

WATER, ENERGY AND ENVIRONMENT IN EURASIA

Edited by
Oktay F. Tanrısever
Halil Burak Sakal



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Chapter 5

The Review of The Water-Electricity Generation Conflicts in Central Asia: The Case of Rogun Dam

Oktay F. Tanrisever, Halil Burak Sakal

Introduction

This chapter explores the potential contributions of peace science to the hydropolitical conflicts in Central Asia by focusing on the case of the Rogun Dam conflict between Tajikistan and Uzbekistan. More specifically, it seeks to identify the opportunity structures available to the conflicting parties, using a mixed methodology involving quantitative and qualitative data on hydropower and water resources for agricultural use, as well as the relevant countries' policy options and peaceful settlement alternatives.

Existing literature on water conflicts focuses mainly on water scarcity in assessing the risk of water-related conflicts between riparian nations in transboundary river basins. More recently, the number of studies combining physical and human-related indicators in analyses of the potential risks of hydropolitical conflicts has increased. As the anthropogenic impact on natural resources increases, water scarcity has emerged as one of the most severe issues around the world, especially in major transboundary river basins such as Colorado in the southwest of North America, the Nile in Northeast Africa, the Brahmaputra in South Asia, or the Mekong in Southeast Asia. There have also been studies and research projects evaluating water

scarcity in the shared river basins around the globe, although most have ignored the political and economic aspects of the issue. Being based on hydraulic data, these studies often reach a *normative* conclusion that water resources should be shared equally among the riparians to overcome water scarcity.

Existing literature fails to consider the human and political factors in the issue, as these aspects have not been appropriately quantified. Not only water data, but also energy data should be included in the proposed models. As these data on the water-energy nexus are often missing, current literature is unable to contribute to peace science studies. Unlike most of the studies in existing literature, the present study takes a different approach to water-related peace science studies, embracing a scientific and objective approach that takes into consideration quantifiable data on the political and economic aspects of the water and energy nexus. In doing so, this study aims to reach a solution-oriented rather than resource-oriented conclusion.

Transboundary rivers are essential items on the agenda of international politics. Politicians usually see the rivers as objects of sovereignty for nation-states. As a natural resource, water is a means of development, and in most cases, water management and allocation policies impact economic growth (Ho, 2017, p. 98). Previous studies have focused primarily on the relationship between transboundary rivers and interstate conflict, under the influence of political realism, and this is closely related to the Malthusian and neo-Malthusian approaches (Mellos, 1988) to interstate conflict (Furlong, Gleditsch & Hegre, 2006; Gizelis & Wooden, 2010, p. 444; Homer-Dixon, 1991; Selby, 2003). These approaches consider dyadic relationships in shared river basins as competition for scarce resources. Environment, water and climate are among the primary topics of interest in security studies (Gleick, 1993, p. 81; Yoffe et al., 2004, p. 2), and a significant

proportion of this body of literature is focused on water scarcity (Johnson et al., 2010; Johnson et al., 2011).

Water scarcity

“Water scarcity” is defined in technical terms as a situation in which “local precipitation [in a region or a state] is insufficient to meet needs”, and in which states must rely on “external water resources, both physical and virtual” (Munia et al., 2017, p. 1). That said, water scarcity is also a politically and socially “constructed” concept (Arsel & Spoor, 2010, p. 9). There have been studies investigating the risk of water scarcity over a wider geography around the world, affecting more than 4 billion people (Mekonnen & Hoekstra, 2016). According to some authors, global water problems may lead to water-induced conflicts, especially in the water-scarce regions of the world (Falkenmark, 1990, pp. 177-179). The scarcity of water may also have impacts on economies, with the potential to exacerbate water-related conflicts (World Bank, 2016), though water conflicts usually take the form of economic or verbal confrontations rather than military campaigns (Petersen-Perlman, Veilleux & Wolf, 2017).

Some researchers contend that water scarcity increases the possibility of conflict in shared river basins (Gleditsch et al., 2006, p. 362; Brochmann & Gleditsch, 2012; Hensel et al., 2008; Hensel, Mitchell & Sowers, 2006), while others have reported that there is an increased risk of military dispute between countries that share a river basin (Toset, 2000; Gleditsch et al., 2006, pp. 362-363). That said, water can also contribute to warfare (Gleick, 1993, pp. 83 and 84). If a river is used for multiple purposes, the interaction between dyads increases, which may lead to an increased likelihood of conflict between them (Brochmann & Gleditsch, 2012, pp. 520). In contrast, some authors argue that “shared water does lead to tensions, threats, and even to some localized violence” (Delli Priscoli &

Wolf, 2009, p. 9). While literature generally links water with disputes, several researchers have rejected the idea of “water wars” (Menga, 2016, p. 409). It can be argued that water alone is never the sole cause of conflict (Warner & Wegerich, 2010, p. 7). Studies have also focused on the relationship between water stress in transboundary river basins and upstream water use, with upstream water use increasing the number of people living in a basin under water stress (Munia et al., 2016, p. 9).

This chapter, drawing upon quantified data related to the water and energy nexus in the Rogun Dam region, suggests that the diverse interests of the Central Asian countries in terms of their use of water resources for electricity production and agriculture set them against each other in a conflictual relationship. Such a situation is clearly apparent in the case of the Rogun Dam conflict between Tajikistan and Uzbekistan. The chapter argues that the changes in Uzbekistan’s approach to this conflict, from being conflictual to more conciliatory, can be attributed to the scientific approaches, data analysis and quantitative methodologies.

This chapter contributes to the literature in its approach to the concepts of political science and environmental economics, drawing upon the content of various databases. The chapter derives water scarcity data from the AQUEDUCT database of the World Resources Institute, while the Transboundary Waters Assessment Programme of the Global Environmental Facility is accessed for human water stress, agricultural water stress, ecosystem impacts from dams, economic dependence on water resources, and environmental and legal framework data. Hydropower data is garnered from the International Renewable Energy Agency’s Renewable Electricity Capacity and Generation Statistics as well as from the International Energy Agency. Agricultural data are accessed from the Food and Agriculture Organization of the United Nations FAOSTAT database.

More specifically, the International Cotton Advisory Committee's Data Portal will be employed for the cotton agriculture data of Uzbekistan.

The chapter opens with a brief discussion of the Rogun Dam's key characteristics, after which an evaluation is made of the political and economic aspects of the Rogun Dam conflict. The chapter continues with an assessment of quantitative energy and electricity supply data, and demand in the Amu Darya Basin, and evaluates the quantified water stress indicators. The chapter then makes projections about the future of the hydropolitical relationship between Uzbekistan and Tajikistan before presenting its conclusions.

Key characteristics of the Rogun Dam project and its objectives

The Rogun Dam project lies on the Vakhsh tributary of the Amu Darya in Tajikistan, around 110 kilometers east of Dushanbe. The Nurek Dam, which has been in operation since 1980, is the tallest concrete dam globally and is located 70 kilometers downstream of the Rogun Dam site (Pöyry Energy, 2014).

Construction of the Rogun Dam began in the Soviet era, but the process was halted after the dissolution of the Soviet Union in 1991 due to financing problems. The decision to restart the construction of the dam was taken in 2008, but once again, financing was a significant issue. In 2014, the World Bank carried out a feasibility study considering the technical and economic, as well as environmental and social impacts of the project (World Bank, 2014). According to the feasibility report, prepared by Pöyry Energy of Switzerland, the need for winter electricity in Tajikistan was the main driver of the dam project, as electricity demand in the winter exceeds the available supply by 25 percent in the country (Pöyry Energy, 2014). The other goals of the dam project are as follows:

- *Downstream flow regulation:* The additional storage capacity provided by Rogun Dam would resolve the shortage of the water problem at the downstream Nurek Dam.
- *Electricity trade:* The excess electricity produced by the dam can be exported to Pakistan and Afghanistan.
- *Flood protection:* Rogun Dam will protect the Nurek Dam from the effects of floods.
- *Sedimentation:* Rogun Dam will extend the economic life of Nurek Dam by holding back sediment (Pöyry Energy, 2014).



Figure 1. The Vakhsh River Basin and the Rogun Dam.

Source: ENR, 2016.

Rogun Dam is planned for construction on the Vakhsh River, the longest river in Tajikistan and a major tributary of Amu Darya (Figure 1). Amu Darya is the largest river in Central Asia and in the Aral Sea Basin, in which there are two major rivers, Amu Darya and Syr Darya. The Aral Sea Basin covers a total of 1.76 million square kilometers (AQUASTAT, 2012, p. 1), and contains Kyrgyzstan and Tajikistan – the basin’s water-rich countries – while Uzbekistan, Kazakhstan and

Turkmenistan are the main consumers of the basin's waters. It is calculated that Kyrgyzstan and Tajikistan “potentially control about 68 percent of the total water flow in the Aral Sea Basin” (Jalilov, DeSutter, & Leitch, 2011, p. 161).

The basin of the Amu Darya covers 1,023,610 square kilometers, of which Uzbekistan holds 364,630 square kilometers (including the Zarafshan Basin) of land, accounting for 81.5 percent of the total surface area of the country (AQUASTAT, 2012, p. 1). Amu Darya is mainly fed from Tajikistan (59.45 cubic kilometers), with 76 percent of the total flow (78.46 cubic kilometers), while Uzbekistan contributes only 5 percent to the total runoff (AQUASTAT, 2012, p. 5). The Vakhsh River is the second biggest tributary of the Amu Darya and contributes about 27 percent to the total runoff of the river (Jalilov, DeSutter, & Leitch, 2011, p. 161). As such, the river and the dam project are of great significance for Uzbekistan.



Figure 2. Aral Sea Basin land use.

Source: FAO, 2012, p. 2.

Political and economic aspects of the conflict over Rogun Dam

The rural population of Central Asia is typically engaged in agricultural activities. Agriculture relies heavily on irrigation, with almost 90 percent of all crops produced being in need (AQUASTAT, 2012, pp. 7-8). In the Aral Sea Basin, about 32.6 million hectares of land are cultivable, of which around 9.76 million hectares are “equipped for irrigation”, nearly half of which lies within the borders of Uzbekistan (4.20 million hectares). For the Amu Darya Basin in particular, the total estimated cultivable land is about 6 million hectares, some 1.7–2.3 million hectares of which is in Uzbekistan (Jalilov, DeSutter, & Leitch, 2011, p. 162; AQUASTAT, 2012, p. 8).

Uzbekistan uses about 28 cubic kilometers of Amu Darya water for irrigation annually (Jalilov, DeSutter, & Leitch, 2011, p. 162). Under international agreements, the water of Amu Darya is shared equally by Turkmenistan and Uzbekistan, based on the measured water volume at the Kerki gauging station – the start point of the huge Kara Kum Canal, based on a bilateral agreement signed in January 1996 between the two countries (supplementary to the 1992 agreement signed by the five Central Asian states) (CIS Legislation, 1996, s. art.6). A protocol signed during the Soviet era in 1987 allocated around 48 percent of the total Amu Darya water to Uzbekistan, observed by the basin water organization that was established in 1986 (Menga, 2017). Table 1 shows the water allocation among the Amu Darya Basin countries. As mentioned by Maknoon et al., similar to many other international water allocation agreements, these regulations “do not take into account the hydrologic variability of the river flow” (2012, p. 751), despite the seasonal variability of water flow being a crucial issue for Uzbekistan, since the agriculture sector of Uzbekistan depends on the seasonal water flows from upstream countries.

Table 1. Water allocation (cubic kilometers) by country in the Amu Darya Basin

	Tajikistan	Kyrgyzstan	Uzbekistan	Turkmenistan	Total
Average water allocated under	8.845	0.216	21.378	20.96	51.4
Protocol 566 ¹	9.5	0.4	29.6	22	61.5

Source: Ahmad & Wasiq, 2004; Menga, 2017.

In practice, Tajikistan uses around 83 percent of its share on average, while Uzbekistan and Turkmenistan use most of their limits, and often exceed their share of allocated water (Table 2). As can be seen in Figure 3, Tajikistan obtains 6.6 cubic kilometers of water from the Vakhsh River, while 21.69 cubic kilometers are used by Uzbekistan (excluding the Zarafshan waters) for irrigation. Of this amount, 4.19 cubic kilometers is used around Karshi, 5.2 cubic kilometers around Zarafshan, 4.4 cubic kilometers around Horezm, and 7.9 cubic kilometers in Karakalpakstan (Figure 3). This agricultural activity mostly withdraws water during the vegetation season, from April to October (Pöyry Energy, 2014, p. 76).

Table 2. The actual proportion of allocated volumes used by countries (%)

	Tajikistan	Kyrgyzstan	Uzbekistan	Turkmenistan
Minimum	67.6	1.8	68.3	74.8
Average	82.8	51.9	94.7	92.9
Maximum	91.4	100	105.8	101.4

Source: Based on BVO data, excerpt from the report of Pöyry Energy (2014, p. 92).

1 Protocol 566: Improvement of the Scheme on the Complex Use and Protection of Amu Darya Water Resources by the Scientific and Technical Council, Ministry of Land Reclamation and Water Management, USSR, September 10, 1987.

The fact that the upstream dams in Tajikistan hold water in the summer season for the generation of electricity in the winter when it is most needed may impact the agricultural activity in Uzbekistan. The main reason for the political and economic dispute is the conflicting seasonality of water use in the Amu Darya Basin.



Figure 3. Use of water resources in the Aral Sea Basin. Source: Cawater-info.net, 2017.

Energy aspects of the conflict over the Rogun Dam

Another important aspect of the conflict over the Rogun Dam between Uzbekistan and Tajikistan is its potential use for energy and electricity generation. According to the International Renewable Energy Agency (IRENA), the total renewable energy capacity of Tajikistan was 5,632 megawatts as of 2018, all of which come from hydropower sources (IRENA, 2019, p. 10).

The total renewable electricity generating capacity of Tajikistan is three times that of Uzbekistan (Table 3).

Table 3. Total renewable energy capacity of Tajikistan and Uzbekistan

Capacity (MW)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tajikistan	4,803	4,802	4,809	4,811	4,814	5,035	5,033	5,039	5,039	5,632
Uzbekistan	1,630	1,746	1,746	1,746	1,747	1,762	1,762	1,796	1,843	1,858

Source: IRENA, 2019, p. 3.

In terms of electricity generation, Tajikistan generates 100 percent more electricity than Uzbekistan from renewable resources. Tajikistan's renewable energy production increased from 15,900 GWh in 2009 to 17,312 GWh in 2017 (Table 4), all of which came from hydropower resources (IRENA, 2019, p. 11).

Table 4. Total renewable energy production of Tajikistan and Uzbekistan

Production (GWh)	2009	2010	2011	2012	2013	2014	2015	2016	2017
Tajikistan	15,900	16,400	16,200	16,900	17,071	16,312	16,900	16,803	17,312
Uzbekistan	9,330	8,100	8,100	8,100	8,102	8,102	8,102	8,015	8,015

Source: IRENA, 2019, p. 5.

In feasibility studies, three alternative projects have been evaluated with different dam heights and different storage and hydropower generation capacities: the first is 265 meters high and has an active reservoir capacity of 3.93 cubic kilometers; the second is 300 meters high and has a reservoir capacity of 6.45 cubic kilometers; and the third is 335 meters high, with a reservoir capacity of 13.3 cubic kilometers, with filling periods of 10, 12 and 14 years, respectively. The final assessment by the World Bank found all alternatives to be economically viable (Pöyry Energy, 2014, pp. 349-350). The third alternative, the so-called FSL1290, would have an installed capacity

of 3,200 megawatts and features the highest “total system cost savings”, and with a “net present value” of US\$795 million, it is the most feasible alternative (Pöyry Energy, 2014, p. 350).

The feasibility study found the FSL1290 alternative to have the “potential to reduce the average Vakhsh summer flow to 2.0 [cubic kilometers]” (Pöyry Energy, 2014, p. 357). The effects on the riparian countries with this alternative are highest, having the potential to change “the Vakhsh flow pattern affecting downstream water users” (Pöyry Energy, 2014, p. 360). The study thus confirms the concerns of the government of Uzbekistan on the amount of water Uzbekistan needs during the vegetation period.

Water stress aspect of the conflict over Rogun Dam

Water stress indicators have been calculated by some international projects based on the amount of water in the Amu Darya Basin. The third factor that this chapter addresses is the quantified water stress data related to the transboundary Amu Darya Basin. According to the Global Environmental Facility’s Transboundary Waters Assessment Programme (GEF-TWAP) database, the Aral Sea Basin is graded 4/5 in terms of human water stress. The highest human water stress indicator (5 out of 5) is recorded in the downstream countries, Uzbekistan and Turkmenistan.

Human water stress is described by the GEF-TWAP as follows:

[The human water stress] indicator deals with the quantity of water available per person per year relative to the internal and upstream area water supplies, on the premise that the less water available per person, the greater the impact on human development and well-being, and the less water there is available for other sectors. Water benefits must be defined not only by the locally generated runoff but also by

remote runoff transported horizontally through river corridors as discharge often across international borders. Along the way the supply can be withdrawn, depleted, redirected, and/or polluted, thus setting-up constraints on the accessible water resource system or potential for human water stress. Two (sub)indicators of human water stress were constructed to address the different facets of water supply and water use/withdrawals: a) Renewable Water Supply; b) Relative Water Use (GEF-TWAP, 2016).

Renewable water supply refers to the ratio of the internal water supplies available to the basin country unit (BCU), which means the proportion of the country within the river basin within the total population in the BCU. If the result of this computation is between 500 and 1,000 cubic meters per person per year, the relative risk is graded high. If the internal water supplies are lower than 500 cubic meters per person per year, then the risk is graded “very high”. Uzbekistan and Turkmenistan both fall within the latter category (GEF-TWAP, 2016) (Table 5).

It can thus be understood that the downstream countries rely heavily on the upstream countries for water for domestic use and irrigation. On the other hand, both Tajikistan and Uzbekistan depend on their water resources for their economy, with Tajikistan needing water for hydropower generation and export, while Uzbekistan needs it for its agricultural production, which is heavily dependent on irrigation (Table 5).

Table 5. GEF-TWAP risk assessment for the Aral Sea Basin

	Human water stress	Agricultural water stress	Economic dependence on water resources
Tajikistan	3	3	5
Turkmenistan	5	5	3
Uzbekistan	5	5	5

Source: GEF-TWAP, 2016.

The AQUEDUCT database produces similar results, suggesting that “baseline water stress” is high in Uzbekistan, and extremely high in Turkmenistan, while Tajikistan is given a medium ranking. The WRI defines baseline water stress as follows:

Baseline water stress measures the ratio of total water withdrawals to available renewable surface and groundwater supplies. Water withdrawals include domestic, industrial, irrigation, and livestock consumptive and non-consumptive uses. Available renewable water supplies include the impact of upstream consumptive water users and large dams on downstream water availability. Higher values indicate more competition among users (AQUEDUCT, 2019) (Table 6).

Table 6. AQUEDUCT classification and ranking of baseline water stress for the Amu Darya Basin countries

Country	score	rank	Situation
Turkmenistan	4,04	15	Extremely High (>80%)
Uzbekistan	3.82	25	High (40-80%)
Tajikistan	2.65	51	Medium-High (20-40%)

Source: AQUEDUCT, 2019.

The baseline water stress can be evaluated more in detail using the AQUEDUCT database. Figure 4 shows the baseline water stress scores of the individual regions of Uzbekistan.

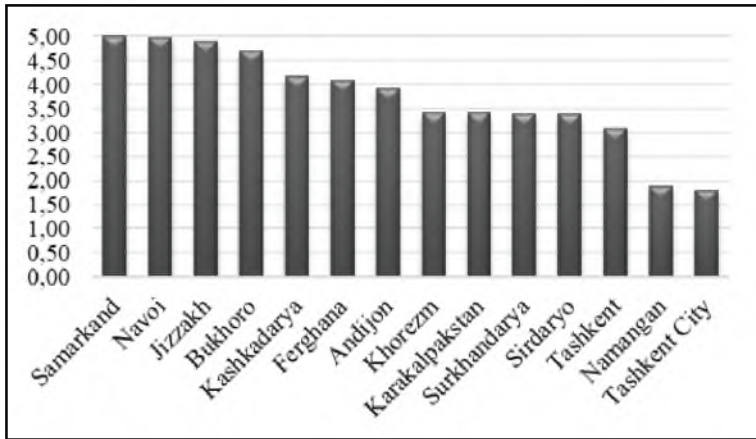


Figure 4. Baseline water stress in the regions of Uzbekistan.
Source: AQUEDUCT, 2019.

Projections of the possible impacts of Rogun Dam

In this section, projections are made of the possible impacts of the Rogun Dam project on the economy, water use and agriculture in the downstream countries. All the projections presented and discussed here are based on official assessments. First, the situation without the construction of Rogun Dam will be assessed. The results of the official calculations and projections are presented in Table 7. According to the data, water consumption in an average year is highest in the downstream countries, namely Uzbekistan and Turkmenistan, which have wide areas of land suitable for irrigated agriculture, and most of their water is used for irrigation. In dry years there is a significant water deficit amounting to around 12.28 cubic kilometers, mostly in Uzbekistan, meaning that the country needs to store large quantities of water for its agricultural activities in the dry years. The area lost due to a lack of irrigation amounts to 342,655 hectares (Table 7) (Pöyry Energy, 2014, p. 326).

In the future, under the impact of the increasing population, the growing economies and the worsening effects of climate change, this situation will change. Water consumption in the Amu Darya Basin will increase from 59.28 cubic kilometers to around 67.50 cubic kilometers per year, and there will also be a slight increase in Uzbekistan's already high water consumption. The dry years will most probably be drier, and the water deficit of Uzbekistan will increase from its current 5.83 cubic kilometers in dry years to 8.99 cubic kilometers, which corresponds to a 54.2 percent increase. This increase will be translated into a loss of even more irrigated areas in the dry years, and it has been estimated that Uzbekistan's loss in dry years will be 528,802 hectares per year in the future (Pöyry Energy, 2014, p. 326).

Table 7. Water consumption and deficit for the Amu Darya countries (without Rogun)

	Water consumption			Irrigation		
	Average year (km ³ /year)	Dry year (km ³ /year)	Deficit in dry year (km ³ /year)	Water needed (m ³ /ha)	Area irrigated (ha)	Loss in dry year (ha)
Current situation						
Tajikistan	7.89	6.26	1.63	15,780	500,000	103,576
Afghanistan	2.50	1.98	0.52	13,000	192,308	39,837
Uzbekistan	28.12	22.29	5.83	17,000	1,654,118	342,655
Kyrgyzstan	0.21	0.17	0.04	13,000	16,154	3,346
Turkmenistan	20.56	16.30	4.26	17,000	1,209,412	250,533
Total	59.28	47.00	12.28		3,571,992	739,947
Total flow	75.00	47.00				
Surplus/deficit	15.72	-12.28				
Percent of total runoff	126.5%	79.3%				20,7%
Future projections						
Tajikistan	9.50	6.61	2.89	15,780	602,028	182,838
Afghanistan	6.00	4.18	1.82	13,000	461,538	140,171
Uzbekistan	29.60	20.61	8.99	17,000	1,741,176	528,802
Kyrgyzstan	0.40	0.28	0.12	13,000	30,469	9,345
Turkmenistan	22.00	15.32	6.68	17,000	1,294,118	393,028
Total	67.50	47.00	20.50		4,129,329	1,254,184
Total flow	75.00	47.00				
Surplus/deficit	7.50	-20.50				
Percent of total runoff	111.1%	69.6%				30,4%

Source: Based on Pöyry Energy, 2014, p. 326.

It should be reiterated here that this scenario assumes that Rogun Dam will remain unconstructed on Vakhsh River,

although Rogun Dam would not have a major impact on the already alarming water deficit situation in Central Asia, as shown in the feasibility study (Pöyry Energy, 2014, pp. 328-329).

The main point to be noted here is that Rogun Dam would shift

additional water from summer to winter, which would reduce water availability for irrigation. [...] On the other hand, Rogun has the potential, not for compensating totally the water deficit in an exceptionally dry year, but at least for providing additional water in such a case for minimizing the damage caused otherwise (Pöyry Energy, 2014, p. 328).

There would be a further negative impact on the economic activities of Uzbekistan if Rogun Dam is operated in the same way as Nurek Dam. The Nurek Dam uses its live storage in the winter season and gathers water in the summer, which is the vegetation period for Uzbek agricultural products (Pöyry Energy, 2014, p. 328). There is no evidence, however, that Rogun Dam is intended to be used in a similar way to Nurek Dam. “[I]n compliance with current agreements and practices, the intended mode of operation of Rogun HPP does not entail any change in the summer release pattern” (Pöyry Energy, 2014, p. 328).

Hydropolitics and prospects for the peaceful settlement of the Rogun Dam conflict

In this chapter, we evaluate the Rogun Dam conflict from a hydropolitical perspective, drawing upon the data explored in the previous sections. The government of Uzbekistan clearly opposes the construction of the Rogun Dam, as is evident in official documents published by the Ministry of Foreign Affairs of the Republic of Uzbekistan. A press release dated 3 August, 2015 published on the official website of the Uzbek Ministry of

Foreign Affairs states that “the Rogun Hydropower Plant will cost Uzbekistan US\$600 million annually in agriculture alone, reducing the country’s GDP by 2 percent and making at least 340,000 of its citizens jobless” (Ministry of Foreign Affairs of Uzbekistan, 2015).

The concerns of Uzbekistan related to Rogun Dam have been detailed in the literature, in which some studies argue that Rogun Dam would reduce the flow in the summer season by 8.6 cubic kilometers, corresponding to a loss of about 506,000 hectares of land per year (Jalilov, DeSutter, & Leitch, 2011) and an 11 percent loss in Uzbekistan’s total irrigated landmass (Ministry of Foreign Affairs of Uzbekistan, 2015). Despite the recent change of leadership in Uzbekistan and the more accommodative attitude of the incumbent president towards its neighbors, the abovementioned statement still adorns the website of the Ministry of the Foreign Affairs of Uzbekistan, which means that the government is maintaining its official position on the issue (Sakal, 2015; 2017; Tanrisever & Sakal, 2017).

The feasibility study found further that a loss of 1.2 cubic kilometers of annual water flow will be experienced downstream. Nevertheless, this lost amount of water is part of Tajikistan’s annual share, which was mentioned in the abovementioned agreements. Currently, Tajikistan does not make full use of its allocated share, although Tajik water use is likely to increase, and another increase may occur in the future linked to Afghanistan’s increasing demand for water (Pöyry Energy, 2014, p. 328).

All these issues related to the management of transboundary water have the potential to lead to interstate conflict in the Aral Sea Basin. However, according to the Transboundary Clean water Dispute Database of Oregon State University, no significant water conflict exists between Uzbekistan and Tajikistan in their history. The database shows only one water event that

scored “-1” on the “Basins at Risk” scale after 2008, the year it was decided the construction of Rogun Dam would be continued. This means that the number and severity of the water-related conflicts between these two countries are not as severe as they may first appear (TFDD, 2019). Another reason for this may be that the dyadic hydropolitical relations are not adequately quantified to help social scientists to interpret hydropolitical issues using relevant data.

Conclusion

Existing literature has emphasized the water scarcity aspect of transboundary water disputes between the riparians in a shared watershed containing important rivers. This scarcity aspect is based on the principle of “equity” and has little to say about the political aspect of the problem, although the present study argues that the political aspect of the bilateral transboundary water issues should be stressed.

To gain a proper understanding of regional hydropolitics, a more detailed quantification may be useful, and future projections are needed to clarify opportunities for conflict resolution in the Aral Sea Basin. The principle of equity is a reflection of the reinterpretation in the literature of the Malthusian scarcity approach to natural resources, and so can be considered as a normative approach to hydropolitical issues. However, as this chapter argues, the objective costs and benefits, as well as opportunities and risks, need to be emphasized to better assess the possibility of conflict and cooperation between the riparians in a shared river basin. It can thus be argued that the data analysis methods of peace science can contribute to the study of water-energy nexus problems.

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