

## **World Overview**

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### *Water wars - the global viewpoint*

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**M**ost people still think of water as abundant and renewable. It isn't. Statistics show the opposite to be true. A growing number of reports from government agencies, universities and news organizations warn of current and future water shortages around the world.

#### *The facts*

A report drawn up by the World Commission for Water in the 21st Century, presented at the World Water Forum in The Hague talks of the "gloomy arithmetic of water". It estimates that in the next two decades human use of water will increase by around 40 percent, and that 17 percent more water than is available will be needed to grow the world's food.

In 1995, 29 countries with populations totalling 436 million experienced water stress or scarcity. The World Bank estimates that by 2025, about 48 countries will do so and the number of people adversely affected will exceed 1.4 billion, the majority in the least developed countries. An estimated 3 billion people will be living in water stressed countries in 2035.

The need to support increasing populations as well as industrial and agricultural development has put immense strain on the world's fresh water resources. According to the World Bank, 10% of food is now grown with water pumped from overused aquifers. And much aquatic biodiversity is being lost in over-stressed rivers. One striking example of this is China's Huang He (Yellow River) which ran dry in its lower reaches and failed to reach the sea for more than 220 days in 1997.

Water resources are over-exploited in many areas of the world, including the American Southwest, China, the Middle East and parts of the former Soviet Union. In addition, many countries with limited water availability also depend on shared water, which increases the risk of friction and political tension. This is already the case along the rivers Euphrates, Jordan and the Nile.

#### *The warnings*

Many experts speculate that the shortage of water could lead to major political conflicts around the world, or in the worst cases, war. Over 20 countries depend on the flow of water from other nations for much of their supply. And more than 300 of the world's river basins are shared by two or more countries.

Former Soviet leader Mikhail Gorbachev, now president of Green Cross International, says the Middle East could face another war in the next 10 to 15 years if countries fail to agree how to share scarce water resources. And the head of the UN Environment Programme (UNEP), Dr. Klaus Topfer, thinks a future war over water is a real possibility. In a recent American Chemical Society magazine article, Topfer wrote that he is "completely convinced" there will be a conflict over natural resources, with water the likeliest of the possible causes.

#### *The flashpoints*

US intelligence services have identified a number of potential areas where war could break out over water, including India, Pakistan and Bangladesh, and several locations in the Middle East and Africa.

A recent UN Development Programme (UNDP) report estimates that by 2025, 12 more African countries will have joined the 13 that already suffer from water stress. Water wars on the African continent are likely in areas where rivers and lakes are shared, the report adds. Possible flashpoints are the Nile, Niger, Volta and Zambezi basins.

The influential environmental research institute, Worldwatch says that if the combined population of the three countries the Nile runs through - Ethiopia, Sudan and Egypt - rises as predicted from 150 million today to 340 million in 2050 there could be intense competition for water resources. And the institute predicts that Egypt is unlikely to take kindly to losing out to Ethiopia on water issues. Egypt already eyes Addis Ababa's plans for the Blue Nile with deep suspicion.

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There is also another potential water war in southern Africa involving Botswana, Namibia and Angola. The three countries share the Okavango River, the largest river in the region which doesn't drain to the sea. Botswana has contested Namibia's plans to pump water from the Okavango Delta to help deal with drought and anticipated water shortages.

It is the Middle East, however that is particularly worrisome. Meir Ben Meir, Israel's Water Commissioner paints a gloomy picture of possible conflict over water between Israel, the Palestinians, Jordan and Syria. In a recent interview with the BBC, Ben Meir says that if there is not sufficient water in the Jordan Valley, "then we shall doubtless face war."

There is a real likelihood that the water issue could hold up the Middle East peace talks. Palestinian leaders believe that to ensure peace Israel must release land and water and change the way it uses supplies.

And the Jordan Valley is not unique. In other ancient water systems like the Tigris and Euphrates, there is also a danger of conflict over water. Turkey's Grand Anatolia Project, or GAP, is steadily reducing the flow of the Euphrates into Syria and Iraq, heightening political tensions.

### *The alternatives*

But this pessimistic account is only part of the story. There are alternatives. The World Commission for Water report concludes that "only rapid and imaginative institutional and technological innovation can avoid the crisis."

Desalination technology, once thought too costly to use in most parts of the world, has been dramatically improved in the last few years. And desalination costs have been lowered so much that the technology now provides competition with traditional water sources.

Recently Tampa Bay water officials conducted a two-year procurement process which included simultaneous negotiations with four developer teams and culminated in binding offers yielding a 30- year price of \$2.08 per thousand gallons of water — currently the lowest price in the world for desalinated seawater.

A delegation from Singapore, including Prime Minister Goh Chok Tong, visited Tampa last year to ask detailed technical and financial questions about the procurement process. Population growth and industrial development have led to increased demand for water in Singapore, which currently has to import the bulk of its supplies from Malaysia under two agreements which expire in 2011 and 2061. The island state now plans to build its first large scale desalination plant by 2005 and is currently evaluating bids to oversee its construction and operation.

Desalination developers believe the lower costs will lead to more widespread use of their technology. New plants will augment dwindling regional water supplies, reducing tension in areas of the world like the Jordan River Valley, they claim.

Some observers go a step further and suggest that instead of causing future wars, resource shortages will actually encourage a growing trade in water between states. They say that an economic interdependence based on water will help avoid conflict.

Turkey is one country which apparently supports this view, believing that it can supply fresh water from its southern coast to the Middle East and Mediterranean regions. The Manavgat River flows down towards the Mediterranean, providing billions of gallons of water every year which Turkey now wants to sell.

Treated water from the Manavgat would flow down a pipeline to the sea, where converted supertankers will carry it across the Mediterranean, say Turkish water experts. Middle Eastern leaders are reportedly interested in what Turkey has to offer and a pilot project will soon take water to northern Cyprus.

Some regional experts conclude that Turkey will be a water seller in the future, earning several hundred million dollars a year selling fresh water supplies. And they also predict the emergence of international water markets in as little as 10 years time.

Others take issue with this view, arguing that transporting water is too costly and simply not viable because

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of its low value compared with other products. Food security would be better guaranteed through trade in food not water, they say.

The Worldwatch institute has identified one way of easing demands for water — importing grain.

Agriculture is by far the biggest user of water in many parts of the world and in Africa it accounts for over 80 percent of water use. World watch says that already the water needed to produce the annual combined imports of grain by the Middle East and North Africa is equivalent to the annual flow of the Nile. Importing grain is much easier than importing water.

The World Commission for Water wants the private sector to be allowed to take over most financing and service provisions in the future.

Private companies can contribute to improving the quantity and quality of water available by bringing new sources of capital, assuring the independence of services provided, and providing the required competence and expertise.

New investments needed in the water sector in the Jordan River Valley are estimated at between \$7 and \$10 billion for the next 10 years. The public authorities are unable to provide these investments without the participation of the private sector.

An important step towards opening up the management of water to the private sector in Jordan is the agreement reached with Suez Lyonnaise des Eaux for the Amman municipal water supply. In Gaza, Suez is running a \$9 million project funded by the World Bank aimed at improving the quality and quantity of water distributed. Meanwhile a new national law is under discussion at the Knesset in order to allow the private sector to invest in water utilities in Israel. The World Commission for Water says global investment in water needs to go up from the current \$70-80 billion per year to \$180 billion, with almost all the increase coming from the private sector, not governments.

Groups like Green Cross International see a role for independent mediation in water disputes. Green Cross president Mikhail Gorbachev believes that if the nuclear arms race could be ended through political resolve, then the problems of water scarcity can also be dealt with.

The former Soviet leader says that transparency and openness are the surest means towards the build up of confidence and trust necessary for international agreements to share resources. Fragmented attempts at resolving water disputes in the past which excluded certain riparian states or water users seriously compromised chances of achieving long term solutions.

Gorbachev recently visited the Middle East for talks with King Abdullah of Jordan, Israeli Prime Minister Ehud Barak, and Yasser Arafat, President of the Palestinian Authority. Green Cross has proposed to set up a task force with the private sector, NGOs, academics and national representatives to examine how to ease water shortages in the region. Israel's Minister of Regional Co-operation, Shimon Peres, also present at the talks, says settling differences over water in the region might help to solve other conflicts.

Green Cross also notes the high level of cooperation which already exists in certain parts of the world where water resources are shared. The Indus Water Treaty signed by India and Pakistan in 1960 has been adhered to ever since and has facilitated food security, energy production and economic development for both countries.

Clearly then there are solutions to the world's water disputes but there is no quick fix. New supply systems and desalination plants will take many years to implement, outlasting the terms of governments and politicians. But failure to act will lead to conflicts in which the whole world will become involved. The next war could still be about water.