DIIS Brief

Water and Conflict
– lessons learned and options available on conflict prevention and resolution in water governance

Helle Munk Ravnborg

August 2004

Abstract
Over the last decade, water scarcity has increasingly been coupled with international security. Hitherto, the focus of concern has been transboundary water resources and international efforts have been devoted towards establishing institutions for cooperation on the management of such transboundary water resources. Such efforts appear to be successful in mitigating potential conflicts and therefore need to be sustained. At the same time, however, several observers point to the risk that local water conflicts will increase in numbers and intensity. This calls for improved understanding of the nature, extent and social, economic and political implications of such local water conflicts as well as better understanding of how to achieve effective water governance, i.e. a legislative, institutional and regulatory framework which promotes equitable access to and environmentally and economically sound management of water. These are some of the conclusions emerging from a Danida-funded study carried out by DIIS on Conflict Prevention and Mitigation in Water Resources Management, which are further expanded in this DIIS brief.

Helle Munk Ravnborg is Senior Researcher at DIIS, Department of Development Research

In May 2003, Danida asked Department of Development Research, Danish Institute for International Studies (DIIS) to undertake a study on *Conflict Prevention and Mitigation in Water Resources Management*. The objectives of the study were to take stock of the current understanding of water-related conflicts and lessons learned with respect to governance, conflict prevention and resolution in integrated water resources management. This DIIS brief summarizes the key lessons learned from this study.[1]

The nature of water-related conflicts

Over the past decade, policy debates have increasingly associated water scarcity with conflict – both at the international level as conflict or even war among nations sharing water resources, and at the national or local level as conflict over access to and use of water between different users and sectors.

In 1995, the World Bank vice-president Ismail Serageldin said that '…many of the wars of this century were about oil, but wars of the next century will be about water' (New York Times, August 10, 1995). In a similar vein, in 2000, UN secretary general Kofi Annan suggested that '… fierce competition for freshwater may well become a source of conflict and war in the future'.

These 'warnings' are based on the assumption that because water is such a vital and yet finite resource, scarcity of water leads to intense political pressures. Because water ignores political boundaries, such political pressures might spill over and lead to international conflicts.

However, according to Wolf, such claims of a direct causal relationship between water scarcity and international insecurity or war are based on rather selective evidence and, in some cases, speculation rather than in-depth analysis. In the literature, there has been a tendency merely to select case studies from the 'hottest' basins, such as the Jordan, Tigris, Euphrates, Indus and Nile, thus making attempts to draw general conclusions from these case studies to international basins *as a whole* questionable. Moreover, there has been a tendency to exclude cooperation from studies on the relationship between water scarcity and international relations, which makes tests of causality

---

[1] This brief is based on: Boesen, Jannik, and Helle Munk Ravnborg, eds., "From water 'wars' to water 'riots'? Lessons from transboundary water management". Proceedings of the International Conference, December 2003. *DIIS Working Paper* 2004/6. Danish Institute for International Studies, Copenhagen and Ravnborg, Helle Munk, ed. 2004. "Water and Conflict. Conflict prevention and mitigation in water resources management". *DIIS report* 2004/2. Danish Institute for International Studies, Copenhagen.

incomplete in that the counter-hypothesis – that water scarcity leads nations as well as people to cooperate – is totally ignored (Wolf 1998).

Lessons about transboundary water-related conflicts

In 1994, researchers at Oregon State University, in collaboration with the Northwest Alliance for Computational Science and Engineering, initiated the Transboundary Freshwater Dispute Database (TFDD) project. Besides several publications, this project has produced the International Water Event Database, which contains an inventory of all reported cases of international water-related events (a total of 1,831 events), both conflictive and cooperative, between 1948 and 2000.

As a result of this database project, our knowledge of the nature and characteristics of transboundary water-related conflicts has substantially increased during the past few years. Among the interesting insights provided by this database into the nature of water-related transboundary conflict are:

- cooperative international water events outnumber conflictive water events
- cooperative international water events tend to take place with respect to a wide range of issues, while two issues have dominated conflictive international water events, namely water quantity and infrastructure (e.g. the construction of dams and diversions)
- there is no evidence that water-related conflicts are more likely to occur in situations of water scarcity than in situations of water abundance
- the presence of treaties between two or more nations and the associated institutional capacity to deal with instances of potentially conflicting interests between nations significantly reduces the risk of conflict, for example, in the case of large-scale dam or diversion projects.

This latter point obviously underscores the importance of continued international support to encourage transboundary water-related cooperation, framed by transboundary water treaties.

Local water-related conflicts might be growing in number and intensity, but we lack
a systematic overview

As was the case before the development of the TFDD, our current knowledge of local water-related conflicts is sporadic, making it difficult to assess their character, number and intensity. However, it is becoming increasingly clear that many water-related conflicts taking place in transboundary river

basins are in fact *local* conflicts which just happen to take place in a transboundary setting. At the same time, there is a widespread sense that the number and intensity of local water-related conflicts is increasing, both within and outside transboundary basins. In this situation, it is particularly problematic that only sporadic information exists with respect to the nature, extent and social, political and economic implications of local water conflicts, as well as instances of cooperation. An option for contributing to the creation of more systematic knowledge would be to undertake an inventory in a limited number of countries drawing on the methodology developed for the TFDD, of reported collaborative as well as conflictive water events, within a specified time period. Such knowledge would contribute to provide a basis for adjusting and developing targeted interventions and policies.

Generally marginalized groups also tend to be marginalized in relation to water

A review of the limited, case-based knowledge that we do have on local water-related conflicts indicates that they tend to reflect conflicts in general in society, in the sense that those stakeholders and concerns who tend to become marginalized in society at large are also those who become marginalized in the context of water management. These include:

- the rural poor, who
    - lack sufficient economic resources to develop the water resources available to them for purposes of either consumption or production
    - lack information about and access to legal institutions and thus risk losing their access to water to which they hitherto have enjoyed customary rights, particularly in situations of legal reforms (cf. the case of Chile (Bauer 1997))
    - lack sufficient political power, institutional knowledge and organizational capacity to negotiate payments for conserving water for downstream users
    - are rarely consulted in cases of infrastructure investments, for example, construction of dams or diversions, whose livelihoods are rarely adequately valued in either social, cultural or economic terms (e.g. the case of the fishery sector in general in the Mekong and the Pak Mool Dam in particular), and who also often bear the costs of hydropower generation in terms of lost livelihoods while rarely receiving a fair share of the benefits, for example, in the form of rural electrification.
- the urban poor, who often are not served by existing piped water supply schemes, either public or private, and whose concerns in receiving safe and affordable water tend to be given

only lip service and be overshadowed by the concerns of the urban middle class who have already been supplied in cases of public protests over public or private water provision (e.g. as appears to have been the case in the Cochabamba 'riots' in Bolivia; and finally

- groups representing environmental concerns in terms of ecosystem conservation and water-resource conservation, for example, ensuring the replenishment of aquifers and other water bodies with clean water.

Thus, it is recommended that specific attention is given to including such stakeholders and associated concerns in efforts to promote stakeholder participation in water governance, whether through public institutions, civil-society groups or community-based organizations.

Water-related conflicts can only be dealt with through effective water governance
Rather than water scarcity in itself, water-related conflicts are caused by the way in which water and its use are governed. Governing water inevitably involves governing conflicting interests. As Postel describes it, 'water, unlike other scarce, consumable resources, is used to fuel *all* facets of society from biologies to economies to aesthetics and religious practice. As such, there is no such thing as managing water for a single purpose – *all* water management is multi-objective and is therefore, by definition, based on conflicting interests' (quoted from Wolf 2002: xvii-xviii). Fundamentally, therefore, conflict prevention and mitigation in water-resource management is a matter of recognizing and understanding conflicting interests relating to water governance at different levels, from the local to the international level, and of mediating and arbitrating in negotiations between these conflicting interests. This focus on the recognition and negotiation of conflicting interests relating to water is not only important in situations of actual conflicts or disputes, but also as an aspect of the formulation of policy, legislative and regulatory frameworks which form a core part of water governance.

Water governance adds a political dimension to Integrated Water Resources Management
Since the International Conference on Water and the Environment (ICWE) held in Dublin in 1992, there has been broad international consensus on the need for integrated water resources management (IWRM). IWRM aims to 'ensure the coordinated development and management of water, land, and related resources by maximising economic and social welfare without compromising the sustainability of vital environmental systems' (Solanes and Gonzalez-Villareal

1999). In 1996, the Global Water Partnership was created to promote IWRM, while the World Summit on Sustainable Development (WSSD) in Johannesburg 2002 called for countries to develop Integrated Water Resources Management and Water Efficiency Plans by 2005.

While in no way contradicting the so-called Dublin principles on water and sustainable development of 1992, the recent focus on water governance and on conflicting interests adds a political dimension to the ecological/hydrological, institutional, social and economic dimensions that are the main focus of the Dublin principles and most IWRM efforts. Thus, donor organizations who wish to support conflict prevention and mitigation in relation to water governance at the local, national and international levels are recommended to encourage the political aspects of water governance being explicitly addressed.

Clear water rights can contribute to reduce water-related conflicts, but they are difficult to clarify

In the context of increased competition between users and uses over water, clear water rights can contribute to reduce conflicts. In part, this explains the increasing pressure to formalize water rights (Rogers and Hall 2003). However, security of tenure – in this case to water – does not necessarily come from state-granted 'ownership' of the resource, no matter whether ownership is issued to the state itself, to private companies or individuals or to communities or groups. The state is not the only source of water rights in a given setting. Other sources include customary law, religious law, international law, project regulations and local norms within a territory, community or group. In an effort to promote clarification of water rights, Meinzen-Dick therefore recommends that, rather than 'taking a top-down view of water right that begins with state law, it is more useful to begin with people's own experiences with access to and control over water, in which individuals [and groups] draw upon a range of strategies for claiming and obtaining resources' (Meinzen-Dick 2003: 64). If marginalized groups are not to be further marginalized as an outcome of such efforts, it is essential to pay specific attention to the sources through which marginalized groups obtain their water rights and how they do so.

Privatization of water resources and of water supply are two distinct issues

Currently, two issues related to water governance are causing widespread public concern and – as illustrated in the case of Cochabamba, Bolivia – conflict, namely issues of the privatization of water

6

as a resource and the privatization of water supply. While both issues relate to privatization and are often approached simultaneously in policy reforms, as was the case in Cochabamba, it is important to recognize that these are two very distinct issues, which raise separate concerns, involve distinct stakeholders and interests, and entail different potential conflicts. Thus, it is recommended that efforts are made by, for example, donor organizations wishing to support effective water governance to ensure that these two issues are analyzed and discussed separately rather than confused, as is currently happening both within governments and among civil-society organizations and stakeholders.

Alternative dispute resolution

While a clearly formulated, widely consulted and thus known and to a large extent shared legal framework with respect to water rights – that is, rights to use, control and transfer water – is certainly desirable and a useful element in conflict resolution, it cannot prevent or resolve water-related conflicts in itself. Water uses and users change over time, as do political priorities, and this requires the legal framework to be constantly interpreted and re-negotiated. But even then conflicts will occur, challenging the legal framework. To deal effectively with such conflicts, alternative or environmental dispute resolution (ADR or EDR) is increasingly being resorted to. The key to ADR is the negotiation of conflicting interests. ADR refers to a wide variety of consensual approaches within which parties in conflict voluntarily seek to reach a mutually acceptable settlement. In addition to possible mediation, ADR frequently requires resources to be available for data-collection, modelling or gaming upon request from the negotiating parties during the negotiating process. The way in which the Moon River communities have used funds allocated by the Thai government to contract a research team from Ubol Ratchathani University in order to help them provide research-based data in support of their cause (Lang 2004) illustrates the role of data-collection as part of the negotiation process. Promising experiences are being acquired with respect to applying ADR principles. Obviously, however, there is a need to draw special attention to ensuring that marginalized groups have access to ADR.

Hydrologically based governance

A recurrent discussion in Integrated Water Resources Management (IWRM) is whether water should be managed within a hydrological unit (e.g. a basin, watershed or aquifer) or within existing institutional structures, following political or administrative units. Apart from the well-known

problems of often incoherent boundaries existing between hydrological and political/administrative units, and the competing claims for authority being made by the associated institutions, there is another and, from a conflict perspective, much more profound issue at stake, namely the issue of democratic control over and accountability of hydrologically based institutions. Barham (2001) has introduced the term 'watershed rule' to reflect situations in which hydrologically based water management has resulted in 'nondemocratic, authoritarian, and exclusionary processes of social control, exercised to meet a perceived need to address environmental sustainability. While the choice of the watershed or another hydrological unit as the organizing principle for water management seems to be a matter of simple practicality, Barham reminds us that 'gains in human freedom and democratic self-rule have never been given but have always been won, sometimes only after long and bitter struggle'. By transferring authority from conventional political and administrative institutions like district and national governments and ministries to hydrologically based institutions, there is a risk of losing the institutions and mechanisms for democratic control and accountability which have gradually been gained. The concerns raised in the dialogues on effective water governance conducted through the Global Water Partnership as well as research conducted on stakeholder participation in river-basin management in South Africa indicate strongly that this risk is real (GWP 2003, Wester *et al.* 2003).

In each case, it is therefore important to balance the risk of losing painfully won spaces and mechanisms of democratic control and accountability with the potential gains – hydrological or otherwise – of introducing new hydrologically based water-governance institutions.

Institutionalizing conflict resolution as part of water governance

In many places, the response to concerns over ensuring stakeholder participation and negotiation has been the creation of water-user boards whose aim is to include representatives of all the relevant stakeholders. However, experience to date has been disappointing in at least two ways. First, comprehensive stakeholder participation in water governance as a whole – that is, including the formulation and renegotiation of the policy, legal and regulatory frameworks as essential elements in water governance – has been limited. Secondly, within their limited and often unclear mandates, water-user boards have had a tendency to reproduce existing power balances among stakeholders and thus have come to legitimize rather than challenge these relations (Wester *et al.* 2003).

Despite the lack of a comprehensive understanding of local and national water-related conflicts, it seems safe to say that water-related conflicts are issue-based and diverse and that they change over time as a function of changing demands and options for water use. Thus, rather than assuming that a single organizational structure like a water-user board would be capable of identifying, representing and negotiating the interests involved in this multitude of water-related conflicts, the institutional arrangement for effective water governance, including conflict resolution, should aim to create opportunities – an enabling environment – for the articulation of water-related conflicts and the negotiation of the associated conflicting interests. To conclude, therefore, four elements seem essential in an enabling environment of this sort:

- A water *ombudsman*-like institution, with the triple function of receiving and registering cases of water-related conflicts; providing third-party mediation in situations of water-related conflicts; and providing third-party arbitration in cases where conflicts cannot be solved through mediation.
- Improved options and increased space for the involvement of water-users in discussions of and decision-making regarding water-policy principles and priorities locally and nationally. The need for such efforts will differ from setting to setting, but a general thrust towards more inclusive and transparent processes of governance is necessary.
- Capacity enhancement among water-users within legal aspects of water management. This may include legal literacy campaigns, the dissemination of information and two-way communication regarding the establishment of local and (where relevant) national regulatory frameworks, by-laws etc.
- Access to water-related knowledge and information, that is, to general hydrological assessments of the quality and quantity of water available within specific geographical areas, as well as to a fund to which different stakeholders could apply to have assessments made of the potential or actual impacts of projected or actual water uses.

Sources

Barham, Elizabeth 2001. 'Ecological Boundaries as Community Boundaries: The Politics of Watersheds', *Society and Natural Resources,* Vol. 14, pp. 181–91.

Bauer, Carl J. 1997. 'Bringing Water Markets Down to Earth: The Political Economy of Water Rights in Chile, 1976-95', *World Development*, Vol. 25, No. 5, pp. 639–56.

Boesen, Jannik, and Helle Munk Ravnborg, eds., 'From water 'wars' to water 'riots'? Lessons from transboundary water management'. Proceedings of the International Conference, December 2003. *DIIS Working Paper* 2004/6. Danish Institute for International Studies, Copenhagen.

GWP 2003. *Effective Water Governance: Learning from the Dialogues.* Report presented to the 3rd World Water Forum in Japan, Global Water Partnership, March 2003.

Lang, Malee Traisawasdichai. 2004. 'Negotiating for decision-making space in the Mekong Basin: towards rights-based international river basin planning'. In Boesen, Jannik, and Helle Munk Ravnborg 2004.

Meinzen-Dick, Ruth. 2003. 'Water Rights Issues in Agriculture'. In: Jinendradasa, Sithara.S. (ed.). 2003. *Issues of Water Management in Agriculture: Compilation of Essays.* Comprehensive Assessment, Colombo. Pp. 63-67.

Ravnborg, Helle Munk, ed. 2004. "Water and Conflict. Conflict prevention and mitigation in water resources management". *DIIS report* 2004/2. Danish Institute for International Studies, Copenhagen.

Rogers, Peter, and Alan W. Hall 2003. *Effective Water Governance*. TEC Background Papers No. 7. Global Water Partnership/SIDA. Stockholm.

Solanes, Miguel and Fernando Gonzalez-Villareal 1999. 'The Dublin Principles for Water as Reflected in a Comparative Assessment Institutional and Legal Arrangements for Integrated Water Resources Management'. Technical Paper, Global Water Partnership / SIDA, Stockholm.

TFDD – www.transboundarywaters.orst.edu

Wester, Philippus, Douglas J. Merrey and Marna de Lange 2003. 'Boundaries of Consent: Stakeholder Representation in River Basin Management in Mexico and South Africa', *World Development*, Vol. 31, No. 5, pp. 797–812.

Wolf, Aaron. 1998. 'Conflict and Cooperation Along International Waterways', *Water Policy*, Vol. 1, No. 2, pp. 251–65.

Wolf, Aaron T., ed. 2002. 'Conflict Prevention and Resolution in Water Systems'. *The Management of Water Resources* 5. Cheltenham, UK: Elgar Publishing Inc.