preventive measures, water diplomacy uses platforms for negotiations, identifies the risks of cooperation, and builds trusting relationships between riparian countries. The main responsibility of water diplomacy is to provide the population with the right to access water resources, which means protecting the national interests of the country [4].

Genderen and Rood divide water diplomacy into several levels. On a geographical scale, water diplomacy is divided into bilateral (India and Pakistan on the Indus), basin-wide (Nile basin Initiative) and regional (EU Water Directive). In terms of actors' involvement in a conflict, water diplomacy involves technical intervention, such as engineers, hydrological specialists and economists, or political intervention involving diplomats, lawyers and NGOs. Water diplomacy is also divided according to the level of conflict, which can range from a formal declaration of war to economic and diplomatic sanctions and can even reach military action [5].

Also, Vij et al. believes, that water diplomacy depends on the geographical

location of the country. For example, the water diplomacy of upstream countries is mostly individual, without accepting the opinions of other countries. Downstream countries conduct water diplomacy on the basis of soft power, using various instruments of influence and applying mechanisms of bilateral cooperation. Water diplomacy of countries located in different geographical locations can be described in the following words: upstream countries use water to gain power, while downstream countries use force to obtain water [6].

At the same time, Islam and Madani notes two processes of conducting water diplomacy: formal and informal. The formal process includes formal negotiations and meetings, signing various agreements that can reach the state level. The informal process runs parallel to the formal one and consists of freedom of action for actors and a creative approach to solving water problems. An informal process can open up new ways to resolve water conflicts that were not achieved in the formal regime [7]. However, Yasuda et al. in addition to the formal and informal approach to water diplomacy, also notes the traditional aspect of the negotiation process. The author argues that water diplomacy in riparian countries should take into account traditional characteristics, such as religion, history, and people's attitude to water and nature [8].

Also, Aktar offers three ways of conducting diplomacy between riparian countries. The first solution is traditional diplomacy, which is based on official relations between states, including dialogue between politicians, major stakeholders and government agencies. The second way is unofficial, informal, which is based on communications between national groups. These groups can jointly make decisions and influence government officials and public opinion. The third way is through dialogue between people who can organize information work among the population and explain the main problems related to water resources [9].

Next, water diplomacy can be realized by two ways of treaty relations on bilateral and multilateral basis. According to Honkonen and Lipponen, in some cases and peculiarities of regional policy, bilateral relations between two countries bring more fruitful results than multilateral agreements, which represent a multilevel and complex architecture. Also, it should be noted that bilateral cooperation contributes to mutually beneficial prospects if the two countries share historical, religious and cultural ties [10]. Continuing the theme of bilateral cooperation, Rana note that such cooperation beyond the official agenda can carry over issues of cooperation to other sectors of the economy and further diplomatic development. Due to their common history and cultural heritage, countries on the basis of bilateral relations address issues involving non-state organizations and civil society, which makes these relations more sustainable and trusting. If any difficulties arise, the countries are able to solve these problems together without creating tensions, regardless of the level of conflict [11].

Rational and equitable use of water resources of transboundary rivers plays an important role in solving the issues. Salmoral et al. proposes to consider the introduction of the concept of Water Energy and Food (WEF-nexus), which promotes mutually beneficial cooperation and building fruitful water diplomacy. The principle of the WEF concept is based on the involvement of business and civil society in the process of recycling and income generation by all participants of water cooperation with observance of environmental protection rules [12]. Another authors Benson et al. cites specific differences between the WEF-nexus concept and Integrated Water Resources Management (IWRM), where he outlines specific differences in the approaches and methods of the two strands. These authors present differences in the work of the two approaches, which are subdivided into integration of the considered problems, optimal management of processes, level of organization, involvement of participants, what resources are attracted for implementation and their impact on sustainable development [13].

However, Harwood have voiced criticism of the nexus concept, which they claim binds all stakeholders at the public and private level. Their doubts are based on the following three issues. Firstly, the lack of specific methods for systematic analysis, secondly, the lack of any governance model in individual situations, and thirdly, the lack of clarity in the

approaches of cooperation between government, business and society [14].

In the modern world, the level and type of relations in the sphere of water resources play an important role, as the further success of solving problems of access to water depends on them. Schmeier divides water relations between border states into three types. First, transboundary water management, which includes the use of technical tools for monitoring water flows. Second, water cooperation implies the joint benefit of using the waters of transboundary rivers. Third, water diplomacy, the main goal of which is to prevent conflicts when using shared water resources. In other words, when using the water resources of transboundary rivers, conflicts of interest arise between neighboring states. Thus, water diplomacy is a proactive mechanism for resolving issues and disputes, which also includes various meetings and discussions aimed at preventing conflicts and disagreements [15].

However, Kittikhoun and Schmeier add a fourth type to the three types of relations on water issues mentioned above, called the River Basin Organization. The River Basin Organization exercises powers to manage the water resources of transboundary rivers after the signing of agreements by the parties to the conflict in certain river basins. Also, according to the authors, the River Basin Organization has all the attributes of water diplomacy [16].

Continuing the theme of different approaches of water management and water diplomacy to solving water problems, Islam and Repella argue that water management resolves only issues related to the technical side, while water diplomacy offers solutions through the use of political intervention, bilateral negotiations and adoption various agreements. Water diplomacy approaches the resolution of disputes around common rivers using a wide range of political instruments and a comprehensive impact on stakeholders [17].

In turn, Keskinen et al. notes five aspects of relationships in water diplomacy between border countries. These five dimensions of water diplomacy are characterized as follows: political, preventive, integrative, cooperative and technical. The political side of water diplomacy means political interference by stakeholders, conflicts of interest and the use of force to resolve regional conflicts. The preventive aspect means the use of mechanisms to prevent emerging disputes and resolve existing conflicts. The integrative aspect is built on the process of cooperation not only between government agencies and the involvement of civil society and NGOs. The cooperative aspect is based on mutually beneficial conditions for the use of shared water resources. The technical aspect is to comply with the hydraulic circulation of water resources of transboundary rivers [1].

The water diplomacy of a modern state is influenced by various factors that depend on the region, the political and economic potential of the country, geographical features and social relations. Yaari and Klimes emphasize that water diplomacy cannot be conducted only by specialists related to water resources. In discussing the problems of water regulation and maintaining the water balance, it is necessary to involve experts from other fields, such as technical experts, civil society, economists and ecologists. They argue that an inclusive consideration of the issue will help avoid many risks and discontent among informal actors in the country and inspire confidence among all participants in the negotiations [18].

Other authors argue that the problems of transboundary rivers and environmental consequences force border countries to cooperate. Ide and Detges believe that countries sharing water resources are looking for joint ways to solve water problems. The environmental consequences related to unresolved issues of water cooperation can lead to force countries to compromise and constructive dialogue. However, other authors believe that international relations related to water cooperation are a complex mechanism of relationships and disputes [19]. Aggestam and Sundell argue that most interstate water projects address technical water management issues. At the same time, such political issues as the right to water, equality between countries and mutually beneficial distribution of water flows remain without attention [20].

Some authors put forward arguments for the influence of emotional behavior in water diplomacy between countries. Fantini

argues that in water diplomacy, the emotional influence of the state on the negotiation process of cooperation between the two border countries plays an important role. As an example of such an influence of one state on another, he cites water diplomacy between Ethiopia and Egypt, which for a long time have been disputing the issue of building a dam in the Blue Nile basin located in Ethiopia. The author believes that an emotional approach to solving problems related to transboundary rivers will not solve the problem between the two countries. The diplomatic war of words contributes to the intensification of the conflict, thereby preventing the adoption of a rational decision aimed at the interests of rival countries. Decisions in the negotiation process should not be based on the emotional statements of individuals; cooperation should rely only on the mutually beneficial conditions of all parties to the conflict [21].

Continuing the theme of the influence of emotions and the war of words on the conduct of water diplomacy, Allouche argues that some country leaders use the water resources of transboundary rivers in order to strengthen nationalism and legitimize their power. The author gives the example of the President of Tajikistan E. Rahmon, who used slogans and symbols associated with the Rogun Dam in order to conduct aggressive water diplomacy in Central Asia. This policy was supported by Russia, which took a direct part in the construction of additional water reservoirs of the dam with the participation of the Rusal company. The Russian Federation is using the Rogun Dam as a tool to pressure other countries in the region to further implement its water policies. These actions by Dushanbe and Moscow sparked a violent reaction among residents of neighboring Uzbekistan, which led to a regional economic conflict [22].

On the other hand, Zandvoort et al. argues that water diplomacy does not solve the problems of irrational use of water in agriculture, or the influence of climatic conditions on river water flows. The main task of water diplomacy is to attract interested parties to mutually beneficial cooperation and provide political ways to resolve controversial issues regarding the use of water flows of transboundary rivers. In other words, water diplomacy defines the framework between native or regional cooperation between riparian countries. Its main goal is to build friendly relations between the riparian countries, find the necessary leverage on all stakeholders, and call for negotiations and the adoption of agreements [23].

Next, it is necessary to consider the obstacles that water diplomacy may encounter. Susskind and Islam argue that water diplomacy when solving problems of transboundary rivers faces three types of uncertainty. First, uncertainty in information, when the parties to the conflict do not fully know the situation and the causes of the water problem. Second, uncertainty of action occurs when the parties to the conflict do not know the intentions of the neighboring country. Uncertainty of perception, when the parties want to see what is expected instead of what they actually see [24].

It should also be said that some authors associate the success of water diplomacy with the economic stability of riparian countries. Zareie et al. believes that developed countries have extensive experience in solving water problems of transboundary rivers. Thus, the author gives an example of an agreement between the United States and Canada on the water resources of the Great Lake called the Great Lakes Water Quality Agreement. In many regions, among developed countries there are no disagreements regarding the use of water flows of transboundary rivers, which is explained by perfect legislation, openness and accessibility of information and adequate attitude towards common waters of the population of these countries. This phenomenon is not typical for developing countries, where relations between countries depend on the decisions of individual actors and large stakeholders, without the participation of civil societies and NGOs [25].

Also, Roa-García et al. argues that the legal side of agreements plays an important role in reaching various agreements on water resources. The legislation of riparian countries has its own peculiarity and is designed to protect the interests of its own country, which has a significant impact on the negotiation processes on shared water resources. Riparian countries often face legal

problems when signing and implementing international water management agreements. In particular, some countries spend a lot of time implementing adopted agreements due to inconsistency of legislative norms [26].

Thoradeniya and Maheshwari argues that water diplomacy must include social education that can help people use water more efficiently and find new ways to solve water problems. Education of the population is a mutually beneficial cooperation between society and the state. People working in agriculture can provide valuable advice to diplomats for important water agreements. In this case, the openness of government bodies is an advantage for all stakeholders in the water space of common rivers; joint cooperation and involvement of the population in the process of water cooperation can in the future bring benefits to riparian countries [27].

Marshall et al. has a similar point of view, who believes that in order to successfully conduct water diplomacy, it is necessary to build up the country's capacity. Some countries, in order to take preventive measures, have created a system of relationships called a basket of benefits, which is aimed at increasing the country's potential through the introduction of modern technologies, training in basic skills and knowledge in the field of water management. Basic skills should include basic knowledge of laws, culture of neighboring countries, psychology and economics. For example, according to the requirements of the Millennium Development Goals plan adopted in 2003, African countries need to increase the number of specialists in the field of water regulation by 300 times, in Asia by 200 times and in South America by 50 times [28].

Data interpretation

1. Bilateral agreements of water cooperation in Finland

1.1 The nature of bilateral relations and diplomacy

The basis of international relations is bilateral cooperation between two countries or, in other words, bilateral relations are the first stage of diplomatic games. Promoting national interests and building strong international ties is the strategic goal of bilateral relations and establishing diplomatic dialogue. Also, bilateral relations serve as the basis for protecting the interests of the state and are the first phase in the development and strengthening of multilateral relations. Thus, the main task of bilateral relations is to represent state interests without undermining the trust and sovereignty of the state. Currently, bilateral relations remain in demand as instruments of cooperation in various principles of economics and finance, politics and military security, ecology and the environment. For example, over the past 40 years, the United Nations has registered more than 5,000 bilateral agreements at various levels [29].

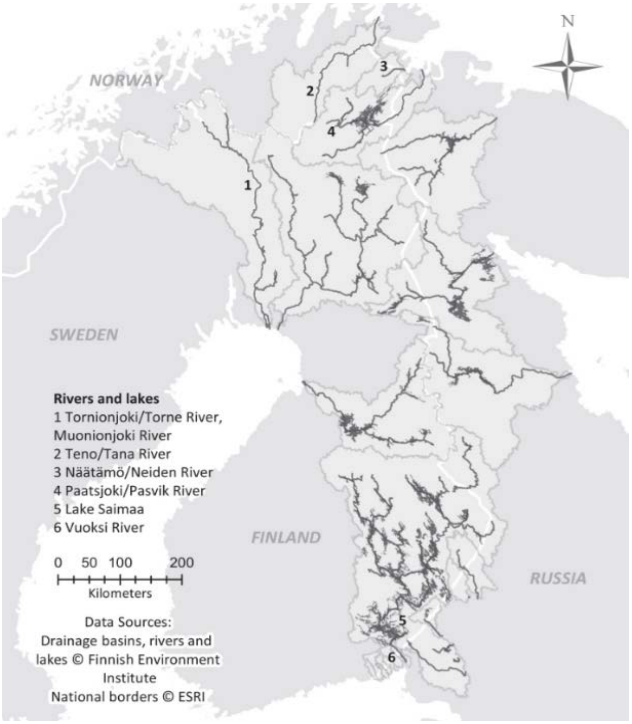
Bilateral diplomacy is formed between two countries based on historical and geographical location that have shared common borders for many years. In turn, multilateral diplomacy implies the participation of a third party represented by international organizations and global communities. One of the most difficult challenges facing countries is the choice of how to build diplomatic cooperation with other partners: bilateral or multilateral. However, comparing the two approaches is a mistake, since both are aimed at protecting their own interests and building diplomatic ties. Considering the above, it should be noted that bilateral diplomacy is the main part for building long-term and multilateral cooperation at the regional level [11].

1.2 Bilateral agreements between Finland and border countries

Finland is located on the Scandinavian Peninsula between Sweden and the Russian Federation. Finland also has large water resources. Given the close location of the Baltic Sea, the country's climate is cold and humid with moderate precipitation of 400-750 mm per year and evaporation of 200-450 mm annually. Moreover, an interesting fact to note is that Finland has never experienced a dry spell, although it also has four different seasons per year. In terms of geography, Finland is a large country with a total area of 338,424 km2 and more than 5 million inhabitants. The main consumers of water resources are the following sectors of the economy: industry - 66%, households - 22%, water costs for irrigation are only 1-3%. The country's residents are provided with drinking water from surface water - 41%, groundwater - 42% and artificial reservoirs - 17% [30].

Finland shares land borders with three countries: it borders Sweden in the West, the Russian Federation in the East, and also has a small border with Norway. The length of the water borders with each country is 617 km with Sweden, 715 km with Norway and the smallest water border is with the Russian Federation, only 317 km. Finland's water cooperation with neighboring countries is based on bilateral agreements that have joint bodies (Commission) to implement and promote joint management of the water resources of transboundary rivers. Finland and Sweden manage water resources in accordance with bilateral agreements regarding the Tornionjoki River and its tributaries. The beginning of cooperation between the two countries can be considered the signing of a bilateral agreement in 1971, the direction towards the rational use of joint water resources and the protection of interests on environmental issues. Within the framework of bilateral cooperation, the main directions for the implementation of projects for joint water resources management were identified: the creation of a joint body, protection against pollution, fisheries, regulation of water flows, development of a system of compensation and fines. Regarding transboundary rivers between Finland and Norway, the main river shared by the two countries is the Teno River. The total area of the river is more than 15,000 square kilometers, of which 68% belongs to Norway and 32% to Finland. The main provisions of water

Figure 1. The transboundary rivers shared by Finland and their basin areas.



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cooperation between the two countries covered issues of joint water planning, monitoring of water quantity and quality, fisheries, environmental protection and regulation of water flow. The main transboundary river between Finland and Russia is the Vuoksi River, which is 156 km long. The river basin covers more than 68,000 square kilometers, most of which belongs to Finland, about 77%. Unlike the bilateral agreements between Finland and the other two Scandinavian countries, the agreement with Russia has a broader scope of issues covered, such as water energy, fisheries, pollution control, the impact of water resources on human health, the economy and the livelihoods of the local population [31].

The Finnish-Swedish Transboundary River Commission includes three members on each side, one of whom must be a representative of the state authorities, the second must represent the interests of the local population, and the third commission member is appointed by choice. However, he must have relevant experience in water management or experts in local conditions. Also, each party can invite up to three

permanent experts to the commission, who must be specialists in water issues. Finnish-Norwegian water commissions also provide for three participants from each country, who must represent environmental and municipal authorities. One of the commission members must have experience in water management; the other must know and have a relationship with the circumstances occurring in the border region. In addition, commission members may hear from relevant experts in the field of water management and authorize the preparation of reports and educational programs. It should be noted that in the two Scandinavian commissions the third members are freely elected. For example, in the Finnish-Swedish Commission, a third member represents the interests of local entrepreneurs; in the Finnish-Norwegian Commission, a representative of the municipality is included. The main representatives from the Finnish side are the heads of the Ministry of Foreign Affairs. energy, agriculture, ecology and economic development. Various representatives of local and regional authorities are participating on the Russian side, with the exception of representatives of the Ministry of Foreign Affairs and Energy, who are participating as observers. A distinctive feature of the Finnish-Russian relationship is the participation in the commission of representatives of energy companies, which have had a significant impact on the mutually beneficial and rational management of joint water resources [10].

1.3 Challenges and prospects

Trust in bilateral relationships is a critical part of successful water cooperation between countries, which is built on the mutual exchange of information, openness and legitimacy of data. The success of bilateral relations depends on many factors, such as political system, economic stability, geographical location, cultural heritage, historical ties and social inclusion. The countries of the Scandinavian Peninsula have a centuries-old history of coexistence, the same way of life, climatic and natural conditions for the development of territories. On the other hand, the countries of the peninsula have extensive experience in interstate cooperation with Russia, in particular Finland, which for some time was part of the Russian Empire. Effective and sustainable management of water resources in transboundary countries between Finland, Sweden and Norway is due to similar natural and climatic conditions, common cultural relationships and historical trust in each other. However, despite the common history, culture and good relations of the Scandinavian countries, Finland adheres to bilateral cooperation in the management of water resources of transboundary rivers, without creating complex and ineffective multilateral relationships. The advantages of bilateral relations are as follows: firstly, relations between two countries, compared to a group of countries, occur more often and on a regular basis; secondly, multi-party agreements imply a large and ineffective structure and secretariat; and thirdly, bilateral relations consider specific water problems and issues of cooperation; in multilateral relations, these issues have a wide range and relate to a large number of interstate interests [32].

Considering the advantages of bilateral cooperation, it can be assumed that state to state relations are the main tool for building rational and mutually beneficial multilateral relations in the field of water resource management of transboundary rivers. The importance of bilateral cooperation in managing shared water resources is high in river basins involving three or more countries, where relations are built by countries that share a common waterway, but do not have common land borders. Such cooperation can lead to fruitless negotiations, since countries that do not have common land borders will only consider their own state interests not related to the benefits of others. Multilateral cooperation should be built on strong, friendly and mutually beneficial bilateral agreements.

2. Water-Energy-Food (WEF) nexus approach

In the modern world, water is not considered as an independent natural resource without reference to energy and food security. Some countries with shared water resources view water through the WEF nexus approach, which can be considered both an analytical method and a way to manage water resources within the framework of water diplomacy. The analytical side of the nexus approach helps

to develop synergies and find compromises between the sectors of water, energy and food security. Regarding the management of water resources of transboundary rivers, the nexus approach proposes the multilateral involvement of various parties and the use of water potential through the mechanisms of modern technologies with the extraction of mutual benefits [33].

The first idea of introducing the WEF nexus approach was voiced at a conference in Bonn in 2011, organized by the German Federal Authorities. The WEF nexus concept was created in response to a growing world population, global climate change, urbanization and economic growth. The main definition of the WEF approach can be expressed as a concept aimed at combining different ideas with the participation of relevant stakeholders with different levels of involvement to achieve sustainable development [34].

However, in order to implement the main stages of the WEF nexus approach, the state faces various challenges and barriers. First of all, we should highlight the imbalance in the political system of countries and their ability to ensure the fulfillment of all the conditions of their obligations. In the world, one can observe many examples of loss of trust and inconsistency of the information presented by one of the parties due to the absence of political forces within the country. Also, the implementation of the nexus approach is influenced by the economic stability of countries, the financial capabilities of implementing all the conditions for the implementation of multi-vector cooperation and mutually beneficial water diplomacy. The economic potential of the country is a key component of the nexus approach, since not only government agencies are involved in the cooperation process, but also private business with its capital. In addition to political and economic stability, it is necessary to take into account the country's ability to technically support the nexus idea. Imbalance in technical and technological areas can become a significant barrier to the implementation of the intended goals to ensure water, energy and food security. Thus, the WEF nexus approach can be implemented in practice, subject to the above defined conditions, in countries with similar political, economic and technical capabilities with the participation of partners at various levels [35]

2.1 WEF nexus approach vs IWRM model (integrated water resources management)

Among experts in the management of water resources of transboundary rivers, there is debate about the effectiveness of approaches to implementing water management, which boils down to the following main differences.

First, experts argue that the two models serve different purposes. The IWRM model is aimed at uniting government agencies that coordinate the actions of various objects of social and economic development. In turn, WEF nexus interacts on a multi-level basis, including government agencies, private organizations, civil society, representatives of business, energy, trade and city authorities. In other words, the IWRM model is associated as a «water-centric» approach, WEF nexus as a «multi-centric» approach. Secondly, IWRM is based on a centralized approach in which the working bodies are river basin organizations supported by international organizations and government bodies. WEF, in addition to river basin organizations, uses in its activities the macro-economic approach of various political levels and civil society. Third, WEF involves the participation of the general public, civil society and the private sector, however, in IWRM the participation of private organizations and civil society is a priority, but is used to a lesser extent [13].

Table 1 - Key features of the water security nexus and IRWM

	Nexus	IRWM
Integration	Integrating water, energy and food policy objectives	Integrating water with other policy objectives
Optimal governance	Integrated policy solutions Multi-tiered institutions	'Good governance' principles
Scale	Multiple scales	River-basin scale
Participation	Public-private partnerships – multi-	Stakeholder involvement in

	stakeholder platforms for increasing stakeholder collaboration	decision-making Multiple actors, including women
Resource use	Economically rational decision-making Cost recovery	Efficient allocations Cost recovery Equitable access
Sustainable development	Securitisation of resources	Demand management

Source: https://www.water-alternatives.org/index.php/all-abs/275-a8-1-8/file

2.2 The Jordan river basin

The Jordan River basin is located in the five states of Israel, Syria, Lebanon, Jordan and Palestine. The river originates from the Golan Heights between northern Israel and southern Lebanon, then forms a river in Israel and flows into North part of Lake Tiberias, which is the largest freshwater body of water in the region. Further, the river continues its path to the south, where it merges with the Yarmouk River and ends its course flowing into the Dead Sea. The river is divided into two currents, the upper Jordan is the part of the river that flows into the Lake Tiberias, the lower Jordan is located between the Lake Tiberias and the Dead Sea. The total area of the Jordan River basin is 18,500 square kilometers, of which 40% is in Jordan, 37% is in Israel, 10% is in Syria, and the rest is in Lebanon. The climate in the region is very diverse from sub-humid environments to arid regions. Annual precipitation in the basin varies and averages 380 mm. Annual precipitation throughout the basin varies greatly from 1400 mm in the upper part of the river to 100 mm in the lower part of the river. The average annual temperature of the Jordan River basin is 18°C, in the coldest month of January it can reach up to 5°C, and in the hot period in August up to 26°C. The region also has one of the lowest water resources per capita, which is 500 m3 [36].

2.3 WEF nexus and water diplomacy: experience of As-Samra in Jordan

Today, against the backdrop of a growing population, Jordan has one of the lowest rates of renewable water sources, only 123 m3 per person per year. In addition, Jordan has been dependent for many years on the supply of foreign energy resources, which accounts for 94% of its total energy consumption. Also, the country is dependent on food imports, the total volume of which is $3.8 billion against $1.2 billion in exports. In addition, agricultural production is only 4%, while water consumption for irrigation is 52% of the total available water. Given the above problems in water resource management, Jordan has experienced difficulties in building water diplomacy in the region. In these circumstances, the Iranian authorities decided to reduce dependence on energy and food from transboundary rivers by switching to water management using modern technologies and new approaches in the field of renewable sources. An example of this is the Al-Samra wastewater treatment plant, which is located on the Zarga River, one of the major tributaries of the transboundary Jordan River, and has had a significant impact on water diplomacy in the region [37].

Figure 2. Jordan river basin.

Source: https://www.mdpi.com/2073-4441/14/10/1605

The main advantages of As Samra include the following factors: 1) improvement of the environment and socio-economic indicators of the population near

the Jordan River; 2) the dependence of residents on imported drinking water has decreased by increasing the volume of wastewater treatment to 365,000 m3 per day, which can provide high-quality water to more than 3 million residents; 3) energy savings, since the wastewater treatment plant consumes only 20% of electricity from other sources, the remaining 80% is generated by itself; 4) reducing the import of fossil fuels from other countries through the use of CO2 in the country's power plants, which is produced in the process of wastewater treatment; 5) a significant increase in the flow of water into the Jordan River through the use of treated wastewater for irrigation in agriculture [12].

The As Samra project illustrates the joint activities of various stakeholders, government agencies and business representatives aimed at achieving joint mutually beneficial goals. Mutual benefit and protection of state interests is the main objective of the project to reconsider the relationship between riparian countries and establish regional water diplomacy. The As Samra project, with its example of the effective use of water resources, was able to attract the attention of stakeholders in neighboring states and encourage them to take similar measures, which is a striking example of establishing water diplomacy through soft diplomacy. The main message of the project is to illustrate that water is not only the source of life for everything on earth, but also a resource that, if used effectively, can generate income without harming the environment.

Discussion

The problems of water cooperation in Central Asia do not lie in the lack of water or its quality, but mainly in its seasonal use and regulation. Throughout the entire period of independence, the countries of the region have been trying to find solutions for joint water management of transboundary rivers, but without taking into account the energy needs of upstream countries, irrigation issues in downstream countries cannot be solved. The development and strengthening of bilateral cooperation between bordering countries and strict observance of rules and agreements can be one of the ways to resolve tensions over water resources in the region. Such practice has shown successful results of cooperation in the Scandinavian Peninsula countries, where cooperation in the field of water resources management is regulated within the framework of separate bilateral agreements without building institutions on a multilateral basis.

Nevertheless, according to Lemmelä, Finland's water cooperation with other Scandinavian countries is based on strong and stable political and state institutions, traditional and historical ties between the inhabitants. Strong economy of these countries allows them to use natural resources of the region without negative impact on the neighboring state and ecology as a whole. Moreover, Finland is developing and fully cooperating with Russia on the basis of bilateral cooperation through joint projects in hydropower and fisheries. It can be concluded that the Finnish government has been successful in developing bilateral water cooperation using instruments based on agreements with each country individually on a specific waterway, involving all the stakeholders in the region [31].

Thus, Central Asian countries need to strengthen their work in establishing strong legislative institutions and political cooperation based on trust and mutually beneficial cooperation. The history of interstate cooperation in the region shows that most of the previously adopted agreements are of a framework nature and do not oblige the countries to strictly implement them. Also, the lack of a centralized system of fines and compensation for damages affects the implementation of agreements between countries. At the same time, it is necessary to bring to uniformity the legislative base concerning the use of water resources. As a vivid example, it can be noted that the main purpose of laws in the field of water regulation in Central Asian countries is to promote the interests of each state separately, without taking into account the opinions and interests of other states.

In addition to establishing and building bilateral cooperation, Central Asian countries need to take measures for rational and careful use of water resources. The region suffers from high water consumption due to outdated and worn-out water drainage systems and hydraulic

structures. After the collapse of the Soviet Union, the Central Asian countries concluded new arrangements for the allocation of water resources of transboundary rivers in the region, which were aimed at preserving and maintaining existing relations on a barter basis, without establishing regional rules taking into account economic benefits and environmental protection. The adopted agreements initially led to clashes and conflicts between the countries of the region over the possession and management of water resources. Personal interests prevailed over common interests.

Similar problems are inherent to the countries of the Middle East, which, like the countries of Central Asia, face a shortage of water resources in the face of climate change and a growing population. In order to reduce pressure on the environment, rationally use water resources and provide clean drinking water to the population, the Jordanian authorities, together with local businesses and civil society, organized the construction of the As Samra wastewater treatment plant. The choice of this approach Katz justifies that the treated wastewater water is used for irrigation in agriculture, resulting in less pressure on the Jordan River, less water pollution and less environmental impact. The success in the realization of the plant construction and transition to new methods of water use was facilitated by the introduction of the WEF-nexus concept in the Middle East countries. Although, it should be noted that not all countries in the region were able to implement such a concept of water resources management due to geopolitical problems and lack of diplomatic relations between the countries [36].

However, in order to implement the WEF-nexus concept in Central Asian countries, it is necessary to create certain conditions for the involvement of stakeholders in this process. Firstly, the countries of the region need to consider water allocation not from the point of view of pursuing their political goals, but from the side of extracting joint benefits and generating income. Secondly, to create conditions for involvement of business and commercial structures in transboundary river water management, which will increase water competitiveness in the region. Third, the implementation of the WEF-nexus concept will introduce new technologies to regulate watercourses and improve water quality for residents living near transboundary rivers.

In general, the Central Asian countries are ready to improve and develop more sustainable relations on water regulation due to their historical, cultural and traditional similarities. Conflict situations arise between the countries due to the lack of legislative and political frameworks for equitable and rational water resources management. Under these conditions, water diplomacy efforts of the Central Asian countries should be aimed at establishing a universal legislative platform to ensure mutually beneficial use of water resources of transboundary rivers and protection of ecology and environment.

Conclusion

The Central Asian region, in addition to large amounts of water resources in Kyrgyzstan and Tajikistan, has huge reserves of gas, oil and coal in Kazakhstan, Uzbekistan and Turkmenistan. Moreover, the region is characterized by sufficient food potential of agricultural products such as wheat, rice and other cereals. The presence of so many natural resources and food potential makes the region attractive to major actors and investors. On the other hand, the region is experiencing significant climate change and population growth, which experts predict will increase further.

Under these conditions, Central Asian countries need to make every effort to reach mutually beneficial agreements on management and use of water resources of transboundary rivers in the region. First of all, the existing agreements should be reviewed for their effectiveness and the legislative framework of the countries of the region should be reviewed. The multilateral system of relations is very cumbersome and complex, in which it is difficult to track the fulfillment of all the terms of agreements due to the lack of a system of control and imposition of fines.

At the same time, it is necessary for the countries of the region to reconsider their attitude to water, which should serve as a means of mutual cooperation and attraction of investments that will have a significant impact on preservation of ecology in the river basins, reduce water

consumption for irrigation and improve the quality of drinking water. Such a tool could be the WEF-nexus concept, which aims at a more efficient and rational use of water resources by involving stakeholders in the processing and regulation of water flows.

Taking into account the above-mentioned information, Central Asian countries need to consider transition to other approaches of water resources management, which will allow strengthening regional cooperation and ensuring food security. Otherwise, under conditions of climate change and steady population growth, the probability of interstate conflict over access to water resources will increase significantly. Summarizing, it can be noted that uneven distribution of water resources on the territory of Central Asia should be compensated by introducing new approaches and technologies for water use on mutually beneficial terms.

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ҚАЗАҚСТАННЫҢ СУ ДИПЛОМАТИЯСЫ: ЫНТЫМАҚТАСТЫҚ МӘСЕЛЕЛЕРІ ЖӘНЕ СУ ҚАҚТЫҒЫСТАРЫН ШЕШУДІҢ ЫҚТИМАЛ ЖОЛДАРЫ

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ВОДНАЯ ДИПЛОМАТИЯ КАЗАХСТАНА: ПРОБЛЕМЫ СОТРУДНИЧЕСТВА И ВОЗМОЖНЫЕ ПУТИ РЕШЕНИЯ ВОДНЫХ КОНФЛИКТОВ

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