

Water insecurity

A case study of the Aral Sea basin

The Nurek Dam spillway, Tajikistan

Filippo Menga

Conflict over shared water resources is predicted to become a growing problem of international governance. This article uses a case study of central Asian countries in the former Soviet Union to show how a mix of conflict and cooperation over water security has continued for decades

Managing shared water resources across international boundaries can be a cause of conflict (see Making Connections on pages 7–9). ‘Water wars’ between countries have been predicted over these ‘transboundary’ resources. But in fact we are yet to see one country waging war on another because of a shared river or lake they want more access to. Most times, there is a balance between conflict and cooperation over shared waters and this balance depends on the circumstances in each case. This

article uses the example of the Aral Sea basin in central Asia to look at the transboundary governance of freshwater resources and the challenges involved.

International waters...

Around two thirds of the Earth’s surface is covered in water. Most of this water is found in our seas and oceans. We cannot drink it or use it in agriculture. Freshwater resources make up only 2.5% of the total volume of water on Earth — around 35 million km³.

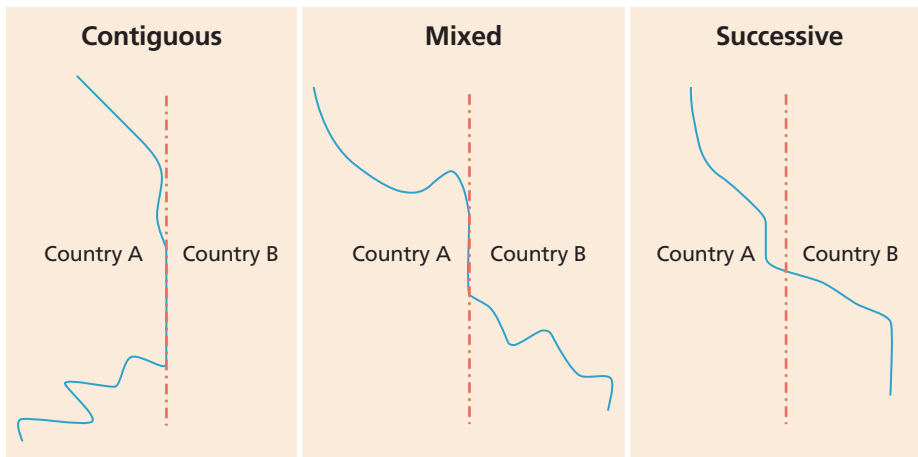


Oil storage near Nebitdag, Turkmenistan

across borders

GeographyReviewExtras

For a quiz on water security, go to:
www.hoddereducation.co.uk/geographyreviewextras



Source: Menga, F. (2018) *Power and Water in Central Asia*, Routledge

Figure 1 Classifying the types of rivers that cross or touch the borders of two or more countries



Of this, only 0.3%, or 105,000 km³, is contained in freshwater lakes and rivers. What makes this small amount even more vital is that it is the freshwater that we can most easily

access and use. It is no surprise, then, that access to freshwater lakes and rivers has been an organising principle for many societies — settlements have grown up around these resources throughout history.

Not all rivers or lakes are the same, however. For instance, we can identify three types of rivers that cross or touch the borders of two or more countries (see Figure 1).

- When a river forms a border between two countries, such as the Shatt-al-Arab River that separates Iran and Iraq, it is called **contiguous**.
- When a river crosses a border and generates an upstream-downstream configuration, such as the Tigris River which flows from Turkey through Iraq, the river is called **successive**.
- When a river forms a border and also crosses it, as in the case of the Mekong River, which forms part of the border between Laos and Thailand and then runs through Cambodia, it is referred to as **mixed**.

...and international water law

International water law (also known as international watercourse law) is the branch of international law that deals with the use and protection of transboundary watercourses (Boxes 1 and 2). Such international law is made up of agreements (such as treaties and conventions), decisions of intergovernmental

Box 1 Watercourses

According to Article 2 of the 1997 United Nations Convention on the Law of the Non-navigational Uses of International Watercourses, a 'watercourse' can be defined as 'a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus.' An international watercourse 'is a watercourse, parts of which are situated in different States.'

Box 2 International river basins

There are currently 310 transboundary freshwater lake and river basins worldwide, but this number is constantly changing. Some of these international river basins did not exist until 1978 (when their number was 214), while some others disappeared as a result of major political changes that transformed national boundaries into international ones, and vice versa.

For instance, the dissolution of the Soviet Union in 1991, and the 1999 war in the former Yugoslavia, created new states and many new international river basins, while the unification of East and West Germany and of Southern and Northern Yemen led to the disappearance of many of them. For around two thirds of these 310 basins there is no agreement between the countries that share them.

organisations that are made binding by the signing of treaties, and customary international law.

There is no legal framework to ensure that the principles of international water law — or laws covering other environmental resources — are applied. There is no such thing as an international water police force enforcing these agreements.

According to the United Nations Food and Agriculture Organization (FAO), in more than 1,000 years between 805 and 1984, more than





Source: Menga (2018)

Figure 2 The Aral Sea basin in central Asia

3,600 declarations and treaties (**bilateral** and **multilateral**) relating to international water resources were negotiated and signed. Until recently, international water law focused mostly on the navigational uses of a river and generation of hydroelectricity. From the middle of the twentieth century, river pollution, water sharing and flood control became increasingly important in the treaties that were signed.

The Aral Sea basin

The Aral Sea basin is formed by the two largest central Asian rivers, the Amu Darya and the Syr Darya. According to the categories in Figure 1 they can be classified as mixed and successive, respectively. The Amu Darya flows along and across the borders of Tajikistan, Afghanistan, Turkmenistan and Uzbekistan. Meanwhile, the Syr Darya flows from Kyrgyzstan through Uzbekistan and Kazakhstan (see Figure 2).

In 1991 the Soviet Union collapsed and the central Asian republics gained independence. What had until then been national Soviet

waters, became international rivers. The Aral Sea became an international river basin. The new, hurriedly formed central Asian governments had to rethink the policies on the exchange and sharing of their natural resources.

Almost three decades have passed since the central Asian states gained independence and became responsible for the management of their natural resources. However, a long-term sustainable solution for managing water in the region has yet to be found. Water is not scarce, but it is unevenly distributed between countries.

The Soviet legacy

The 1992 Almaty Agreement, that still influences international water relations in central Asia, allocates water resources along the lines set by the Soviet Union. This means that Kazakhstan, Uzbekistan and Turkmenistan (the downstream countries) continue to get the lion's share of central Asian waters.

The Soviets imposed a centralised system to manage the region's natural resources in

which the downstream countries provided the upstream states with oil and gas in exchange for water releases in summer to irrigate their cotton fields. Cotton monoculture uses a lot of water, but it was and still is essential for the political economies of Turkmenistan and Uzbekistan and the elites that rule these countries.

Under the Soviet system these regional schemes regulated seasonal water requirements between regions. They also allowed the upstream regions to keep water in their reservoirs in winter, instead of using it to produce hydroelectricity, as their energy needs were met by the oil and gas they got in exchange for water.

GLOSSARY

- Bilateral** Involving two parties (in this case countries).
- Multilateral** Involving several parties.
- Transboundary** Crossing political borders.
- Trilateral** Involving three parties.

After independence

After the breakup of the Soviet Union, Kyrgyzstan and Tajikistan — the two poorest of the 15 former Soviet republics — had to pay market prices for the oil and gas they imported from the downstream countries. They could barely afford it so, instead of operating their large water reservoirs to supply irrigation water downstream in summer, they started to store their water in summer and use it to produce cheap hydroelectricity in winter.

This led to water shortages in the downstream countries during summer, and to flooding in winter, since water was released by the hydro schemes when it was not needed for irrigation. The incompatibility between the water demands of irrigation and hydropower gave rise to a tense confrontation between upstream and downstream states on the use and control of the region's water resources.

When it became clear that the water allocations set by the 1992 Almaty Agreement had become unrealistic, the republics started to sign annual bilateral or **trilateral** agreements about exchange of water and energy. These barter agreements, which aimed at compensating water release from upstream countries in summer with imports of electricity, natural gas, fuel oil and coal from downstream countries in winter, often contained inflated energy prices that made them inefficient.

Conflict and cooperation

This intertwining of the water and energy sectors in central Asia has meant that conflict and cooperation exist side by side in the region. For example, in 1997 Kyrgyzstan reduced the amount of flow leaving its Toktogul reservoir and entering Uzbekistan. As a response, Uzbekistan cut off 70% of the water flowing in to downstream Kazakhstan, threatening 100,000 hectares of irrigated corn and cotton crops and prompting a riot by Kazakh farmers. In an attempt to intimidate the Kyrgyz government, Uzbekistan deployed 130,000 troops near its border with Kyrgyzstan in the Ferghana Valley. And yet, when the crisis was reaching boiling point, the three countries started to negotiate and signed a barter agreement to share their natural resources.

This was a low point in regional relations, but two decades on, events of this kind are still quite frequent. In 2012, the late Uzbek President Islam Karimov declared that plans to build two new large hydroelectric dams in Tajikistan and Kyrgyzstan — the Rogun and Kambarata Dams — could lead to a war among the central Asian countries.

At a more local level, in 2014 Kyrgyz and Tajik security forces clashed over a dispute



Cotton cultivation is essential to the economies of Turkmenistan and Uzbekistan

about water access in the border areas around Vorukh and Ak-Sai. In the same vein, in 2018 the installation of a water pump triggered clashes between farmers across the border between Tajikistan and Kyrgyzstan, and the situation remains tense.

Short-term agreements

Despite this conflict, over the years the central Asian governments have signed dozens of annual agreements to barter water for energy. This might be seen as cooperation but it is really fire-fighting — short-term, last-minute barter agreements to avoid major conflict. The underlying conflict over water security is left unresolved. Mistrust continues to dominate the geopolitics of water in the Aral Sea basin and there is no genuine political will to reach a compromise.

Conclusion

The system of resource distribution inherited by the central Asian republics when they gained independence from the Soviet Union has left a lasting impact. These countries have not been able to find a long-term solution for

the recurring seasonal disputes about the exchange of water and energy resources. The incompatibility between the use of water for irrigation and for hydropower is at the heart of a growing tension between the upstream and downstream countries. The downstream nations want to maintain the status quo that benefits them, while the upstream countries want to change it so they can exploit their hydroelectric potential.

Questions for discussion

- 1 According to the United Nations, there is enough freshwater in the world to satisfy the needs of everyone. Yet over 2 billion people lack access to safe water at home. Why is this?
- 2 Do you consider water a finite or a renewable resource?
- 3 How can international water law become more effective?

Filippo Menga is associate professor in human geography at the University of Reading, where he carries out interdisciplinary research exploring the interplay between humans and the environment.

FURTHER READING

The UN Watercourse Convention website: www.unwatercoursesconvention.org
UN WATER, the interagency mechanism that coordinates the efforts of the United Nations on water and sanitation issues: www.unwater.org
Water Relations in Central Asia Dataset (WRCAD), an open-access dataset of transboundary water relations among the countries of the Aral Sea basin in central Asia: <http://wrcad.info/home.php>

KEY POINTS

- Controlling and sharing freshwater resources between nations is a difficult political issue.
- Despite this we have yet to see a country waging war on another because of a shared river or lake.
- Almost three decades after they gained independence, the central Asian states are yet to find a long-term sustainable solution to deal with regional water management.