European Parliament

Water in Central Asia

An increasingly scarce resource

SUMMARY

While it is rich in fossil fuels and minerals, Central Asia is poor in water. However, water plays a key role in the economies of the five Central Asian countries. In mountainous Kyrgyzstan and Tajikistan, hydroelectricity is already a vital energy resource; new dams could also make it a major export revenue earner. Downstream, river water irrigates the cotton fields of Uzbekistan and Turkmenistan.

Heavy water use, particularly in agriculture, is putting water supplies under pressure. Central Asian countries have to share limited resources fairly, while balancing the needs of upstream hydroelectricity generation and downstream agriculture. For this reason, cooperation is vital. However, competition for water has often been a source of tensions, particularly between Uzbekistan and its upstream neighbours. The situation has improved recently, now that Uzbekistan's new president has taken a more constructive approach to resolving these regional water-related problems.

Water use also has many environmental implications. Soviet engineers succeeded in turning deserts into fertile farmland, but at the expense of the Aral Sea, a formerly huge inland lake that has all but dried up. Intensive agriculture is also polluting the region's rivers and soils.

Leaky irrigation infrastructure and unsustainable greening projects are wasting huge amounts of water. In future, more efficient water use and closer cooperation will become increasingly necessary, as population growth and climate change pile pressure on the region's scarce water resources.

The EU has made water one of the main priorities of its development aid for the region. Among other things, EU funding supports regional cooperation and improvements to water infrastructure.

An abandoned fishing boat on the former bed of the Aral Sea.

In this Briefing

EPRS | European Parliamentary Research Service

Author: Martin Russell
Members' Research Service

PE 625.181 – September 2018

Central Asia's water resources

Figure 1 – Main river basins of Central Asia

Source: Climate Volatility and Change in Central Asia: Economic Impacts and Adaptation, Mirzabaev A., 2012.

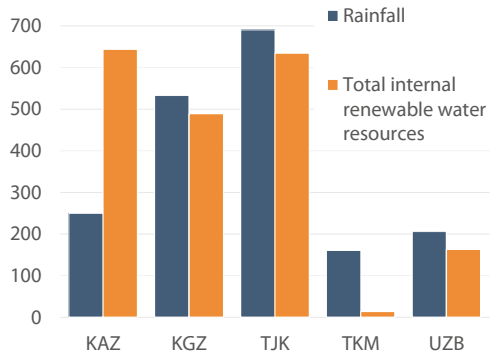
The five main river basins in Central Asia are formed by the Amu Darya, Syr Darya, Balkhash-Alakol, Ob-Irtysh, and Ural rivers (Figure 1). Before a large part of the Aral Sea dried up, the Amu Darya and Syr Darya rivers used to flow into it. The rivers of the Balkhash-Alakol basin flow into Lake Balkhash, an inland sea in southeast Kazakhstan. The waters of the Ural basin flow into the Caspian Sea, while those of the Ob-Irtysh basin ultimately flow into the Arctic Ocean. This briefing focuses on the Amu Darya and Syr Darya, by far the two largest rivers of Central Asia (Figure 3).

Between them, the Amu Darya and Syr Darya river basins:

- provide 90 % of the region's river water;
- cover 37 % of the land area of ex-Soviet Central Asia, including most of Kyrgyzstan, Tajikistan and Uzbekistan, as well as large parts of Turkmenistan and Kazakhstan. Some parts of northern Afghanistan are also within the Amu Darya basin;
- are home to nearly 80 % of Central Asia's population.

Figure 2 – Water resources

(rainfall: long-term annual average, mm/year; total internal renewable water resources = internally produced groundwater and surface water, 100 million m^3)



Kyrgyzstan and Tajikistan get the most rain, and therefore have the most water resources relative to their size

Source: FAO (2014).

The Amu Darya originates in Tajikistan's part of the Pamir Mountains, whereas the source of the Syr Darya is in Kyrgyzstan's Tien Shan Mountains.

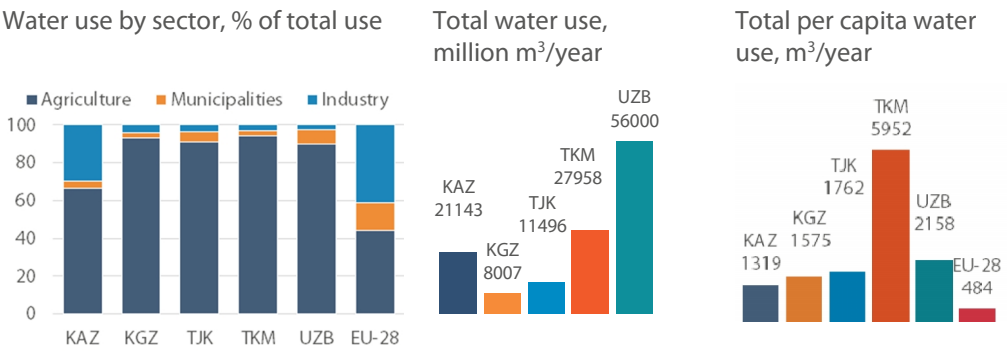
Most of Central Asia is arid or semi-arid. In the Amu Darya and Sri Darya basins, rainfall is heaviest in the mountains of Kyrgyzstan and Tajikistan, which therefore also are the most plentifully endowed with water supplies (Figure 2).

Figure 3 – Amu Darya and Syr Darya river basins

Source: CAWater-Info, 2010.

Water use in Central Asia

Figure 4 – Water use in Central Asian countries and the EU



Central Asian countries use most of their water for irrigation, and therefore have very high total water consumption. Uzbekistan and Turkmenistan are the biggest users.

Source: FAO, European Environment Agency.

Agriculture

Most water is used for agriculture

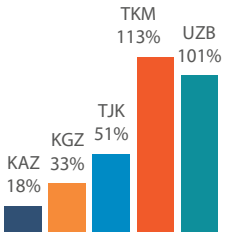
Central Asian countries are major agricultural producers, including of water-intensive crops such as cotton, but with little water coming from rainfall they rely on irrigation. Between them, the five countries have a total irrigated area of some 100 000 km^2 – three times the land area of Belgium, requiring huge amounts of river water. Due to the massive amounts of water used for irrigation, agriculture is by far the biggest water user in Central Asia, and per capita water use in Central Asia is much higher than in European countries (Figure 4).

Agriculture puts heavy stress on water resources

A combination of heavy water use and limited water resources puts considerable stress on water supply. Water stress can be measured by total freshwater withdrawal (water use), as a percentage of total renewable water resources.[1] According to the European Environment Agency, a figure of 20 % or over points to water stress (most European countries are well below this threshold, with some exceptions in southern Europe). By this measure, four of the five Central Asian countries are water-stressed, in particular Uzbekistan and Turkmenistan (Figure 5).

Figure 5 – Water stress

Total freshwater withdrawal as a % of total renewable water resources



Turkmenistan and Uzbekistan are the two most water-stressed countries in Central Asia

Source: FAO.

Energy

Kyrgyzstan and Tajikistan have huge hydroelectricity potential

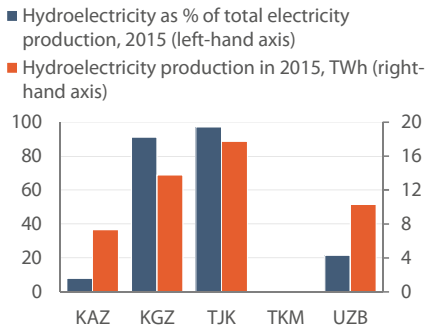
Energy resources are shared unevenly between the five Central Asian countries. Kazakhstan, Turkmenistan and Uzbekistan have abundant fossil fuel reserves, enabling them to meet domestic energy needs and earn money from exports. By contrast, Kyrgyzstan and Tajikistan have very little oil and gas of their own; unable to benefit from hydrocarbon exports, they remain impoverished, and depend on energy imports from their neighbours. On the other hand, they have plenty of mountains and water, and therefore strong hydropower potential. At present, Kyrgyzstan uses just 10 % of that potential, while for Tajikistan, that figure falls to 5 %; even so, both countries already produce over 90 % of their electricity from hydropower (Figure 6).

Even if it is technically and economically feasible to develop only a small part of the two countries' unused hydropower potential, it is clear that there is enormous scope for additional production. Such expansion is urgently needed, as there are chronic electricity shortages in both countries – not least in winter when sub-zero temperatures push energy consumption up. Building new hydroelectric power stations would provide them with cheap and reliable energy, and surplus production could be sold abroad, providing much-needed export revenue.

Tajikistan's Roghun Dam

With a height of 335 metres, Roghun is set to become the world's tallest dam. The dam is located in an earthquake zone, but in 2014 the World Bank concluded that if built as planned, it would be strong enough to 'withstand the Maximum Credible Earthquake'. When complete, the dam will be able to generate up to 3 600 MW of electricity – 80 % of the country's current capacity and the equivalent of three nuclear power stations. Some electricity production could already start in 2018, but the dam is not scheduled for completion till 2028, and it will take several years after that before the water reaches its full height.

Figure 6 – Hydroelectricity



Kyrgyzstan and Tajikistan get nearly all their electricity from hydropower

Source: World Bank, World Energy Council.

For decades, the two countries have had ambitious hydropower plans, but little progress has been made due to the costs, which far exceed their financial capacity – the two largest projects, Kambar-Ata 1 in Kyrgyzstan and Tajikistan's Roghun Dam (see box), come with a price tag of US$3 billion and 3.9 billion respectively, around half of each country's GDP. A deal with Russian investors to complete Kambar-Ata 1, begun 30 years earlier, collapsed in 2016, but Kyrgyzstan still hopes to secure Russian financing. Meanwhile, construction of Roghun finally got under way in 2016, after a 40-year delay; the dam will be financed from a mixture of local and foreign sources, including US$500 million in bonds issued in 2017 by the country's government.

Agriculture versus hydroelectricity

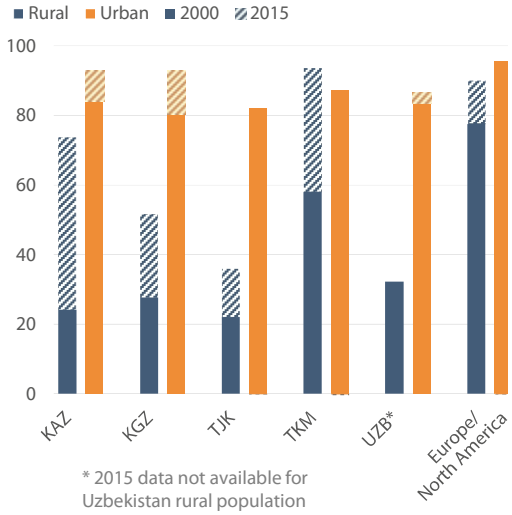
Large hydroelectric dams affect downstream agriculture, mainly because they potentially disrupt water flow. At present, most water in the Amu Darya and Syr Darya rivers comes from the melting of glaciers rather than rainfall; glaciers melt faster in the spring and summer, resulting in higher water levels at a time which conveniently coincides with the growing season of agricultural crops downstream. However, Kyrgyzstan and Tajikistan have an interest in releasing more water from their dams during the winter, when hydroelectricity is needed for heating. In addition, new dams also take several years to fill up, during which time the flow of water downstream is reduced. For example, during the 16 years which it will take to fill Roghun, there will be 1.3 % less water flowing through the Amu Darya.

Domestic water use

Domestic water supplies have improved considerably; however, many people (over half of the population in Tajikistan; see Figure 7) still do not have a source of clean drinking water inside their homes. Although this is a problem that mainly affects rural areas, there are some neighbourhoods in Kyrgyzstan's capital city Bishkek where residents spend hours every day carrying water from nearby pumps. Money to build new water-supply systems or maintain existing ones is often lacking.

Figure 7 – Domestic water

Percentage of population with a clean drinking water supply at home



* 2015 data not available for Uzbekistan rural population

Domestic water supplies have improved considerably in Central Asian countries, but in rural areas, there is still a long way to go.

Source: Unicef.

Security implications of water scarcity: cooperation or conflict?

Soviet Union: integrated water management systems

Cooperation between the five Central Asian countries is essential, in order to allocate limited water resources fairly among the countries sharing each river basin, balance the hydroelectricity needs of upstream countries with the agricultural needs of their downstream neighbours, and manage shared infrastructure.

In the Soviet Union, when the entire region was part of a single country, such cooperation was relatively straightforward, enabling integrated management of the Amu Darya and Syr Darya river basins. Soviet planners paid little attention to what were then administrative boundaries between the five Central Asian republics. For example, in the Fergana Valley, a network of irrigation canals criss-crosses between Uzbekistan, Tajikistan and Kyrgyzstan, which share the valley. In Kyrgyzstan, the Toktogul cascade of reservoirs was built both to regulate the flow of water to downstream agriculture, mainly in Uzbekistan, and to generate electricity; although the reservoir is situated in Kyrgyzstan, planners gave priority to Uzbekistan's summertime irrigation needs over Kyrgyzstan's demand for electricity in the winter. With centralised planning and funding, neither of these situations caused significant problems. In the case of Toktogul, Kyrgyzstan received cheap fuel (coal and gas) and electricity, and central-budget funding for water-management costs, to compensate for the fact that reservoirs situated on its territory were operated mainly for the benefit of Uzbekistan. Water quotas were also allocated centrally, with requirements for Kyrgyzstan and Tajikistan to allow most of their water to flow downstream.

Post-1992 efforts to continue water cooperation

Cooperation continued after the disintegration of the Soviet Union, with the Almaty Agreement signed by the five new republics in 1992. The agreement established an Interstate Commission for Water Coordination (ICWC), which is now part of the International Fund for Saving the Aral Sea (IFAS), and coordinates water management policies in the region.

Several other bilateral and regional agreements followed. For example, in 1996 Turkmenistan and Uzbekistan established infrastructure-sharing arrangements, and agreed that each country could take an equal share of water from the Amu Darya River. Under a 1998 agreement between Kyrgyzstan, Kazakhstan and Uzbekistan (joined by Tajikistan in 1999), Kyrgyzstan committed to releasing enough water during the growing season from its Toktogul cascade of reservoirs to irrigate crops in downstream countries; in return, Kyrgyzstan was to receive compensation from them for the resulting loss of winter hydroelectricity-generating potential in the form of free deliveries of fuel and electricity, as well as financial contributions towards the costs of maintaining its dams.

Increasingly difficult water cooperation threatens regional stability

Unfortunately, cooperation between five independent countries proved much more difficult than within the centrally managed Soviet Union. Regional organisations such as IFAS and its subsidiary ICWC are too weak to effectively coordinate water resource management. As a result, tensions arise wherever neighbouring countries share scarce resources. For example, in 2008 Kazakhstan accused Uzbekistan of failing to allow sufficient water to transit via its territory, while in 2014 a fight broke out between villagers on the two sides of the Kyrgyz-Tajik border after irrigation water from Tajikistan to a downstream area in Kyrgyzstan was cut off.

The Fergana Valley, part of the Syr Darya River basin, is particularly vulnerable to such tensions. Arbitrary Soviet-era boundaries carved the valley into a mosaic of interlocking territories, in which rivers flow back and forth between the three countries sharing the valley, Kyrgyzstan, Tajikistan and Uzbekistan. In this densely populated region, competition for water combines with ethnic tensions (for example, in 2010 mobs attacked ethnic Uzbeks living in southern Kyrgyzstan, killing hundreds) and territorial disputes over borders that until very recently were mostly undefined, creating a potential tinderbox. Such problems have repeatedly sparked violent skirmishes, border closures and the cutting off of cross-border electricity and water supplies.

In addition, downstream energy-producing countries have become less interested in supplying Kyrgyzstan and Tajikistan with fuel and electricity, given that they can earn more money by exporting oil and gas outside the region. The above-mentioned 1998 trilateral energy-water exchange agreement between Kyrgyzstan and its two downstream neighbours broke down after just one year; in 1999, Kazakhstan refused to deliver coal to Kyrgyzstan, which retaliated by cutting off the water flow from its reservoirs. In 2009, Uzbekistan and Kazakhstan withdrew from the

regional electricity grid, leaving their two upstream neighbours with a catastrophic energy shortage in the depths of the winter.

Uzbekistan is particularly dependent on the flow of water from upstream Kyrgyzstan and Tajikistan, due to the importance of its cotton sector, which requires copious water supplies for irrigation. In the early 2000s, cotton accounted for up to 40 % of exports; it is still one of the country's main exports, although by 2017 that share had declined to 10 %. Turkmenistan and Kazakhstan rely mostly on oil and gas exports; cotton is much less significant, accounting in 2017 for 5 % and 0.2 % respectively of export earnings.

Because of its dependence on cotton, Uzbekistan is worried by Kyrgyz and Tajik hydropower projects; in 2012, Uzbek President Islam Karimov warned that new dams could cause 'not simply serious confrontations, but even wars'. For several years, Uzbekistan obstructed transport of materials intended for Tajikistan's Roghun Dam; it also raised the price of gas supplies to the two countries and interrupted them repeatedly. In 2014, after Tashkent cut off gas supplies to southern Kyrgyzstan, Kyrgyzstan threatened to retaliate by closing a canal carrying water to Uzbekistan on the pretext of repairs.

As well as exacerbating interstate tensions, water-related issues undermine domestic political stability. In 2010 the cut-off of Uzbek electricity supplies forced Kyrgyzstan to raise power and heating prices sharply, helping to trigger protests that eventually led to the downfall of President Kurmanbek Bakiyev.

Since 2016, tensions have eased under Uzbekistan's new president

Since 2016, under the country's new president, Shavkat Mirziyoyev, the situation has improved dramatically: Uzbekistan has signed border demarcation agreements with Kyrgyzstan and Tajikistan, at the same time as improving transport links, opening new border posts, and easing visa requirements. Crucially, it has lifted its objections to the two countries' Kambar Ata 1 and Roghun dams, and indicated that it could even participate financially in both projects.

Water-sharing with countries from outside ex-Soviet Central Asia

Afghanistan is the only country from outside the former Soviet Union to share part of the Aral Sea Basin. For the time being, water-sharing is not a major issue, as Afghanistan uses only a small part of its entitlement[2] under a (now defunct) agreement with the Soviet Union. In future, if agriculture in northern Afghanistan expands significantly, there will be less water reaching Uzbekistan and Turkmenistan.

Kazakhstan, a large part of which is outside the Aral Sea basin, draws most of its water from rivers that are shared with China. As the example of the Mekong River in south-east Asia shows, China often prioritises its own needs over those of downstream countries. Furthermore, the Ili and Irtysh Rivers are coming under increasing pressure from development on both sides of the Kazakh-Chinese border. Fortunately, the two countries have taken a mostly constructive approach to water-sharing, possibly something which reflects their mutual dependence and resulting interest in maintaining good relations: China is an important investor and energy-export market for Kazakhstan, while for China, Kazakhstan is a vital link in Beijing's Belt and Road initiative projects developing trade routes between Europe and Asia.

Environmental impact of water use in Central Asia

The Aral Sea disaster

Perhaps even more worrying than the political effects of water scarcity is the environmental impact. In the 1950s, Soviet engineers began diverting water from the Amu Darya and Syr Darya rivers to irrigate the Central Asian deserts and enable large-scale cultivation of crops, and cotton in particular.

From an economic point of view, the project was a success; as mentioned above, cotton has become a key export for Uzbekistan and Turkmenistan.

However, the environmental costs of intensive agriculture in fundamentally unsuitable conditions soon became apparent. With less water reaching it, the Aral Sea, once the world's fourth-largest saline lake, began shrinking, and it is now just one-tenth of its former size. Former lakeside towns were left stranded; meanwhile, rising salt concentrations killed off most of the fish in what was left of the lake, depriving fishing communities of their livelihood. Without the steadying influence of a large body of water, the region's climate has become more extreme, with colder winters and hotter summers. As water evaporates, it leaves behind a crust of salt and pesticides (from upstream agriculture); during storms, this is whipped up into toxic dust clouds that cause respiratory and other health problems in neighbouring areas.

Kazakhstan has succeeded in restoring a small part of the Aral Sea, at the expense of some of the southern remnants, by constructing a dam to retain water flowing from the Syr Darya River into the north of the Aral Sea. Since the dam was completed in 2005 with the help of World Bank funding, water levels have risen and growing fish populations have enabled commercial fisheries to resume. However, the amount of water flowing into the lake is just one-tenth of what would be need to restore it to its former volume; therefore, unless the Central Asian countries are willing to scale back agriculture, most of the rest of the Aral will remain dry.

Soil salinity

Water used for irrigation evaporates, leaving behind salt that over time accumulates, making the soil increasingly saline. High salt levels make soil unsuitable for growing most crops. In Central Asia, this problem is exacerbated by water seeping from leaky irrigation canals, use of excessive quantities of water, and poor drainage: the more water there is at surface level, the more evaporates and the more salt is left behind. The two countries worst affected by this problem are Turkmenistan and Uzbekistan, where over half of irrigated land has become saline.

Moreover, surplus water from irrigation flows back into rivers, carrying salt from the irrigated land together with chemical fertilisers and pesticides. As a result, river water becomes saltier and more polluted further downstream. In Uzbekistan's Karakalpakstan region, where the Aru Darya River finally dries up, about 95 % of the land is saline. In Turkmenistan, to mitigate salinisation, only half of drainage water is allowed to feed into rivers; the remaining half is diverted to natural depressions such as the Sarygamysh Lake. In 2000, the country launched a grandiose project at an estimated cost of up to US$8 billion, to create an even larger reservoir, to be known as the Golden Age Lake, which will eventually be 100 km long and cover an area of 2 000 km^2. It is hoped that aquatic plants will absorb some of the salt, thus enabling the new lake to not only store drainage water, but also to recycle it and irrigate the surrounding desert, creating new agricultural land. Sceptics cast doubt on this vision: large amounts of water are likely to sink into the desert sands or evaporate, while what is left behind will be too salty and polluted to serve any useful purpose. In the worst-case scenario, the toxic chemicals accumulating in and around the lake could even cause an environmental disaster.

Social and environmental impact of hydroelectricity

Apart from their effects on downstream water flow, large hydroelectricity projects mean flooding upstream areas and displacing local communities. When full, the Roghun Dam will cover a surface area of 170 km^2, submerging over 70 villages and displacing 42 000 inhabitants. According to Human Rights Watch, the families resettled so far have not been adequately compensated for the loss of their land and homes, and the areas to which they have relocated do not offer the same employment opportunities and facilities (such as schools).

On the other hand, if it provides cheap and reliable electricity, the dam could help to save Tajikistan's forests. With electricity only available for several hours a day, many Tajiks living in rural areas rely on

firewood for heating; as a result, 70 % of the country's mountain forests have disappeared, leaving upland areas prone to mudslides.

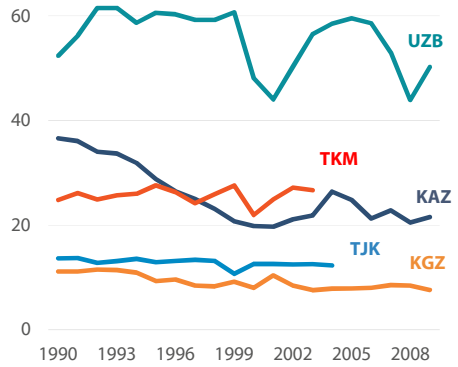
Solutions to Central Asia's water problems

More efficient water use could help to alleviate scarcity

Since 1990, total water use has fallen (Figure 8). One of the reasons for this change is a post-Soviet decline in manufacturing industry. In agriculture, in order to become less dependent on food imports, Uzbekistan and other Central Asian countries have shifted agricultural production away from cotton to wheat. This too helps to save water, as wheat only uses half as much irrigation water compared to cotton.

There is still plenty of scope for improving efficiency. Most of Central Asia's irrigation canals are unlined and poorly maintained, causing them to leak; for example, the Karakum Canal, which channels water to around half of the irrigated area in Turkmenistan, loses about one-third of its water. The FAO cites similar figures for Uzbekistan. Apart from wasting water, leaks contribute to the above-mentioned problem of soil salinity.

Figure 8 – Water consumption trends



Since 1990, water use has fallen considerably in Kazakhstan and Kyrgyzstan; however, there has been less progress in Uzbekistan and Turkmenistan, the region's two biggest water users.

Source: CA Water Info.

In Uzbekistan, some efforts are being made to reduce wastage, with the help of international donors such as the World Bank and the EU. However, the huge cost of rehabilitating the country's irrigation and drainage infrastructure (estimated at between US$23-31 billion) means that progress is slow. Water-saving measures also feature in Kazakhstan's 2013 green economy and 2014 foreign policy concepts; among other things, these include the introduction of more efficient irrigation systems.

Charging farmers for water can provide an incentive for efficiency, as well as a financing source for irrigation-canal maintenance. However, this does not always happen at present, due to artificially low fees (for example in Kyrgyzstan) and non-collection (in Uzbekistan). Addressing this problem could help to significantly reduce water use.

Turkmenistan is the most wasteful user of water, not only in Central Asia, but in the whole world, consuming 6 million litres per inhabitant per year – enough to fill two Olympic-size swimming pools. Not only agriculture is to blame for this; capital city Ashgabat consumes the same amount of water as Chicago, despite having just one-quarter of its population. In 2008, a monumental fountain complex earned the city an entry in the Guinness Book of Records; in 2013 came an equally grandiose tree-planting initiative, aiming to turn Turkmenistan into a 'land of lush gardens and fields'. A curb on such projects would enable the country to use water more rationally, although unfortunately there is no sign of this happening yet.

Closer cooperation is important

Since 2016, improved relations between Uzbekistan and its neighbours have facilitated closer cooperation on water-related issues. As mentioned above, Tajikistan and Kyrgyzstan lose winter electricity-generating capacity when they release water from dams during the summer growing season; acknowledging the need to compensate for this, in 2017 and 2018 Uzbekistan resumed its purchases of the two countries' surplus hydroelectricity, interrupted since 2009; there is also talk of resurrecting the regional power grid which had existed till 2009.

If completed, the Central Asia-South Asia (CASA-1000) power project will also give Kyrgyzstan and Uzbekistan an additional incentive to release water during the summer. Mostly funded by the World Bank, the project aims to link power stations in the two countries to Afghanistan and Pakistan, which are short of electricity in the hot summer months. Construction of the electricity lines is scheduled to begin in 2018. However, there are some doubts as to the viability of the project; in 2016, Afghanistan announced that it was no longer interested in purchasing electricity from the new grid, and there are also security threats to power lines passing through volatile northern Afghanistan.

Future prospects for water in Central Asia

Pressure on the region's water resources is expected to continue rising. Climate change is shrinking the glaciers in the mountains of Kyrgyzstan and Tajikistan that feed Central Asia's main rivers; it is estimated that one-quarter of the volume of water stored in glaciers was lost in the second half of the 20th century, and a further quarter will have disappeared by 2025. In the long term, this will mean less water is available for the region's fast-growing population. According to the World Bank, if population growth continues at its current rate of 1.5 % per year, the amount of water available per person will fall below 1 700m^3 by 2050, 1 000m^3 by 2080 and 500m^3 by 2120; in other words, by the next century, water supply will be just one-quarter of current average consumption. The World Bank also forecasts that by 2050, more efficient use of water could boost the region's economy by over one-fifth compared to a scenario in which current patterns of water consumption continue unchanged. With regard to the security implications, a 2012 report by US intelligence agencies warns that water problems in regions such as Central Asia are likely to fuel instability and regional tensions; the Council of the EU drew similar conclusions in 2013. All of this means that more efficient water use and effective cooperation will become even more crucial than they are now.

What the EU is doing

EU Central Asia Strategy (2007)

Environmental sustainability and water is one of seven cooperation areas set out in the strategy. The strategy emphasises the importance of Central Asian countries jointly managing their shared water resources, and developing techniques to use water more efficiently (for example, in irrigation). It also encourages them to develop their unused hydroelectricity potential. All of these aspects are important in helping the region to develop economically and maintain political stability.

Council of the EU conclusions from 2015 and 2017 confirm the importance of Central Asian countries cooperating on sustainable use of shared water resources; water is therefore likely to remain one of the priorities of the EU's new Central Asia strategy, which is expected in 2019.

EU-Central Asia dialogue on water

Based on the above strategy, in 2009 the EU and the Central Asian countries agreed to establish a Platform for Environment and Water Cooperation. This involves regular meetings of a working group, chaired by the Italian Ministry of Environment, Land and Sea to discuss water and environment cooperation; the most recent meeting was held in Tashkent in June 2018, bringing together over 100 participants from EU and Central Asian countries, representing civil society, international organisations and international financial institutions such as the World Bank. Dialogue also includes high-level conferences bringing together EU heads of delegations and Central Asian ministers responsible for water and the environment; the next conference is planned for January 2019 in Tashkent.

EU Water Initiative and national policy dialogues

In 2002 the European Commission launched an EU Water Initiative (EUWI) to help partner countries around the world improve their water management policies, following a similar approach to that established within the EU by the 2000 Water Framework Directive. One of the regional components

of the initiative is the EUWI EECCA, which covers the five Central Asian states as well as seven other ex-Soviet countries. Among other things, this aims to encourage countries sharing the same river basins to manage them jointly.

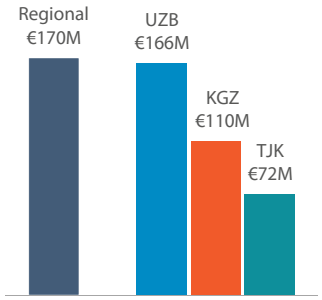
EUWI EECCA operates at two levels:

- a regional working group, bringing together representatives of the 12 participating countries, the European Commission, and donor countries, both EU (e.g. Finland, Germany) and non-EU (Norway, Switzerland);
- national policy dialogues (NPDs) within each country, bringing together government agencies, NGOs, the private sector and other stakeholders. For example, Kyrgyzstan's NPD has helped to develop a plan for managing the Chu River basin, as well as a financing strategy to improve water supplies in towns and villages.

EU development assistance

Grants: for 2014-2020, grants come from the Development Cooperation Instrument (Figure 9). The EU has allocated €170 million of regional aid for sustainable development, as well as €166 million, €110 million and €72 million of bilateral aid for rural development in Uzbekistan, Tajikistan and Kyrgyzstan respectively; a large (but unspecified) part of this is water-related, for example, supporting improved water-management policies and water-infrastructure investments. Kazakhstan and Turkmenistan do not receive bilateral aid for water-related projects, but are eligible for regional aid.

Figure 9 – EU aid, Central Asia



Source: European External Action Service.

Regional aid: the EU's programme for Water, Environment and Climate Change Cooperation (WECOOP) funds EU-Central Asia policy dialogue, including the above-mentioned working groups and national policy dialogues; it also provides guidance for Central Asian governments to help them access finance for environmental investments from primarily European financial institutions such as the EIB and EBRD.

The European Commission is also one of four donors financing the World Bank's Central Asia Energy-Water Development Programme, which aims to promote regional cooperation on energy and water, among other things by financing data gathering, institutional capacity building, and preparation for investments such as the above-mentioned CASA-1000 power project.

Bilateral aid: in Uzbekistan, the EU has provided €15 million to reduce water wastage by repairing leaky irrigation infrastructure, and €2 million to help raise awareness of the importance of water saving. Kyrgyzstan and Tajikistan are using EU grants to leverage EBRD loans (see below) for investments in urban water supply and wastewater treatment systems.

Loans: the European Bank for Reconstruction and Development (EBRD) provides low-interest loans in all five Central Asian countries; the European Investment Bank (EIB) operates in four of them (not Turkmenistan).

EP resolutions: in its April 2016 resolution on the implementation and review of the EU-Central Asia Strategy, the European Parliament argues that water should remain a priority for a new EU strategy on Central Asia. For the Parliament, 'catastrophic water mismanagement' is one of the main environmental challenges facing the region. The EU should act as a mediator in water-related disputes (for example, concerning the Roghun Dam) and support cross-border water management.

ENDNOTES

1 *Total renewable water resources* are not the same as the *total internal renewable water resources* mentioned in Figure 2, because they also take account of river water flowing into and out of a country secured by bilateral agreements. For example, Uzbekistan has 16.34 km^3 a year of internal renewable water resources, including 9.54 km^3 of river water; however, under bilateral agreements with Uzbekistan, Tajikistan and Kyrgyzstan guarantee that at least 65.65 km^3 a year flow downstream to Uzbekistan, which for its part has outflow agreements committing it to allow at least 33.12 km^3 to flow into Tajikistan and Turkmenistan; thus, total renewable water resources = internal renewable water resources (16.34 km^3) + guaranteed inflow (65.65 km^3) – committed outflow (33.12 km^3), which gives a net figure of 48.87 km^3 a year.

2 According to the UN's FAO, in 2004, Afghanistan used only 2 km^3 of its 9 km^3 entitlement under its 1946 treaty with the Soviet Union. A more recent estimate cited by the World Bank in 2014 is 2.5 km^3.

DISCLAIMER AND COPYRIGHT

eprs@ep.europa.eu (contact)

www.eprs.ep.parl.union.eu (intranet)

www.europarl.europa.eu/thinktank (internet)

http://epthinktank.eu (blog)