WATER AND CONFLICT

WATER HAS OFTEN PLAYED A CATALYSING ROLE IN WARS AND UPRISINGS. WITH POPULATIONS, GROUNDWATER DEPLETION AND CLIMATE CHANGE ALL INCREASING, MANY FEAR MORE TO COME.

By Wided Khadraoui

Shortly before 8am on a Monday morning in 1967, the Israeli Air Force launched almost every single one of its jets skyward. Minutes later, they streaked across the Egyptian border from multiple directions, targeting military airfields and laying waste to close to the entirety of Egypt's military aircraft arsenal.

By the following Sunday, the Six-Day War had ended with a ceasefire; close to 20,000 people had been killed, about 400,000 Palestinians and Syrians were displaced, and Israel had tripled the area it controlled.

Though the exact causes of the conflict are still under debate, Israel emerged from it with control of the West Bank's mountain aquifer and the Sea of Galilee, supplying Israel about 60% of its water supply.

Water, and conflict over its control, has helped ignite conflicts for millennia, said Dr Peter Gleick, president of California's Pacific Institute, which maintains a sprawling database of water conflicts, historical and contemporary.

"Most concerning, however, is an uptick in the numbers of such incidents in recent years, and especially an increase in both violence related to fundamental access to basic water services and intentional attacks on water infrastructure in conflicts that begin for other reasons, especially in the Middle East," Gleick said.

"Pressures on water resources around the world continue to grow. The growing threat of conflicts over these resources is both disturbing and a call to action.

"Researchers, water experts, diplomats and the military need to improve their understanding of the links between water and security and work to reduce the risks of conflict."

The risks have attracted the attention of the US intelligence community, with a 2012 report by the Office of the Director of National Intelligence finding that by 2022, water pressures could escalate. "Historically, water tensions have led to more water-sharing agreements than violent conflicts," the report found. "However, we judge that as water shortages become ▶

more acute beyond [2022], water in shared basins will increasingly be used as leverage; the use of water as a weapon or to further terrorist objectives also will become more likely.

"We have high confidence in our judgements because there are excellent all-source reports on future water shortages and a well-established pattern of water problems aggravating regional tensions."

But as dangerous a catalyst as water can be for conflict, cooperation over the resource can also be an extremely powerful tool for peace across national boundaries.

THE CLIMATE SPARK

"All of human civilisation is, in some sense, a struggle for the control of water," said Alok Jha, author of *The Water Book: The Extraordinary Story of Our Most Ordinary Substance*.

"There is a power structure with water. The location of water supplies and control of that water plays an important factor in political power. Control of water how it flows and who has access to it, it's an incredibly important thing. You need access to ports, clean water to drink, to build microchips and computers – we need it for everything."

Water crises is the top global risk of highest concern for the next 10 years, according to a 2016 World Economic Forum survey, followed closely by climate-change mitigation and adaption, extreme weather events, food crises, and profound social instability. Many of those causes are of course linked, as demonstrated by the ongoing crisis in Syria.

Research published in 2015 in Proceedings of the National Academy of Sciences found that an extreme drought between 2006 and 2009 was likely due to climate change.

That drought – the worst in modern times – caused crop failures that spurred 1.5 million Syrians to migrate from rural to urban areas, sparking the violent uprising that has so far caused almost half a million deaths. It has also destabilised much of the surrounding region. Since the civil war broke out, hundreds of thousands of refugees, many of them farmers, have fled southern Syria. As a result, much more water now flows through the Yarmouk River, the largest tributary of the Jordan River, meaning greater quantities of water are flowing through Jordan, and eventually into Israel.

Besides further complicating transboundary water management issues in the region, there are now more than half a million Syrian refugees living in Jordan, one of the world's driest countries.

"Through climate change, there will be climate-induced movement of people," Jha said. "People will have to move elsewhere as some parts of the world will dry up and others will get very wet. Humans will have to make some fundamental changes to infrastructure."

The ongoing conflict in Syria also highlights another aspect of water in conflict – its use as a weapon. From the outset of its campaign, ISIS treated water access and control as a primary goal. The group commandeered canals, dams, reservoirs and other water infrastructure to cement territorial gains, at one point threatening to flood Mosul and Baghdad by destroying the Mosul Dam, which they had briefly captured.

Meanwhile, in 2016, protesters in northern India sabotaged the Munak canal, which supplies New Delhi with three fifths of its water, leaving more than 10 million people in the capital without water. At least 18 people were killed and 200 injured after the Indian Army intervened to reopen the canal.

In South Africa, early 2018 was marked by angry protesters in Cape Town chanting "Water for all or the city must fall", in response to a water crisis that has left the city of almost half a million set to run out of water by mid-April. Violence has already marred the use of a natural spring opened to the public, while elected officials have come under intense scrutiny for allowing the situation to deteriorate.

ACROSS BORDERS

However, for all the fear over water conflict, many believe it is more likely to prompt violence domestically, rather than internationally. In 2015, Dr Therese Sjömander Magnusson, Stockholm International Water Institute (SIWI) Water Boundary Management

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NOTABLE WATER CONFLICTS

1947 – BANGLADESH/INDIA
Partition divided the Ganges River between Bangladesh and India due to construction of the Farakka barrage by India in 1962. Increased tension lead to constant unrest until a 30 year treaty was signed in 1996.

1947 – INDIA/PAKISTAN
Partition leaves the Indus basin divided between India and Pakistan. Irrigation disputes ensue and India stems flow of water into irrigation canals in Pakistan. An Indus Water Agreement was reached in 1960.

1967 – ISRAEL/SYRIA
Israel destroys the Arab diversion works on the Jordan River headwaters. During the Arab-Israeli War, Israel occupies the West Bank and Golan Heights, where the Banias tributary is located.

Director, used a conference session to attempt to dismantle what she called the myth that water leads to war. Despite about 2000 interactions over transboundary basins in the last five decades, Sjömander Magnusson said, just seven involved violence. "During the same time, more than 200 agreements and treaties on transboundary waters have been signed."

"In an insecure world that we are facing right now, with many unstable situations, what we've seen over and over again is how governments are eager to position themselves as stable countries open to cooperation," she said.

She gave the example of the Jordan River, which runs along the borders of Jordan, Israel and the Palestinian Territories.

"This is the only platform where these countries have met for the past couple of years," she said.

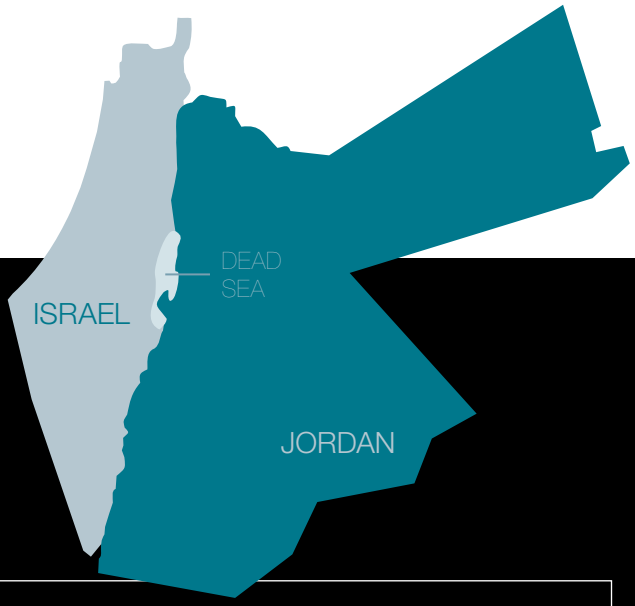
In fact, research by think tank Strategic Foresight Group found that of the 148 countries that share water resources, 37 that are deemed at risk of war happen to be those that do not engage in active water cooperation with their neighbours.

MAKING IT WORK

Legislative cooperation has long been a tool for constructive and mutually beneficial conduct for sustainable development, utilisation and conservation between nations. In Southeast Asia, the Mekong River Commission is an example between the four riparian nations.

The Mekong starts in the mountains of southern China and flows through Laos, Thailand, Cambodia and Vietnam before it reaches the South China Sea. The governments of the four countries founded the Commission in 1995 to facilitate regional cooperation in water management. It's an attempt to manage competing demands over water use, including irrigation water for agriculture, and water for industry, power generation, transport and domestic use.

"Broadly these are several issues that affect transboundary water cooperation. Considering the basic context of the situation includes understanding the biophysical conditions of river," said Yumiko Yasuda, Senior Network Officer at Global Water Partnership, an international network focused on an integrated approach to water resources management. "There is also the socio-economic context to consider, which is very important and includes population, industry and development, as well as the overall political context." In our studies we've ▶



HARSH CONDITIONS AND STRONG TIES

In 2015, Israel and Jordan signed the Red Sea-Dead Sea Water Conveyance Project.

Known as the Red-Dead project, the $US10 billion plan highlights the pragmatism of transboundary management. The major water cooperation agreement was hailed as the "most significant agreement since the peace treaty with Jordan" by Israeli officials.

The project will connect the Red Sea to the Dead Sea via a 200km pipeline that will transport 100GL of water every year.

The project aims to supply water for both nations as well as replenish the Dead Sea, which has been shrinking in recent decades thanks to the diversion of 98% of the Jordan River.

The Red-Dead project includes a proposed desalination plant that would be the largest in the world, as well a seawater intake structure; an intake pump station; a seawater pipeline; a desalination brine conveyance pipeline; two lifting pump stations; hydropower plants; and discharge facilities at the Dead Sea.

Despite a November 2017 diplomatic incident involving the temporary shutting of the Israeli embassy in Amman, the project continues to move forward.

1975
ANGOLA/SOUTH AFRICA
South African troops move into Angola to occupy and defend the Ruacana hydropower complex. Goal is to take possession of and defend water resources of southwestern Africa and Namibia.

1982
GUATEMALA
177 civilians are killed over opposition to the Chixoy hydroelectric dam in Rio Negro.

1986
LESOTHO/SOUTH AFRICA
South Africa supports a bloodless coup in Lesotho due to conflict over the ANC, anti-apartheid and water. New government signs Lesotho Highlands water agreement with South Africa after 30 years.

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identified the institutions, both formal and informal, that can influence the outcome of a water issue; informal 'institutions' such as socially deeply embedded practices and beliefs and how that impacts people and formal agencies – the sentiments behind land rights in Israel and its neighbours are an example."

The importance of participation in multilateral treaties for water cooperation is stressed by Stephen McCaffrey, Professor of Law at the University of the Pacific in Sacramento in California, and an international water law expert.

"These agreements are symbiotic in character, providing somewhat different ways for the achievement of the same end: the cooperative use, management and protection of shared surface and underground water," McCaffrey said.

Water scarcity has seemingly offered a chance for cooperation between different groups, and as a potential path towards political stability and economic opportunity.

NON-GOVERNMENTAL ORGANISING

Non-governmental bodies have a record of successfully influencing positive transboundary water agreement and conflict mitigation.

For example, civil society representatives and scientists from China, India and Myanmar gathered in Myanmar in December 2012 to plan the transboundary management of the Brahmaputra-Salween Landscape, a biologically rich ecosystem shared by the three countries.

The regional transboundary landscape initiative now facilitates joint actions among countries through a regional cooperation framework, and also helps support integrated conservation and water management actions on a national level. "We found that civil society can play a pivotal role in transboundary water issues," Yasuda said.

"In terms of water diplomacy, starting from state to state bilateral action can sometimes become too contentious. Civil society actors can often take different approaches, often have more freedom to act in different ways than state actors, which allow them to bring different stakeholders together."

But in order for water legislation of any kind to be effective, modified approaches to each situation are necessary. "There is knowledge you can transfer in terms of technique, but you have to remember that it's not a one-size-fits-all model, due to the variety of contexts," Yasuda said.

The importance of flexibility and local context in those agreements is only set to increase, as climate change disrupts established weather patterns and water flows, SIWI's Sjömander Magnusson said. "Many treaties on transboundary waters probably need to be revised in line with the new climate change data and be a bit more flexible to cope with the extreme weather events."

OFFERING EXPERTISE

Controlling the access to, and the use of, water will continue to shape political and social tensions across the globe.

Australian Water Association CEO, Jonathan McKeown said "the management of our own Murray Darling Basin with its deficient compliance regimes, its complex needs to balance economic, social, and environmental outcomes is a domestic example of a much wider global challenge. At least our state borders are jurisdictional rather than military."

While the lessons of managing the Murray Darling Basin can be helpfully shared overseas, McKeown downplayed the relevance of this because "solving international water disputes is about different cultural and political issues being resolved ►

> "MANY TREATIES ON TRANSBOUNDARY WATERS PROBABLY NEED TO BE REVISED..."
>
> **DR. THERESE SJÖMANDER MAGNUSSON, SIWI**

1990

KYRGYZSTAN, TAJIKISTAN AND UZBEKISTAN

The Ferghana Valley is shared by the three countries and is especially vulnerable to eruptions over water access and ethnicity. In 1990, 300 people died in the Kyrgyz town of Osh on the border of Uzbekistan over competition for water, limited arable land and ethnic tensions.

1991

IRAQ

The US deliberately pursues a policy of destroying Iraq's water systems through withholding contracts and sanctions, following the Allied Coalition forces intentional and unintentional damage to Baghdad's modern water and sanitation systems during the war.

A MORE PERFECT UNION

Covering more than 800,000 hectares, the Danube River Basin is the world's most international; the catchment area takes in 80 million people and 19 countries.

The Basin has been governed by multilateral agreements and various forms of international administration almost continuously since 1856.

These historical treaties and agreements largely focused on improving navigation, commerce along the waterways, flood control and hydro power.

Despite two world wars and multiple regional conflicts, the countries have largely been able to cooperate in the Danube's management. Today, it is governed via the Danube River Protection Convention (DRPC).

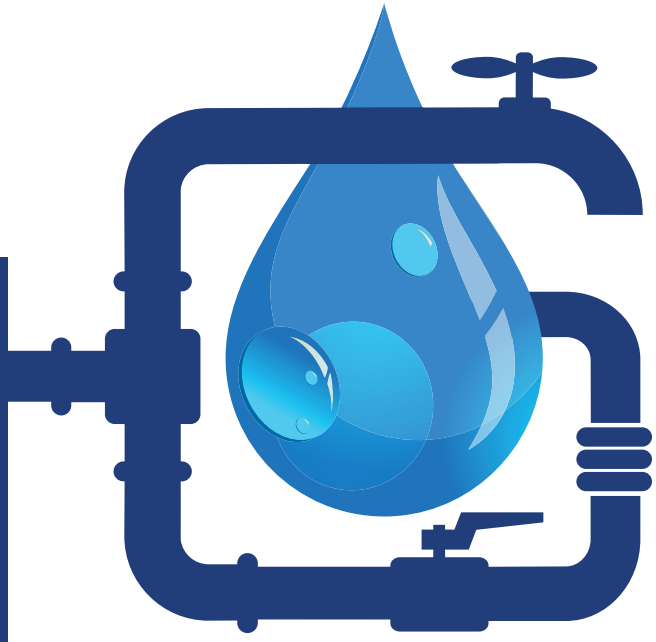
Eleven of the 19 Danube riparian states – Austria, Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Moldova, Romania, Slovakia, Slovenia and Ukraine – and the European Community signed the Convention in 1994, and it came into force in 1998.

The signatories to the DRPC have agreed to cooperate on fundamental water issues and ensure that surface waters and groundwater within the Danube River Basin are managed and used sustainably and equitably.

There are defined monitoring parameters, laws on liability for cross-border pollution, rules for the protection of wetland environments and guidelines for conservation areas.

The processes can help facilitate cooperation and prevent conflict over the management of international waters, and have also played a role in managing transboundary disputes.

While the strategic and integrated management of the Danube River Basin environment focuses initially on priority environmental issues, their strategy of an integrated, participatory, and coordinated group effort also impacts multinational cooperation in other sectors.



locally rather than the imposition of a model that we are still getting to work in Australia". McKeown says Australia has much more to offer internationally from the Australian lessons learnt through:

- national competition reforms from 1994 that led to a new regulatory approach to water management;
- water recycling systems, desalination and strategies to reduce water consumption in times of drought;
- innovative technologies and systems providing clean drinking water;
- creative partnerships between public and private water suppliers;
- integrated urban planning linking water with livability and
- innovative agricultural techniques and infrastructure requiring less water.

The Association actively facilitates the transfer of this Australian water expertise across Asia through its International Program that has been supported by the Department of Foreign Affairs, the Australian Water Partnership, state governments, and private sector participants.

The program has been built on reciprocal agreements with other peak national water organisations in the region.

The Association has taken more than 300 water professionals to Asia over the past three years and includes outbound and inbound trade delegations, water technology demonstrations in remote and rural areas, water utility twinning projects, and projects focused on empowering and training women through the transfer of Australian water expertise.

2012

SYRIA

During the Syrian civil war there was major damage to the key pipeline delivering water to Aleppo, causing the city of three million to suffer severe drinking water shortages.

2014

RUSSIA AND UKRAINE

During the Russia and Ukraine conflict, the water systems for the city of Donetsk was damaged and the Donbas Water company stopped three pumping stations from bringing water to the channel due to damages.

2016

THE US

Hundreds of people were arrested and injured at protests over the construction of an oil pipeline that threatened water quality on and near Native American land.

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