



Briefing Paper

July 2002

THE 'WATER CRISIS': FAULTLINES IN GLOBAL DEBATES

Three quarters of the world's fresh water is frozen in glaciers and icebergs. Less than 1% flows in rivers and lakes. That which does, together with the 20% lying underground, faces increasing pressure as global population grows and demand for water rises. This global 'water crisis', as it is often labelled, is a major feature of the development landscape. International meetings regularly focus on images of empty reservoirs, overflowing sewers, the poor carrying water over long distances, and foaming, polluted rivers. These images help to raise concern over the lack of access to clean water and the future means to address availability, but also point to faultlines between different approaches to tackling the issues.

For the poor, the issue is as basic as sufficient water to ensure survival and the means to secure a livelihood. There is a faultline, however, between the idea of government as guarantor of basic service delivery – in so doing upholding the notion of social equity and basic rights to resources – and more market-based approaches that emphasise cost-recovery and the long-term financial sustainability of supplies. At a national level, the faultlines are about the priority uses for water and about how to manage water scarcity. For example, should water be reserved for food production, or can food security equally well be guaranteed through trade? And should countries seek to adjust their economies in response to water stress, or increase water resource capture and storage, perhaps through the construction of large dams? There is no agreement on these issues, nor are they questions confined to the national level: water is increasingly a potential source of dispute across international boundaries, which demands transboundary if not global solutions.

It is important to ask whether the faultlines can be bridged, and a new, common approach agreed. Global events including the World Summit on Sustainable Development in Johannesburg and the Third World Water Forum in Kyoto are critical to furthering debate and reaching common ground on water issues.

The crisis drivers: facts and figures

Scarcity

The notion of scarcity provides the thread that links issues including water availability, poverty, food security, conflict and climate change. Water stress is said to exist when annual per capita availability at national level is below 1,600m³ per year, for all uses, including the cultivation of food. A level below 1,000m³ is regarded as absolute scarcity. Currently about 30 countries, including Israel, Jordan and South Africa, are considered water-stressed and 20 face absolute water scarcity. Already some countries such as Israel and Jordan fall well below the absolute scarcity threshold but are able to adjust, for example by importing food rather than growing it: a strategy described as providing 'virtual water' (see Allan, 2001).

In 2000, the International Water Management Institute (IWMI) concluded that by 2025, 33% of the world population, or two billion people, will be living in countries or regions with absolute water scarcity, using UN medium population growth projections. Most countries in the Middle East and North Africa will have absolute scarcity and will be joined by Pakistan, South Africa

and large parts of India and China. The simple availability-population equation, given the constancy of the former and increase in the latter, lends itself to perceptions of a global crisis. However, whilst water availability might be a constraint, the inability to adapt socially and economically to shortage – the notion of social scarcity (see, for instance, Mehta, 2000) – may prove more serious in the long-term.

Demand for food

By far the largest consumer of water is the cultivation of food. IWMI predicts that the world will have to provide an additional 22% of primary water to meet future food needs by 2025, nearly three quarters of which will be for irrigation. Even given this increase, the International Food Policy Research Institute (IFPRI) predict a virtual doubling in food imports in the next 20 years in order to fill the local food production-demand gap. Trade in food staples has in the past kept countries with low per capita water availability out of severe food shortages, but the cost is dependent on world commodity markets and can vary substantially year by year. Not all countries have the economic robustness necessary to convert their economies to this option, nor wish to sacrifice what they perceive as an issue of national security. In some cases, such as Egypt, the perceived need for self-sufficiency is a powerful driver of government policy, in spite of the fact that Egypt and many other Middle Eastern countries have been net food importers since the mid-1970s.

Dam-building and development

Egypt is a good example of a country that sought to overcome supply problems (principally seasonality and inter-annual variability) through the development of the Aswan High Dam on the Nile, at a time when construction of large schemes was almost synonymous with modernisation and development. Dam-building has rather gone out of fashion, however. The paradigm has shifted from a supply-led, control-based approach – the 'hydraulic mission' (see Allan, 2001) – to increased concern for environmental and social impacts. Large dam schemes are now expected to fulfil a stringent set of criteria. As summarised by the World Commission on Dams, this new approach seeks to emphasise the sharing of benefits and the adoption of a 'rights and risks' balance to development (see Box 1 overleaf).

Climate change

Climate change adds to the uncertainty over water availability. Problems of seasonal and inter-annual surplus or deficit already affect many sub-Saharan African countries. The mechanism by which long-term change will shift future rainfall patterns and evaporation losses, and perhaps increase inter-annual extremes, has been the subject of major climate change modelling in recent years. So far, these models indicate a propensity towards more 'extreme' weather events accompanying changes to precipitation in important areas of global food insecurity, including southern Africa. Overall the scenario range is broad; for instance, the number of people living in water-stressed countries by 2025

Box 1 World Commission on Dams: A 'New Policy Framework'

1. Gaining public acceptance.
2. Comprehensive options assessment.
3. Addressing existing dams and optimising their current benefits
4. Sustaining rivers and livelihoods.
5. Recognizing entitlements and sharing benefits.
6. Ensuring compliance with existing regulations and other guidelines
7. Sharing rivers for peace, development and security.

Source: WCD, 2000

under a 'business as usual' scenario varies between 338m and 784m and, by 2050, from 662m to 3,195m according to which model is employed (Arnell, 2000).

Health and sanitation

International development targets include ambitious improvements to water and sanitation services. Currently some 1.2bn people lack access to water and 3.3bn have no effective sanitation, which causes or contributes to the deaths of more than 3m people each year from water-related diseases. Population growth ensures that the demand for water and sanitation continues to rise, to the extent that by 2025 an estimated additional 3.1bn people will need access to water (0.7bn rural and 2.4bn urban) and 4.9bn to sanitation (2bn rural and 2.9bn urban).

The pattern of demand, as well as rising, is also changing. Rapid urbanisation makes service delivery for the poor, particularly in peri-urban areas and informal settlements, an increasing social priority, not least because the problem is that much more visible and hence politically awkward for governments. However, the tendency to give higher priority to urban service delivery has already contributed to a disparity in service levels between rural and urban areas: in sub-Saharan Africa, 77% of the urban population is served against 39% rural; and the global averages are respectively, 90% urban and 62% rural.

Conflict prevention and water security

The perceptions of scarcity and rising demand for water have driven concerns over environmental security during the 1990s. This 'securitisation' process (Buzan et al., 1998) precipitated interest in the theme of conflict over water, as reflected in the policy output of national defence ministries and multilateral organisations such as the North Atlantic Treaty Organisation (NATO), the Western European Union (WEU) and the Organisation for Security and Cooperation in Europe (OSCE).

Studies of conflicts over water show, however, that they are the exception rather than the rule, and that a large number of treaties and agreements over shared waters exist. Shared river basin development is widely seen as a useful catalyst for regional integration and cooperation between formerly belligerent states (see Nile Basin Initiative, below). Capacity to manage more localized disputes remains problematic, however, not least because of the poor level of scrutiny and, often, the lower social and economic capacity at these levels to adapt to changes in water availability.

Financing

Whether the key direction is controlling demand for water or supply augmentation (or both), a significant gap exists between current spending levels and anticipated future funding requirements. The Global Water Partnership (GWP) have suggested that \$180bn for all water uses, including agriculture, is required annually to overcome the crisis of under-provision

and poor water management in developing countries, of which \$30bn is for water and sanitation alone. This is over and above the existing expenditure of some \$75bn, and the current estimate of \$14bn spent annually on water and sanitation. Vision 21, a document produced by the Water Supply and Sanitation Collaborative Council, suggests an additional \$9bn is required each year, on the basis of population projections and anticipated costs (additional to costs borne by households or communities).

The source of additional finance is part of the hotly contested policy ground in global debates and largely accounts for the faultline between approaches. The GWP has anticipated that 39% would come from 'in-country private sector (including small-scale)' (a shift from an existing 19%), and 27% from the international private sector. The domestic private sector has already provided some \$14bn of the existing total and is seen as a future financing growth area. The above figures are global estimates; however, region by region, the future possible role of the private sector varies significantly. The World Bank notes that private investment in water and sanitation in developing countries, although totalling some \$25bn annually, is almost non-existent in South Asia and amounts to only \$0.25bn in Africa, two of the most critically resource-poor areas. The capacity of the private sector to fill the funding gap simply does not exist in many regions.

The global 'crisis' architecture

An architecture of institutions and processes has shaped itself around these recurring crisis narratives in the last 30 years. This effective institutionalisation of the 'water crisis' encompasses most large UN bodies, major bilateral agencies and multilateral banks, and the many organisations of civil society engaged in water issues in both North and South.

The major initial impetus was the UN Water Conference held in Mar del Plata in March 1977, at which parties agreed to declare the 1980s an International Decade of Water Supply and Sanitation. The 'Water Decade', as it became known, set the ambitious target of 'water for all' by 1990, and aimed to achieve this through emphasizing government action and community initiative. By 1990, though progress had been made, billions of people remained without access. Criticisms of the approach taken during the decade included an overly supply-led agenda and the emphasis on government-led programmes. The subsequent response of the World Bank and other institutions was to emphasize the need for approaches that responded to demands for services (implying a willingness to pay for delivery on the part of the consumer) and a shift to greater private sector and civil society involvement.

The post-Decade meeting in New Delhi in 1990 emphasized the social imperative of 'some for all', but was rapidly eclipsed by the Dublin International Conference on Water and the Environment, leading to the 'Dublin Principles' of 1992 (see Box 2). These were elaborated on in Chapter 18 of Agenda 21 at the Rio Earth Summit of that year and emphasized the need to view water as an economic good and water supply development as an economic intervention. The emphasis since then has been largely on the financing issue and, specifically, efforts to achieve viable and sustainable financing mechanisms.

During the 1990s, further institutional arrangements began to emerge, clustered around the new policy agenda. By the mid-1990s, a particularly influential collaboration had developed out of water sector associations, including the International Water Resources Association (IWRA), with the support of individuals working in organisations including the World Bank.

These new arrangements culminated in the first World Water Forum held in Morocco in 1996, following which the World

Box 2 Dublin Principles

1. Freshwater is a finite and vulnerable resource, essential to life, development and the environment.
2. Water development and management should be based on a participatory approach, involving users, planners and policy makers at all levels.
3. Women play a central part in the provision, management and safeguarding of water.
4. Water has an economic value in all its competing uses and should be recognized as an economic good.

Source: World Bank, 1993

Water Council and the Global Water Partnership came into being. Subsequently, these meetings and institutions have provided a platform for the dominant policy narratives of the 1990s and early 2000s.

Key water narratives Integrated Water Resources Management

Central to policy thinking on water resources during the 1990s, and building strongly on the surrounding development environment, has been a focus on Integrated Water Resources Management (IWRM). This idea takes the hydrological basin as a starting point for water management, from which it constructs a version of 'good governance' of water based on notions of decentralisation, user participation and demand management. IWRM has begun to dominate national policy making in regions including southern Africa, where recent policies and management strategies of countries including Zimbabwe, Mozambique and South Africa make frequent reference to the idea. At the Bonn International Conference on Freshwater in 2001 the GWP launched an IWRM 'tool box' to assist in 'introducing' the approach globally.

One of the principles of IWRM is user participation in management at the basin or catchment level. The linking of management by users with systems of cost recovery for water delivery is reasoned to promote greater efficiency of use (more return per drop and greater conservation), whilst governance of the resource is improved by lowering the transaction costs between management processes and user decision-making. Serious challenges remain, including how the new institutional structures function as systems of inclusive decision-making, arbitrate in disputes, and help promote more equitable resource allocation in local environments subject to social, political and economic forces that go far beyond the 'hydrological unit'.

Cost recovery, community financing and demand

At a community and household level, the financing agenda of the 1990s has firmly instituted concepts of demand-based development and user-financing of services. These ideas are derived from policy responses to the perceived weakness and inefficiency of public sector approaches and represent an institutionalisation of the notion of water as an economic good.

In water resources management, and increasingly in the new catchment and basin-level institutions, this entails tariffs for bulk water supply and the management of demand through new pricing regimes, particularly in increasingly water-scarce countries. During the 1990s, this growing emphasis on cost recovery and user financing prompted concerns about equitable access to water, poverty reduction and the satisfaction of basic human rights. Whilst many donors and governments argue that only long-term cost recovery by end-users will ensure sustainable interventions (and guaranteed access by the poor), many civil society groups counter that the social good aspects of water – its role as an essential part of all human lives and livelihoods –

demand a political commitment to public financing of these services.

Based on notions of willingness to pay, Demand-Responsive Approaches (DRA) provide options for supply improvements to communities, which then undertake to finance and operate the systems. This effective institutionalisation of the 'economic good' approach both requires complex community systems of tariff collection as well as the capacity to enforce payment compliance. Reflecting the complexity of changing resources from social to economic goods, such approaches require social recognition of ownership over the resource (either within or between communities) when moving from a nominally 'free' resource to one that is paid for by particular households or sets of households. There are significant and costly demands placed on available social and human capital in so doing that are rarely factored into community financing approaches.

Benefit sharing rather than water sharing

At the level of international water management, legal regimes for water sharing are increasingly challenged by concepts of benefit sharing between riparians. Shared visions of cooperation between riparians provide a starting point for addressing issues of equity and resource management; in the Nile basin (see Box 3) this has successfully led to coordination and agreement on benefit-sharing and the development of action plans. At a broader political level, cooperation over water resources has helped to facilitate transboundary relations between key riparian countries including Egypt, Ethiopia and Sudan.

Privatisation, partnerships and financing

'Bringing in' the private sector to water supply and water resource development, from the global to local level is a major current narrative. Six major transnational companies presently dominate the water utility market and by 2010 are poised to increase their overall share in markets worth some \$20bn in Africa, Asia and Latin America, by which time the private sector will account for between 20% and 60% of all water and sanitation services supplied in these continents. The partnering of the private sector, government and civil society has been one recent innovation, in an attempt to capture the relative strengths of each institutional form, and assign roles based on these strengths. Finding role complementarity has proved elusive, however, not least because of the different institutional time-horizons and motivations for participation involved in partnership processes (see Caplan et al., 2001). The balance between public and private is perhaps the dominant faultline in contemporary debates, the

Box 3 The Nile Basin Initiative

Following its establishment in 1998, the NBI has now reached the stage of programme implementation. This represents a major success for such a 'process approach', included within which was the operationalising of 'subsidiarity' as a principle for international river basin development. In the Nile's case this split the basin into two programmes: the Eastern Nile countries (Egypt, Ethiopia, Sudan and Eritrea-as an observer) and the Nile Equatorial Lakes countries (Kenya, Rwanda, Uganda, Burundi, Tanzania and the Democratic Republic of Congo). Two key challenges remain: to build in the involvement of non-governmental actors at all levels, and to bring national-level Nile development projects under the NBI umbrella. So far, donor pledges of some \$170m demonstrate strong international commitment to the project. However, its long-term success will be measured by its capacity to achieve basin-wide socio-economic development, which addresses poverty reduction down to the local level within all riparian countries. (For more information, see www.nilebasin.org)

key issue being the balance between private sector efficiency and public sector enforcement and regulation.

Where to next?

Despite consensus on some issues, critical faultlines continue to exist over financing arrangements and the institutional structures necessary to deliver better water supplies and resource management. This perception of creeping 'privatisation' and 'commodification' of the resource, critics argue, negates important basic human rights and undermines government responsibility (and capacity) to uphold provision of these rights.

Bridges and faultlines

One of the core issues to emerge both sides of the faultline over the last decade is the significance of politics at all levels. The 'global architecture' frequently calls for greater international and national 'political will' to generate more financing, yet rarely seeks to engage those political actors at a local level whose role is critical to ensuring the practical success of policy processes.

Whilst IWRM, for instance, envisages equitable management and participatory processes, the reality is that achieving these aims within complex political environments at district level or below is highly problematic. Wider political and administrative decentralisation not only further blurs the boundaries between administrative, political and 'hydrological' areas, but also continues to alter the relationships between local political actors, resources managers and end-users.

Support should begin with awareness-raising amongst local political actors geared towards producing more informed facilitation of poorer user participation on new decision-making 'councils' and 'committees'. This should be related to higher-level processes, and specifically seeking linkage between benefit sharing between states (where this is being established) and national programmes of decentralised water management and poverty reduction. This requires politically-feasible environments for effective processes of management and linkage to wider poverty reduction. The concept of an international public good is useful in this respect, helping to operationalise a process-oriented view, particularly with respect to the establishment of sound management institutions and pro-poor approaches at a basin level. As advocated elsewhere (see *Water Policy Brief No. 2*) an International Shared Waters Facility that both consolidates and networks the many disparate international institutions and initiatives working on transboundary resources could provide important support to improving water management processes.

A second key lesson is that an explicit pro-poor agenda, which seeks to support the livelihoods strategies of the poor, has to become embedded in all management processes. An emphasis on livelihoods reinforces the importance of understanding water 'productivity' for the poor. This also serves to ground water and sanitation interventions in wider resource management, and addresses directly the increasing convergence taking place under processes of IWRM.

Combining concerns for a 'global livelihoods' view of resource development with the need to achieve financially sustainable approaches emphasises the importance of three key points:

1. **Processes:** Concentrating on the processes (including partnerships, social inclusion, integrating initiatives across borders, and building networks) helps to create the right environments in which new institutions can work at all levels. A process view explicitly addresses the aspects of water supply, sanitation and resources management that are so frequently overlooked by target-driven approaches.

2. **Politics:** All processes of management are invariably political, involving power resources and relations central to which are political actors. Local politics is increasingly significant in this regard as broader decentralised development processes and water management and financing take root. Facilitating both formal and informal political processes and their attention to water supply and sanitation and wider resource management issues can provide vital support to the processes described above.
3. **Livelihoods:** Understanding water-livelihoods linkages (including important links to environmental sanitation) should form a core part of this training and awareness raising. This will help to establish the linkages between socio-economic benefit sharing and poverty reduction, and to understand the forms institutions and processes should take in order to achieve sustainable water supplies and resource management.

Conclusion

Overall, the global 'water crisis' narratives provide powerful advocacy tools for institutions and networks involved in the sector, both those dominating the policy discourse and those challenging current directions. The three core factors described above, if centralised within water development processes, may not bridge the global ideological faultlines in current debates, but they can help to find the 'lowest appropriate level' for addressing these faultlines, central to which is the need to distinguish rhetoric from reality at a local level.

Key references

- Arnell, N. (2000) 'Climate change and global water resources'. *Global Environmental Change* 9, 531-549
- Caplan, K. et al. (2001) *Flexibility by Design: Lessons from Multi-sector Partnerships in Water and Sanitation Projects*. Business Partners for Development Water and Sanitation Cluster: London
- ODI/Euroconsult (2001) *Transboundary Water management as an International Public Good*. Report prepared for the Swedish Ministry of Foreign Affairs: Stockholm
- Mehta, L. (2000) 'Water for the 21st Century – Challenges and Misconceptions'. *IDS Working Paper 111*. Institute of Development Studies: Brighton
- Allan, J. A. (2001) *The Middle East Water Question – Hydropolitics and the Global Economy*. I.B. Tauris: London
- Turton, A. and Ohlsson, L. (1999) 'Water scarcity and social stability: towards a deeper understanding of key concepts needed to manage water scarcity in developing countries'. *Occasional Paper 17*, SOAS Water Issues Group: London
- Vision 21 (2000) *Water for People: A Shared Vision for Hygiene, Sanitation and Water Supply*. Water Supply and Sanitation Collaborative Council (WSSCC): Geneva
- World Commission on Dams (WCD) (2001) *Dams and Development – A New Framework for Decision Making*. WCD: Cape Town
- © Overseas Development Institute 2002 ISSN 0140-8682

For further information contact Alan Nicol (a.nicol@odi.org.uk)

This and other ODI Briefing Papers are on ODI's Website at: www.odi.org.uk

Briefing Papers present objective information on important development issues. Readers are encouraged to quote or reproduce material from them for their own publications, but as copyright holder, ODI requests due acknowledgement and a copy of the publication.