

International Water Hot Spots

A dozen flashpoints where past and present disputes over water could lead to full-scale armed conflict.

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1. EGYPT/SUDAN/ETHIOPIA - The River Nile

Egypt is the farthest downstream riparian state on the River Nile and, until now, has enjoyed almost uninterrupted access to the river's water. In 1959, Egypt signed a treaty with neighboring Sudan which allocated water quantities to each state (55.5 billion cubic meters a year to Egypt and 18.5 bcm to Sudan) but took no account of upstream Nile states like Ethiopia.

After years of social unrest, Ethiopia now has the political stability and capacity to plan dam building on Nile tributaries under its control. It considers the use of Nile water for irrigation and hydroelectric power vital for the country's future economic development.

Historically, Egypt has taken a hard line with upstream Nile states seeking to siphon off more water for their own development. Simmering tensions erupted in 1997 when Egyptian President Hosni Mubarak announced a massive new irrigation scheme, known as the Toshka project, which would take up to 5.5 bcm a year from Lake Nasser, the reservoir behind the Aswan High Dam, and divert it by canal to Egypt's western desert for irrigation.

Fearing that it would be deprived of its share of Nile water, Ethiopia's reaction to the Toshka scheme was hostile. Addis Ababa demanded an amendment of the 1959 treaty and said it wanted an additional share of Nile water to allow it to implement its own projects. Various newspapers carried strongly worded statements from Ethiopian officials. London's Financial Times quoted the chief engineer in the Ethiopian Ministry of Water Resources as saying that there would be no cooperation among the Nile countries until a clear commitment to the principle of fair and equitable use was established.

It is hard to see if a solution will ever be reached between the Nile basin states. The 1959 agreement is a non-negotiable issue for Egypt and Sudan. But for the upstream states its renegotiation is a precondition for future basin agreements. Thus Egypt and Ethiopia are on a collision course. Ethiopia will inevitably start to use more Nile water, especially as population increases in the new century. But the strength of Egypt's resistance to any upstream development is huge, and Egypt has made it perfectly clear that it will go to war to protect its share of the Nile waters.

Useful websites: www.nilebasin.org

2. ISRAEL/JORDAN/THE WEST BANK AND GAZA STRIP - The Jordan River basin

Not as likely to erupt in armed conflict as the dispute over the River Nile, but still a complex situation made worse by regional politics. The Jordan River basin includes portions of Israel, Jordan, Syria, Lebanon and the Palestinian Territories (the West Bank and Gaza Strip). Through military action in the Arab-Israeli wars of 1967 and 1973, Israel has come to control a significant part of the basin, leaving water-short Jordan in a vulnerable position.

In October 1994 the political situation in the region changed and Israel and Jordan signed a Peace Accord. As part of this treaty, Israel promised to provide an additional 50 million cubic meters of water a year to its Arab neighbor. Israel's commitment to supply Jordan with extra water is now considered fixed, since any deviation from the agreement will aggravate the already acute water shortage in the Hashemite Kingdom.

The water-related part of the 1994 treaty is especially significant because it opens the door to increased cooperation in water matters between two traditionally hostile countries. This is likely to prove important because, even with the division of water under the Peace Accord, there is still nowhere near enough to meet the needs of the people living in the Jordan basin. Experts predict that Israel, Jordan and the Palestinian Territories will be running a water deficit of 1-2 billion cubic meters a year by 2020.

However, Israel and Jordan continue to disagree over the implementation of the treaty. During a drought in the winter of 1998/99 Israel proposed to halve the amount of water it is obliged to give Jordan, World Water and Environmental Engineering magazine reported.

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And Israel continues to move slowly on the dispute over water with the Palestinians. Under the Oslo agreement of 1995, Israel allowed Palestinians in the West Bank to abstract up to 80 million cubic meters a year from the western aquifer - in effect recognizing for the first time that the Palestinians have legitimate water rights in the West Bank. But with the peace process still bogged down, any progress on the water front seems unlikely.

Useful publications: *Water for the Future - The West Bank and Gaza Strip, Israel and Jordan*. National Academy Press, Washington DC. Tel: 800 264 6242.

3. TURKEY/SYRIA/IRAQ - *The Tigris and Euphrates*

One of the world's major hotspots which could easily erupt in violence. Turkey holds the dominant position since both the Tigris and Euphrates rise in its eastern mountains. Both rivers then flow through Syria and Iraq before draining to the Persian Gulf. Syria and Iraq are thus dependent on Turkish cooperation for the amount of water they receive.

However, Turkey is in the midst of a \$32 billion water development scheme called the Grand Anatolia Project (GAP). GAP includes the construction of over 20 dams on the Tigris and Euphrates and aims to irrigate large tracts of land in Turkey's underdeveloped south east region as well as providing billions of kilowatt hours of hydroelectricity.

GAP is bad news for both downstream states as it reduces the flow of the Euphrates into Syria, and subsequently into Iraq. Turkey and Syria did manage to sign a protocol in 1987 guaranteeing Syria a total minimum flow of 500 cubic meters/second, about half of the Euphrates' volume at the border. But Syria is still far from happy, and continues to press for a greater allocation.

Tensions erupt nearly each time Turkey begins to fill up a new dam built as part of GAP. When Turkey started to fill the huge Ataturk Dam reservoir in January 1990, both Syria and Iraq reacted angrily accusing Turkey of not informing them about the cut off which interrupted the flow of the Euphrates for nearly a month. Iraq even threatened to bomb some of the Euphrates dams in Turkish territory.

And when Turkey started construction of the Birecik Dam on the Euphrates in the mid-1990s, Syria and Iraq threatened to blacklist and seek compensation from the US and European companies - including the Chase Manhattan Bank - building and financing it.

Syria and Iraq continue to lobby the Arab League states to unite against Turkey on the GAP issue. As a form of retaliation, both states have also supported the minority Kurdish Workers Party in its struggle against the Turkish government. This has prompted Turkey to threaten to cut off the flow of water to Syria and Iraq on more than one occasion. Actions like these could well escalate into more serious conflicts.

Useful websites: www.turkey.org/groupc/gap

4. MOZAMBIQUE/SOUTH AFRICA - *The Incomati River*

One of several regional disputes in southern Africa which still remains unresolved. Mozambique's rivers all originate outside its borders in South Africa, Zimbabwe or Swaziland. By the time they reach Mozambique, rivers like the Limpopo, Injaka and Incomati are substantially drained or else polluted.

The Mozambican government has become particularly concerned that South Africa has increased its agricultural withdrawals from tributaries of the Incomati which flow through the Kruger National Park along the border with Mozambique, so depriving Mozambican irrigation in the process.

South Africa claims that it is aware of these concerns and in the early 1980s, it agreed to a minimum 2 cubic meters/second flow of water into Mozambique in the Incomati river. This quantity was subsequently agreed upon by a three nation committee of South Africa, Swaziland and Mozambique, set up to address water issues on rivers shared by the three countries.

However, since the 1980s the committee has not functioned well and the Incomati allocation is still disputed by Mozambique. In 1998 the southern Mozambican province of Maputo accused South Africa of violating

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the agreement over water use. Farmers in Maputo claimed that at the slightest hint of drought, their South African counterparts stored as much Incomati water as they could on their side of the border, so depriving the Mozambican side. In worst cases, the Incomati almost stopped flowing by the time it reached the border. South Africa's Department of Water Affairs strongly refuted the claims.

Current opinion in Mozambique is that its best chance to increase the reliability of flows in its rivers is through international pressure. Mozambique has already threatened to take South Africa to the International Court of Justice. The move is designed to force South Africa's hand on the Incomati. Even if no action is taken, the threat could harm South Africa's standing in the Organization for African Unity (OAU).

Recent improvements in relations between the two countries mean that water issues can be negotiated more directly, but there is still a long way to go.

Useful publications: *A Liquid More Valuable than Gold*. Swedish International Development Agency, Stockholm. Tel: + 46 8 698 5000

5. KAZAKHSTAN/TURKMENISTAN/KYRGYZSTAN/TAJIKISTAN/UZBEKISTAN - *The Aral Sea basin*

One to watch. The Aral Sea in central Asia is in danger of drying up and disappearing completely because water from the two major rivers which drain into it is being diverted through irrigation channels to feed the region's enormous cotton fields.

The Amu Darya river, which originates in the mountains of Afghanistan and Tajikistan, and the Syr Darya river, which originates in Kyrgyzstan used to replenish the Aral Sea but now neither can provide enough water to even reach the sea shoreline. The Aral Sea was once the fourth largest inland lake in the world but since the 1960s the water volume in the lake has diminished rapidly. Even worse, saline intrusion and pollution in the Aral Sea, Amu Darya and Syr Darya rivers, as well as the surrounding groundwater has meant that many of the villages in the former Soviet republics which make up the basin have no clean drinking water.

The five republics now have a dilemma. Cotton was grown in huge quantities in the Aral Sea basin in Soviet times. It is still grown but on a much smaller scale for export to the European textile industry. Mass production of cotton entails excessive irrigation but reducing output in favor of other crops which are less water rich is difficult because so many people are dependent on the credits and hard currency that the crop brings in.

To restore the Aral Sea would require a massive shift of water out of cotton. This could be achieved by improving irrigation efficiency and rotating crops. But the infrastructure to do this doesn't exist yet.

In such dire circumstances, the five former Soviet republics do recognize the need to cooperate on water issues. Since the break up of the old Soviet Union, several interstate institutions have been set up to ensure rational water use and to protect the region's water resources.

But these have lacked any real authority with the result that each of the five republics tends to want to solve its own problems rather than discuss solutions with the others to benefit the basin as a whole. Tensions flared in 1997 when Tashkent unilaterally reduced the flow of water from Uzbekistan to southern Kazakhstan, threatening to ruin nearly 250,000 acres of land. Radio Free Europe reported public demonstrations to the water shortages in Kazakhstan. Following talks between the two governments, Uzbekistan subsequently agreed to restore some of the flow. Incidents like this are likely to become more frequent until agricultural demands are adjusted to the limits of the available water supply. Current evidence suggests that there will be even more competition between agriculture and the environment in the first years of the new millennium.