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water

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In this issue

Transboundary water conflicts in the Middle East and North Africa

Poor governance of international transboundary water resources often results in water conflicts of varying intensities. Can cooperation over water replace competition and conflict?

Transboundary water resources are those that cross one or more international borders. Research from Kings College London in the UK focuses on transboundary water conflicts in the Middle East and North Africa. The research examines how control is determined by the competing riparians (countries sharing the banks of a water resource) and attributes many outcomes to the 'power' of each country.

Predictions of 'water wars' have generally been incorrect, despite increasing water shortages. This is not due to cooperation among the countries involved, as many low-intensity conflicts demonstrate. Instead, the stronger countries in a region manage water for their own benefit, often at the expense of weaker countries. The authors use the concept of 'hydro-hegemony' to analyse how countries exploit power inequalities to stake their claims to water resources. This concept is best described as somewhere between positive regional leadership that emphasises cooperation, and regional dominance.

Predictions of 'water wars' have been incorrect; stronger countries manage water for their own benefit, often at the expense of weaker countries

In the cases studied, Israel, Egypt and Turkey have established situations of dominant hegemony over the Jordan, Nile, and Tigris and Euphrates river basins respectively. They have denied weaker countries their water rights, leading to low-intensity conflicts. These stronger countries control water resources through:

- Resource capture: countries acquire or annex land or construct large-scale hydraulic works on rivers (for example Turkey's GAP project and Egypt's High Aswan Dam).
- Containment: stronger countries dominate competitors, for example by threatening economic sanctions, political isolation, or unevenly balanced treaties. Examples include the 1994 Israel-Jordan and 1959 Egypt-Sudan treaties.
- Integration: some countries encourage more shared control of water resources, for example South Africa's approach to the Orange River.

The hydro-hegemony framework identifies the factors behind each country's ability to use these resource-control strategies:

- Countries exercise power through military or economic means, by providing incentives for weaker countries to comply, or using propaganda to justify control.
- Countries upstream of a water resource use the water available to them to wield more power. Countries downstream use other forms of power (such as military or political power) to get more water.
- Exploitation potential is the technical capacity and infrastructure a country has to exploit a water resource. This is greater in stronger countries.

In the Middle East and North Africa, Israel and Egypt possess more power and exploitation potential than their neighbours, allowing them to overcome the disadvantage of being downstream. Turkey has all three factors in its favour. The lack of internationally recognised water laws also plays a role in allowing some countries to dominate water resources.

To enable better sharing of water resources, the authors stress the need for more research. Priorities include:

- how the hydro-hegemony framework may support the formulation of an international water law
- how the apparently weaker countries can resist these hegemonies
- how a similar approach could examine transboundary water pollution issues, the behaviour of multinational corporations and water conflicts within one country.

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Playing with privatisation

Experiences in Kenya's water sector

As water resources become scarce in several developing countries, many are considering different ways to manage water supplies. Some experts argue that private sector participation will lead to a more efficient and sustainable market-based system of water supply. However, Kenya's attempts to privatise the water sector demonstrate some difficulties of giving control to private companies.

Supporters of water privatisation argue that it will reduce wastage, which is a common characteristic of public supply. It also helps companies recover costs, enabling them to maintain water infrastructure. Critics argue that there is no evidence that the private sector is better than the public sector at supplying water.

In Kenya, the government has started to privatise several public services, including water and electricity. Research from the University of Westminster in the UK assesses whether Kenya's efforts to privatise its water sector have been successful.

Kenya reformed its water sector through the Water Act in 2002 and the Privatisation Bill in 2004. Under the Water Act, the public Water Services Regulatory Board (WSRB) grants licenses to regional Water Services Boards (WSB) and public agencies, which then contract these licenses to Water Services Providers (WSP).

However, these changes to the water sector created many complications. The author notes that:

- Only WSBs can apply for a license from the WSRB, which means the process of application is unnecessary.
- The state has designated public WSPs, which are given contracts to provide water in preference to private companies. Therefore, bidding for contracts does not take place.
- The WSBs pay license fees to the WSRB, but this is just a transfer of funds from one public sector organisation to another, and does not enable private companies to get involved.

Privatisation in Kenya's water sector has been disorganised, creating a situation in which public institutions trade amongst themselves

This 'new' water sector is similar to the old system. The new structure is still dominated by unaccountable public organisations, which do not promote good governance or more efficient use of water. Privatisation in Kenya's water sector has been disorganised, creating a situation in which public institutions trade amongst themselves but describe this as a 'commercial' system. Far from allowing the private sector to create market competition for water provision, the Water Act does not allow private companies to participate.

The authors recommend that the government:

- shows it is serious about privatisation by enforcing the Privatisation Bill. This will require all public sector authorities to fulfil the objectives of the Bill, which aims at managing resources for national benefit
- take the opportunity to improve water supply by using the money, skills and knowledge available in the private sector
- consider potential public opposition to privatisation and use a combination of public and private authorities. This approach is best suited to developing African nations.

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The failure of the private sector

Donors, development banks and private companies have strongly promoted privatising water provision in developing countries over the last 15 years. Increased private sector involvement has not, however, led to more people being connected to clean water supplies.

The Public Services International Research Unit has researched levels of investment in water connections by the private sector. They found that the expectations that private companies invest in water and sanitation infrastructure in developing countries, and that competition brings improved service, have been proved wrong.

Private companies that have contracts to operate and manage water systems in developing countries often invest very little in the infrastructure required to increase access to clean water. This means that the Millennium Development Goal to halve the number of people without access to drinking water and basic sanitation by 2016 will not be met if the current reliance on private investment continues.

Three types of agreement exist with private companies: concessions, leases and management agreements. Of these, only concessions require the company to invest in water infrastructure expansion. There are very few concessions in the regions that most need new connections: sub-Saharan Africa, South Asia and East Asia. Even where concessions exist, many have failed and none have met the investment targets agreed.

PSIRU points out that, with the exception of shareholders' finance (equity capital), private companies use the same sources of finance for investment as the public sector: money made from selling water, donor and development bank funds and aid and commercial loans. Their analysis of private sector involvement in water provision shows that:

- Private companies select countries and cities where they see potential for commercial gain. They therefore tend to ignore the poorest people and regions where new water connections are most needed.
- Agreements with the private sector are usually guaranteed by governments, which can reduce public funds available for investment in infrastructure.
- Because they assumed the private sector would invest more than it has, donors and development banks have reduced their funding for water services, so that overall investment has gone down significantly.
- Even in a well-regulated system, the UK, privatisation of water has resulted in under-investment in the system. This suggests private companies will always under-invest.

Most private water service contracts include no responsibility to invest in new connections, and those that do have not kept promises

Most private water service contracts include no responsibility to invest in new connections, and those that do have not kept promises. Finance, loans and guarantees from governments, donors and development banks are still needed to increase the number of connections. Donors need to help the poorest countries get publicly run services back on track. They should:

- stop insisting on privatisation as a condition of aid, which is still the norm
- make up for under investment over the last 15 years by increasing funding for water and sanitation programmes
- encourage mechanisms for public financing like redistributive taxes and bonds for investment in water
- support countries to reform public utilities that are performing badly
- assist countries to share good practice and learn from each other's positive examples of municipal and community water schemes.

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Effective small-scale irrigation in Ethiopia

Small-scale irrigation can contribute to agricultural intensification in Ethiopia. However, policymakers should promote this with caution, because this approach does not work everywhere.

Many regions of Ethiopia are prone to low and erratic rainfall. Soil erosion is also a serious problem in some areas. Small-scale irrigation (SSI) can help to tackle these problems. SSI refers to a range of techniques for increasing the amount of soil and water in an area, and for managing these resources better. Examples include building structures to capture and store soil and water, and machines for channelling or lifting water.

Many Ethiopian government policies encourage greater use of SSI, and many non-governmental projects support SSI as well. This is generally positive, but there are many examples of poorly planned and poorly managed SSI projects in Ethiopia. These are often implemented as emergency measures during food crises. A study by Farm-Africa in Ethiopia looked at conditions for successful SSI. The researchers found that:

- SSI can bring severely degraded land back into production. It can contribute to better harvests, a more diverse mix of crops and improved incomes. This can make communities less dependent on food aid.
- SSI may be ineffective without soil and water conservation measures in the wider water catchment area.
- Landless people do not necessarily benefit from SSI. SSI may create work and lower the price of food, but it can increase inequality between them and people who own land.
- Greater areas of still surface water may increase the risk of malaria and schistosomiasis outbreaks.

Successful interventions are not only about water and soil. Farmers must also be interested in new techniques and markets for selling new products and buying inputs. Cash incomes may also be necessary to pay for maintaining some structures. Structures built from local materials are often easier for communities to repair and maintain.

While SSI can transform communities, it can also be costly and time consuming. Alternative uses of development funds, such as improving rain-fed farming, may sometimes make more sense. Policymakers and practitioners must plan carefully before starting SSI projects and consider several issues:

- Good site selection is critical if SSI interventions are to work. This means consulting farmers and encouraging their participation in designing and implementing projects.
- Gender issues, such as potential changes in the control of resources, can affect how SSI projects affect communities.
- A lack of legal status for Water User Associations can cause problems for farmers trying to access credit.
- It can take a long time for farmers to master SSI techniques. Projects must allow farmers to learn and experiment. Non-governmental organisations must commit to long-term support (maybe 10 years) when an innovation is particularly complex or new to a community.
- Organisations implementing SSI must consider competition between water users, both upstream and downstream. Regulations in Ethiopia provide little guidance for resolving these problems.
- SSI may conflict with other land uses, such as grazing. Land tenure is a critical issue in Ethiopia and the risk of land redistribution may always undermine an SSI initiative.

Labourers digging irrigation channels in Rwanda to irrigate rice fields, as part of a development project partly funded by the Dutch government.
Martin Roemers, Panos Pictures

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case study

Catching rain for agriculture in India

Water scarcity and droughts are common problems in the state of Gujarat, India. Farmers and community groups have responded by capturing rainwater for agricultural use. But does this undermine government water policies?

The state government constructed dams on the region's rivers to provide water for agriculture through irrigation canals. However, reservoir water was increasingly allocated to the growing urban population, leaving farmers with less water.

In response, farmers in Saurashtra (part of Gujarat) dug wells to supply water. When groundwater supplies dried up in 1987, people started capturing rainwater to refill wells. Soon afterwards nearly all farms had well-recharge systems in place. Other methods used to capture rainwater included farm-ponds, percolation tanks, new wells and check-dams, which slow down rivers so that more water flows into the ground. This was all done by local farmers and organisations, without any government or outside help.

Water experts, governments and international donors argue that rain harvesting, undermines official government programmes. However:

- **farmers have increased the water levels in their wells and increased agricultural production**
- **agricultural wages in the region have risen: the area is now a destination for immigrant agricultural workers**
- **the previous crisis over drinking and irrigation water, which peaked in the 1987 drought, has disappeared**
- **canals from government reservoirs have not made a significant contribution to irrigated agriculture**
- **most farmers are now happy to share water with neighbours, or have created local groups to share resources and costs.**

Although local rainwater harvesting would not work everywhere, government attempts to create a system of water use rights are wrong. Policies should focus on increasing the amount of available water, rather than on how to use current water supplies.

Policymakers should:

- **view surface water and groundwater in arid areas as a single resource, not separate resources**
- **explore long distance inter-basin water transfers between regions**
- **support a decentralised, local system of water management, rather than policies imposed by governments.**

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Floodplain management in Bangladesh

Several formal institutions play a role in managing the natural resources in Bangladesh's floodplains. These include governmental departments and non-governmental organisations. However, informal social institutions also have a strong influence over local uses of natural resources. Policymakers must consider the influence of these informal institutions.

'Institution' means 'a regular pattern of behaviour' or 'a way to get things done'. Formal institutions are structured organisations and committees, such as government departments and non-governmental organisations (NGOs). Informal institutions are more difficult to understand; these incorporate issues such as culture, power relations, religious customs and other social norms. For example, in Bangladesh the 'dowry' system (payments made to families during a marriage) is an informal institution.

Some institutions influence natural resource management. It is not always useful to identify clear distinctions between informal institutions, because the function of one often influences the other.

Research funded by the UK Department for International Development's Natural Resources Systems Programme analyses these different institutions, using integrated floodplain management in Bangladesh as a case study. Recently, government organisations and NGOs in Bangladesh have increased local involvement in floodplain management. This has led to formal 'resource management institutions' which involve communities in management decisions. In addition, some communities operate their own informal initiatives to improve water management for local farming and fishing needs.

Key findings include:

- Local elite individuals and groups sometimes have a negative effect on resource management, using programmes to meet their own interests.
- Religious and traditional institutions can have considerable power over whether local people accept management objectives: they can either support management objectives or challenge them.
- Management objectives specific to one sector (such as fishing) can potentially cause conflict, by undermining other people's livelihoods and existing practices.
- Systems to manage natural resources are more likely to succeed if there are clear opportunities and incentives for local people to participate.

Integrated floodplain management should strengthen links between formal and informal institutions. However, to be successful, management interventions must acknowledge the social and political differences between the many groups using natural resources.

Key policy lessons include:

- Policymakers should recognise that management programmes must reflect the role of informal institutions and local resource demands.
- Policymakers should acknowledge the existence and potential of local, informal institutions and include them in the participation process.
- All activities must be inclusive rather than exclusive: this may mean involving elites as well as vulnerable groups. Local elites can be powerful and encourage economic and political support for new initiatives.

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Water rights for indigenous people in Mexico

Many water resources in Mexico run through indigenous areas. Mexican governments have often made management decisions on the basis of perceived economic needs, rather than concern for the people and ecosystems involved. This trend continues today, despite recent agreements with indigenous groups over water use.

Indigenous people in Mexico rely on water resources running through their territories and face major challenges as a result of government management policies.

Mexican governments have traditionally sought to centralise control of water resources and implement projects they see as beneficial to national and corporate interests, such as irrigation and hydroelectricity projects. The recent dams on the Usumacinta River indicate that the situation has not improved since the election of President Vicente Fox in 2000, despite agreements against such developments (such as the San Andres agreement).

Successive governments have progressively taken control of water resources away from local authorities and given power to federal officials in the National Water Commission. These officials do not listen to the indigenous peoples and other communities who live in these territories. The watershed councils formed a decade ago are weak and implement management rules erratically. More importantly, they do not represent indigenous people either.

Indigenous peoples face several challenges:

- They often lack water supply and sanitation services. In 2000, 42 percent of indigenous homes had no piped water and 70 percent had no sanitation services.
- The water resources they use are contaminated, for example through the irrigation of the Mezquital valley with sewage from Mexico City.
- There is continuing forced relocation of indigenous and rural populations to make way for dams such as in the Miguel Alemán and Cerro de Oro dams. This threatens livelihoods, cultural bonds, archaeological sites and biodiversity.
- There is no forum for indigenous peoples to express their interests: watershed councils have proven inadequate.
- The legal mechanisms to claim rights over territory are weak and indirect, especially when opposed by powerful companies with ties to federal governments.

Depriving indigenous people access to water and involvement in water management violates their rights and also neglects a vital source of traditional knowledge. To guarantee respect for indigenous water rights, the author recommends:

- adopting a legal framework that fully recognises the rights of indigenous peoples
- including legitimate indigenous representatives on water management bodies in the territories in which they live
- forming social coalitions amongst indigenous peoples and other rural populations so they can better express their opposition to policies backed by powerful companies and officials.

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