This report has been prepared as input to the 2009 World Water Week and its Special Focus on Transboundary Waters.

Getting Transboundary Water Right: Theory and Practice for Effective Cooperation

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Getting Transboundary Water Right: Theory and Practice for Effective Cooperation

Note to the Reader

Water energises all sectors of society. Nearly half of the global available surface water is found in 263 international river basins, and groundwater resources, which account for more than one hundred times the amount of surface water, cross under at least 273 international borders. National boundaries make water issues political and so much more complex. This report challenges those in the international water community to grapple with some of the latest conceptual thinking and most recent lessons learned from around the world. The four chapters in the volume present real-world experience of cooperation at the international and community levels and innovative approaches to overcome political obstacles to cooperation.

This report serves as input to the 2009 World Water Week and its Special Focus on Transboundary Waters and was edited and prepared by Dr. Anders Jägerskog, Programme Director, Stockholm International Water Institute (SIWI) and Dr. Mark Zeitoun, Senior Lecturer, University of East Anglia and was published by SIWI. Contributing authors of the report chapters are Mr. David Grey, Senior Water Advisor (Africa and South Asia), The World Bank, New Delhi; Dr. Claudia Sadoff, Lead Economist (South Asia), The World Bank, Kathmandu; Dr. Genevieve Connors, Water Specialist (South Asia), The World Bank, New Delhi; Mr. Jakob Granit, Programme Director, SIWI; Dr. Marius Claassen, Manager, Water Resources, The Council for Scientific and Industrial Research in South Africa; Mr. Munqeth Mehyar, Chair Person and Jordanian Director, Ecopeace/Friends of the Earth Middle East (FoEME); Mr. Nader Khateeb, Palestinian Director, FoEME and Mr. Gidon Bromberg, Israeli Director, FoEME. The authors are pleased to acknowledge and grateful for the support of the Swedish International Development Cooperation Agency.

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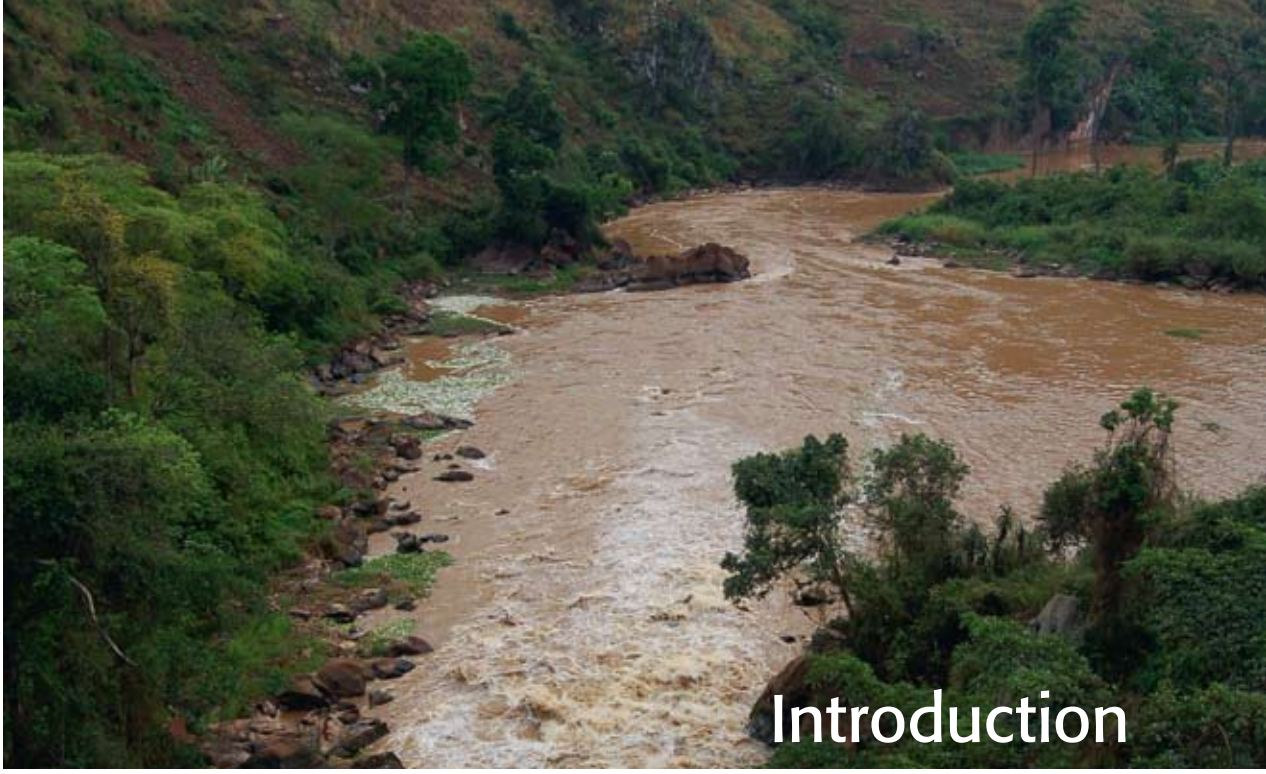


Photo: Jakob Granit, SIWI

Addressing Transboundary Water Management Challenges: Getting it Right

By Anders Jägerskog, Mark Zeitoun, and Anders Berntell

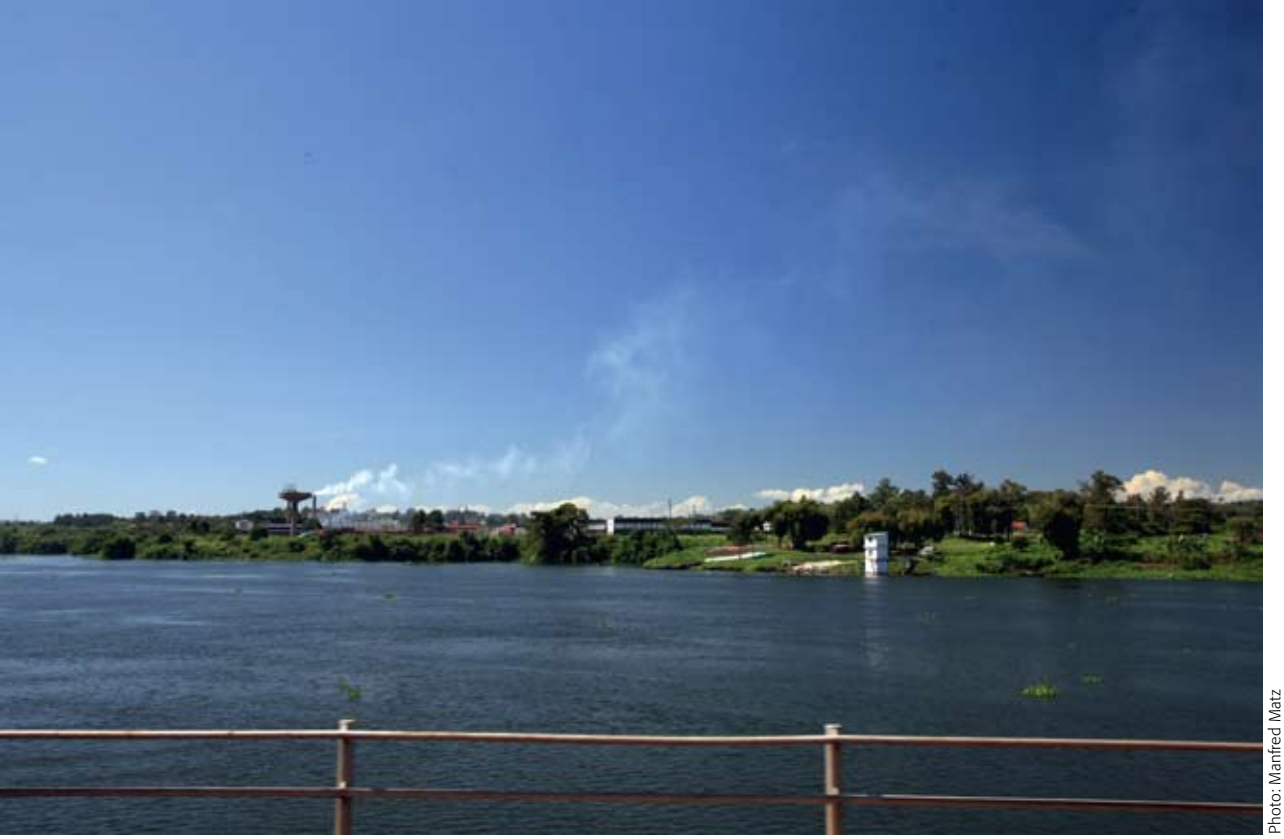
Getting transboundary water resources management "right" is not simply important. It is urgent to secure the livelihoods of billions of people and sustain the resource across the globe. The response of the international water community to the mounting challenges and pressure placed on shared waters has thus far been inconsistent and inadequate. The special focus of the 2009 World Water Week in Stockholm on transboundary waters is an attempt to deal directly with the pressing developmental and security issues these flows bring about.

This volume supplements the week by challenging the international water community to grapple with some of the latest conceptual thinking and most recent lessons learned from around the world. The articles in this report intend to provoke appropriate concern and inspire action where needed.

Water energises *all* sectors of society. Everything from basic food production to advanced industrial technologies depend on it. Growing demands from many fronts place the earth's water sources under increased strain (WWAP 2009). Managing these demands is not straight-forward either. The availability water resources vary in volume over both time and space, and climate change makes these shifts even less predictable (Jägerskog and Phillips 2008).

National boundaries make these water issues political. Politics always add complexity. Nearly half of the global available surface water is found in 263 international river basins. In Africa (TFDD 2008), where 90 percent of surface water is shared, the inefficient governance of transboundary water management holds the continent's development efforts hostage and must be improved to stimulate growth. Groundwater resources are even more challenging and critical to co-manage sustainably. They account for more than one hundred times the amount of surface water, and cross under at least 273 international borders (UNESCO 2008).

The healthy debates about how to manage transboundary waters witnessed at most international meetings reflect the tense reality seen in the basins themselves. Appeals for collective action and water rights face the promoters of unilateral action and increased privatisation. On international rivers, the



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economic benefits of large dams must be weighed not only against their potentially devastating environmental and social effects, but against their political and security implications as well. We are all obliged to reconcile competing pressures to balance the conservation and sustainable development of rivers and aquifers. In many regions, this will require that historic inequities, mismanagement and deeply-entrenched interests be overcome.

Generally, the international water community is split into three camps over how transboundary flows relate to livelihoods, development, and human, state and regional security. Some emphasise the causal relationships between water scarcity (or floods) and violent conflict or poverty. Others contend that the evidence of cooperation that exists globally suggest a comforting trend towards stability and wealth. The third camp sits between the two. Not indecisive fence-sitters, this latter group stresses the existence of numerous water conflicts that fall short of violence. They focus on the need to resolve conflicts equitably and balance concerns for livelihoods and the environment. While the authors of this volume belong to the latter group, they are writing here for all across the spectrum.

Righting wrongs

It is time to address the limitations that the inconsistent behaviour of the international water community has led to. This means addressing fundamental questions that are often unexamined. What is the *quality* of cooperation (Jägerskog 2008)? What does "cooperation" mean in the first place? *Why* and under *what conditions* do states cooperate? The four contributions in this volume span from real-world experience of different forms of cooperation at the international and community levels to innovative conceptual approaches to overcome political obstacles to cooperation. The essays construct a path towards more effective transboundary water management through focus on the opportunities provided by cooperation, methods to deal with power asymmetries and lessons that can be learned through partial successes.

Zeitoun and Jägerskog suggest an analytical method to help transboundary water initiatives respond to power asymmetry. They note that the most powerful riparian is often able to determine the outcome of the transboundary water interaction, either for unilateral gain or the collective good. There are two options: either find ways to strengthen the weaker players, or level the playing field. Presenting cases from the

Jordan, Ganges, Nile and Mekong rivers, the authors insist that not all forms of cooperation are as benign as they may first appear. They propose strategies designed to enable effective cooperation by working to *influence* and *challenge* power asymmetry.

Grey, Sadoff and Connors also recognise the merits of effective cooperation and a level playing field in their exploration of why countries cooperate, and how this may be facilitated. Their contribution deepens the concept of "benefit sharing" (Sadoff and Grey 2002) to recognise that collective action may be driven as much by common goals to reduce risk as it is to share benefits. Perspectives from their experiences in the Senegal, Columbia, Nile and Ganges rivers lead to several key recommendations, and an appeal for long-term donor commitment to transboundary water processes.

Granit and Claassen present conceptual models that can assist transboundary water management and stimulate national economic development. Building upon the benefit sharing concept, they present the Transboundary Water Opportunity (TWO) Analysis, which provides stakeholders with a framework to identify a variety of opportunities for a basin. Strategic Environmental Assessments and barrier analysis are proposed as complements to the TWO that can be used to bring potential cumulative economic, environmental and social impacts to the forefront of planning transboundary initiatives.

Mehyar, Khateeb and Bromberg conclude the report with a concrete example of how power asymmetry, benefit sharing and development opportunities impact the Jordan River riparians. Their review of the cooperation between Jordanian, Israeli and Palestinian communities to improve the dire quality and distribution of the Jordan shows that collective action is possible in regions where politics are tense. This approach to "environmental peacemaking" is centred on the hope that the cooperation at the community level can be emulated at the national level. The authors highlight the opportunities that are usually ignored in favour of large infrastructure – such as water demand management – where they have brokered promises from each government to take action.

Lessons learned

Effective cooperation in transboundary basins is built through strong and equitable structures and institu-

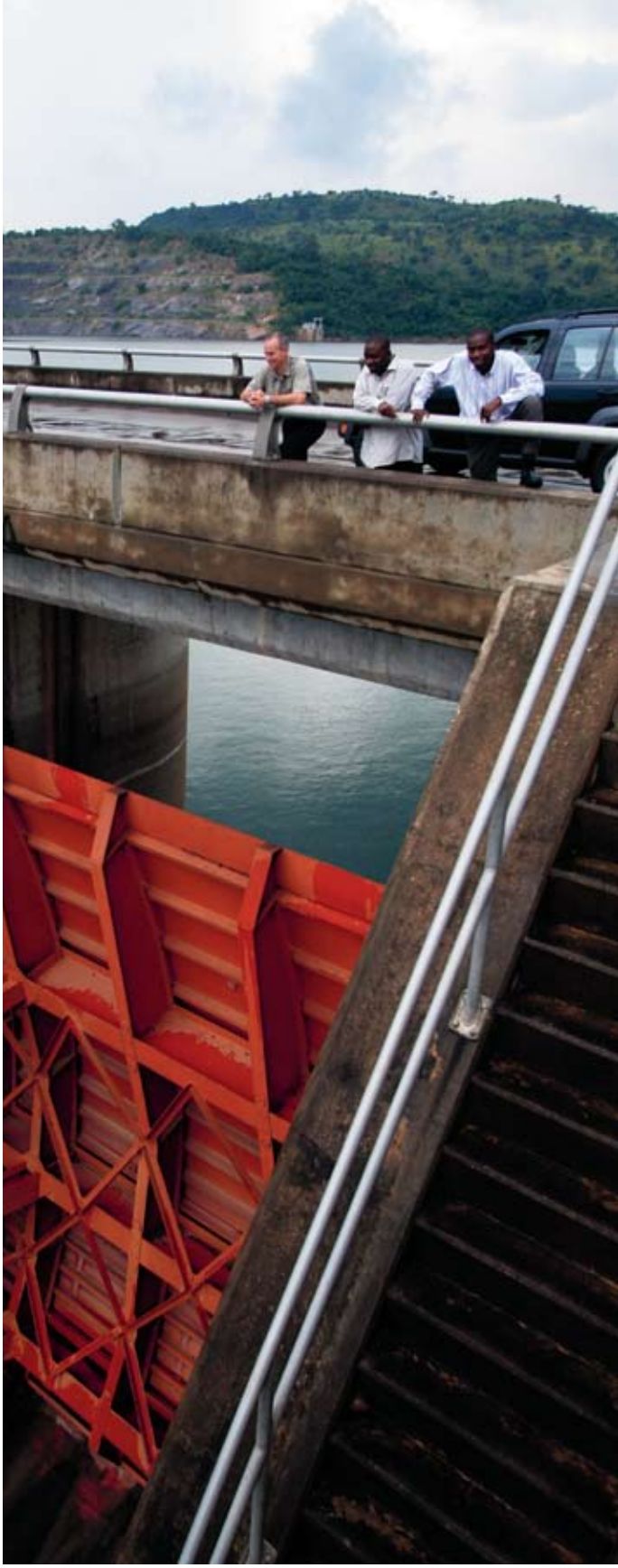

Photo: Manfred Matz

tions for collaboration at community, national and regional levels. Most bilateral donors, UN agencies and development banks are inappropriately programmed to finance processes without a clear outcome and timeline (SMFA 2001). A summary of the other lessons learned from the volume follows.

Lessons learned about transboundary water cooperation

- There is benefit in establishing an accepted definition of "cooperation". Some cooperation can be coercive. Cooperation should not be seen as a goal in and of itself, and effective cooperation is required to meet the goals of the co-riparians.
- Cooperation at the community level can lead to cooperation at the municipal level. It may lead to cooperation at the international level.
- Cooperation is most effective when there is equal participation and decision-making power between all parties.

Lessons learned that are relevant to transboundary water analysis and programme design

- The potential for cooperation and for opportunities is unique to each basin.
- A range of development opportunities exist in all basins. A key is to identify these benefits as well as the potential barriers that may hinder realising these benefits.
- States may cooperate when the net economic and political benefits outweigh the benefits of unilateral action. Actions taken to broaden the basket of benefits have potential to drive effective cooperation.
- States may be even more likely to cooperate to reduce common water-related risks.
- Economic inequity and power asymmetry are among the most important barriers to cooperation. The asymmetry may be confronted through strategies to influence a powerful state with "win-win" solutions, or by transforming the "basin bully" into a basin leader.
- Capacity-building of weaker states and the creation of objective and fair water-sharing standards can be effective ways to challenge power asymmetry and increase equity in transboundary water management.
- Long-term and flexible support from third parties encourages effective cooperation. This is particularly important to support dialogue and institutional arrangements.

The political economy of transboundary waters will be addressed in-depth at the 2009 World Water Week in Stockholm and in the upcoming publication, Transboundary Water Management: From Principle to Practice (Earthscan). The international water community must begin addressing the use of transboundary waters in a coherent and responsible manner. If we do not, then progress towards sustainable development and security will stall and may falter. Perhaps most of all, those of us willing to engage in building cooperative arrangements in shared river basins require clear sight, steady vision and tenacity to overcome the obstacles.

References

Jägerskog, Anders (2008) Prologue – Special Issue on Hydro-Hegemony. *Water Policy* 10 (S2): 1-2.

Jägerskog, Anders and David Phillips (2008) *Managing Transboundary Waters*. Arab Journal of Water 1 (2).

Sadoff, Claudia W. and David Grey (2002) Beyond the River: The Benefits of Cooperation on International Rivers. *Water Policy* (4): 389-403.

SMFA (2001) *Transboundary Water Management as an International Public Good*. Development Financing 2000. Stockholm, Sweden, Swedish Ministry for Foreign Affairs, May 2001.

TFDD (2008) *Transboundary Freshwater Dispute Database*. Corvallis, Oregon State University – Institute for Water and Watersheds. www.transboundarywaters.orst.edu/database/.

UNESCO (2008). Groundwater Resources of the World: Transboundary Aquifer Systems (Map). Worldwide Hydrogeological Mapping and Assessment Programme. Hannover, Paris: UNESCO/IHP.

WWAP (2009) *The United Nations World Water Development Report 3: Water in a Changing World*. World Water Assessment Programme. Paris, London: UNESCO/Earthscan.

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Confronting Power: Strategies to Support Less Powerful States

By Mark Zeitoun and Anders Jägerskog

It seems obvious. Transboundary waters are highly political. And politics are ruled by power. Yet, traditional and emerging forms of interaction in the Mekong, Jordan, Ganges, Nile and so many other transboundary waterways reveal that the international community turns a blind eye to the power plays over water. Too many have silently submitted to the notion that more equitable, sustainable and efficient transboundary water cooperation is not possible. As the methods by which the "hydro-hegemon" dictates the rules of engagement in the basin continue to go overlooked, this prophecy may become self-fulfilled. Unchallenged, the hydro-hygemon can act as a basin leader, or as a bully and pursue its interests unilaterally by strong arming less powerful states. Some of the resultant forms of "cooperation" are actually quite unfair and ultimately perpetuate, not resolve, conflict (Zeitoun and Mirumachi 2008). Less powerful states face two routes: they can thrive under the direction of a basin leader or they are forced to adapt to the unsustainable arrangements.

Power asymmetry may be unavoidable but its more destructive manifestations need not be. This essay suggests two broad strategies to assist with the challenge of confronting power asymmetry in transboundary water interaction: it can be *influenced* or can be *challenged*. The aim is to inform policy leading to the establishment of effective transboundary cooperation.

Soft sticks, big impacts

"Power" means so many things to so many people that its very essence is contested (Evans and Newnham 1998). Transboundary water policy-makers and analysts should therefore be ready to question their own

Photo: Manfred Matz

conceptions of power, especially in terms of riparian position. Ongoing Turkish or Chinese dam building projects on the Tigris and Mekong rivers demonstrate the advantage an upstream state has over its downstream neighbours, particularly when they are able to self-finance large storage infrastructure. But this is not always the case. The same highland position enjoyed by Ethiopia on the Eastern Nile or by Nepal on the Ganges has not translated into the same mega-projects. The great bulk of these river flows are controlled by the much more powerful downstream neighbours, Egypt and India. Power trumps topography.

Power in water conflict is not commonly exercised through the use of military force. Various combinations of "soft" power are more often the preferred tool to assure compliance of co-riparian states. China's financial assistance to Cambodia in sectors unrelated to the Mekong has been credited for ensuring official Cambodian acquiescence to the building of potentially devastating upstream dams (Menniken 2007, see also Molle, et al. 2009). Such use of "carrots" to induce cooperation is more welcome than the use of the "stick", of course. Under this unilateral paradigm, however, states can resort to threats and coerce their neighbours to submit to an agreement whose terms may return to haunt them. By limiting the exploration of options, the strong arming can also prevent the creation of a more sustainable agreement based on meeting common interests.

Bargaining power is the perhaps the most common form of "soft power" used in transboundary basins. All legitimate actors in a relationship have bargaining power, if in unequal measure. A recent World Bank report on the development of the Palestinian water sector development details how such power is used at the Israeli-Palestinian Joint Water Committee (JWC) (World Bank 2009). Unlike the equitable transboundary efforts occurring at the community and municipal levels (Mehyar et. al., this volume), the structure of the JWC allows the Israeli side to effectively veto even the most basic drinking water projects inside the West Bank (Selby 2003). Inextricably bound to the broader Palestinian-Israeli conflict, Palestinian bargaining power proved insufficient to bring about any improvement of the highly asymmetric status quo during the five water meetings of the 2008 "Annapolis" round of negotiations. So few concessions were made, in fact, that the Palestinian side was unable to table a "positive-sum outcome" solution it had developed, even though this was designed to meet the interests of both sides (Kawash 2008). No carrot was needed or on offer from the Israeli side to get what it wanted. Its bargaining power proved sufficient to deflect even initial attempts to reach a common negotiation agenda.

Engaging with new ideas

Much like the American "à la carte" approach in choosing which international environmental policies to endorse (Falkner 2005: 586), it is the basin hegemon's choice to engage in multilateral or unilateral transboundary water interaction. Turkey's Southeastern Anatolia (GAP) project, Egypt's Toskha irrigation scheme, Israel's National Water Carrier and India's National River-Linking Project, for example, have all been undertaken with little concern for their impact on riparian neighbours. In this sense, the 2005 and 2009 releases of Tigris and Euphrates flows by Turkey (Rashid 2005, Terra Daily 2009), and basin-wide discussions supported by Egypt (the negotiations for a Cooperative Framework Agreement through the Nile Basin Initiative) may be viewed as a step toward engagement and collective action. Some argue that the multilateral collective approach only materialised because they are in the hegemon's interest. This may be true but it is beside the more relevant point: The collective approach is on offer only after the resource has been captured. Working with this insight is key to the establishment of effective cooperation.

The luxury of cherry-picking when and with whom to engage over transboundary waters issues does not necessarily extend to the weaker side. A non-hegemon (Syria and Iraq, or Ethiopia, in the above cases) can only create wriggle-room through attempts to shape the arrangements offered by the hegemon to be mutually beneficial. Bangladeshi efforts to improve data-sharing or to reach an equitable arrangement with India are a case in point (see Grey, Sadoff and Connors, this volume page 15-20). But examples like the Palestinian positive-sum solution show that such pro-active efforts are scarcely acknowledged by the international water community, much less acted upon. Such proposals are more likely to be written-off by independent mediators as unworkable and "unpragmatic". Short-term perspectives and exclusive consideration of arrangements that will benefit or be accepted by the basin hegemon (leader or bully) can compromise their sustainability.

Quality: The forgotten face of cooperation

Transboundary water policy-makers must prioritise the *quality* of cooperation in their thinking. The existence of a water treaty, data-sharing or other minor forms of intervention do not necessarily reflect effective cooperation (Daoudy and Kistin, 2008). Consider the acclaim given to the conclusion and resilience of the water clauses of the 1994 Israel–Jordan Peace Treaty (e.g. Shuval 2006, Sosland 2007). The skewed terms of the arrangement in the hegemon's favour is acknowledged as an acceptable trade-off as part of a broader goal of peace between former enemies (Haddadin 2001). In the language of negotiations theory, this is a great case of "issue-linkage".

The treaty's longevity, however, is less important than its failure to confront the real conflict between the parties over the distribution of the shared water and the benefits it generates. The ambiguity in the treaty that hinders its impact was deliberately built into it to benefit the more powerful side (Fischhendler 2008). The asymmetric outcome endures alongside growing physical water scarcity as Jordan reaches for increasingly distant sources to satisfy its water demand (the Red Sea, or the fossil water of the Disi aquifer).

The question for policy-makers is: Why is more equitable sharing not possible as part of the peace agreement? More fundamentally, does the existence of a treaty mean that parties are really "cooperating" in a way the most of us would understand it or wish it to be?

Some treaties stand for so long that their words and the evolving (or devolving) reality on the waterfront are hopelessly distant. The existence of the Mahakali Treaty between India and Nepal (Gyawali 2001), for example, cannot hide the lack of coordination between the two states. Its presence was nowhere felt when the 2008 Kosi flood caused widespread destruction on both sides of the border (D'Souza 2009). In this sense, a bad treaty may even be part of the problem. Though a treaty may temporarily reduce the intensity of a conflict, the existence of an unfair and ineffective treaty can prevent a more equitable arrangement from being established.

Other forms of "soft" power help to explain these unseen faces of "cooperation". These include the ability to frame issues by limiting discussion about them (Zeitoun, et al. forthcoming 2009). Unquestioned and loosely-defined understandings of "cooperation" become the norm. In the Nile, for example, substantial amounts of water are used in the West Nile Delta or Toshka projects in Egypt. Since the abstractions fall outside of the mandate of the Nile Basin Initiative,

however, they remain largely unmentioned and institutionally invisible. Unquestioned and loosely-defined understandings of "cooperation" become the norm.[1]

The 2006 Human Development Report asserts that "given the different strategic, political and economic contexts in international basins, it makes sense to promote and support cooperation of any sort, no matter how slight" (UNDP 2006: 228). This perspective is not thought-through. It does not make sense to support cooperative efforts that perpetuate inequitable and unsustainable arrangements – and risk further reducing the chance for dialogue through abandoned or "paper tiger" (Bernauer 2002) treaties. Alternative strategies that recognise power asymmetry are required, and are being developed.

Dealing with power asymmetry

Power asymmetry in transboundary water settings can be confronted in two ways: it can be strategically *influenced* or it can be *challenged*. While neither strategy yields completely new ideas, mainstreaming them explicitly into policy and programme design may offer a clearer path towards more effective cooperation.

There are two general ways to *influence* power. The first is to derive positive-sum outcomes. The identification or encouragement of "win-win" or "positive-sum" outcomes can satisfy all parties and in essence render power asymmetry irrelevant. The concept of benefit-sharing (Sadoff and Grey 2002) is one such potential method. The idea is entirely rational from a perspective seeking "optimal" use of a river. Place infrastructure in the preferred hydrological location to produce benefits like hydro-electricity or food which can be shared with riparian neighbours. The rationale is compelling, but remains untested.[2] Governments run complex states that do not or cannot generally act "rationally" at all times, so the jury is still out on whether water-derived benefits will be shared equitably when the water itself cannot be. In any case, the distribution of benefits are also likely to fall prey to power plays.

The second theoretical way to influence power asymmetry is to create conditions to encourage basin bullies to transform into basin leaders. Hydropolitics are always subordinate to the broader political context (Allan 2001), suggesting that efforts at effective water cooperation require international diplomacy (e.g. Kjellen 2007). Experience suggests that basin bullies can be susceptible to the powers of persuasion, and may be less likely to force an arrangement if they are held accountable to an objective standard, or risk being "named and shamed". The partial success of the "contraction and convergence" model to induce influential climate-change policy-setters to reduce national carbon emissions (GCI 2000) shows that inviting powerful states to being part of the solution rather than part of the problem should be pursued.[3] State-level "environmental peacemaking" efforts, such as those led by the Woodrow Wilson Center's Environmental Change and Security Program (e.g. Kameri-Mbote 2006), indicate that independent mediators are key to this approach.

Power asymmetry can also be *challenged* in two ways: one can either level the "players", or level the "playing field". To help level the players, capacity-building programmes can improve the technical, administrative or negotiation abilities and empower non-hegemons. This can increase their bargaining power and enable them to play a more effective role in transboundary water interactions. It also helps them generate their own solutions to collective challenges. As the formerly weaker actors take on more responsibility, they gain respect and power. Activities of the EMPOWERs project in Egypt, Jordan and Palestine may serve as examples of increasing the weaker side's bargaining power, at least at the national level.

Transboundary water arrangements set out according to coercive terms determined by a hegemon cannot endure in the long term. Yet transboundary water settings are generally not level, and the only rule of the game in many basins is the "law of the jungle". The only option then is to work to level the playing field. The international water community may want to steal another page from the ongoing climate change negotiations, which explicitly favour (at least on paper) the so-called "non-Annex I" developing states. It does so by placing a greater burden on the

[1] Similar to what Molle (2008) refers to as a "nirvana concept".
[2] Benefit-sharing has being explored in theoretical terms from the Kagera to the Mekong (Jägerskog and Lundqvist 2006, Phillips, et al. 2006), and it is being applied to the Nile conflict (Phillips and Woodhouse 2009).
[3] Application of the "contraction and convergence" concept to transboundary waters is attributed to Dr Richard Taylor, of University College London.

Photo: Mattias Granberg

stronger (and more carbon producing) Annex I states (see e.g. Bates, et al. 2008). Effective legislative and the regulatory context already level the playing field at the sub-national level in many countries. At the international level, the 1997 UN Convention serves as a useful guide to fair water-sharing even if only half the 35 states required to make it binding have acceded to it. Support for the Convention's call for more "equitable and reasonable" water use is growing, and is supported by the International Law Commission's 2008 Draft Articles on groundwater. The agreement by the governments of France, Spain and a dozen others at the 2009 Istanbul 5th World Water Forum to promote such standards is a further positive development.

But not all steps currently being taken are moving us forward. The push for "hydro sovereignty" at the same World Water Forum appears to be a reversion to the discredited Harmon Doctrine that had been abandoned over a century ago. Resistance by the powerful riparian states to the WWF-World Wide Fund for Nature campaign to establish a legal and fair water sharing principles reminds us that not all hegemons are leaders. This makes the role of third-parties all the more crucial. We are confident that the international water community can take on this responsibility. We must keep our eyes open to recognise and confront the reality of power asymmetry, basin bullies and coercion in order to achieve effective cooperation.

References

Allan, J.A. (2001) *The Middle East Water Question: Hydropolitics and the Global Economy*. London, UK: I.B. Tauris.

Bates, B.C., Z.W. Kundzewicz, S. Wu and J.P. Palutikof, Ed. (2008) *Climate Change and Water. Technical Paper of the Intergovernmental Panel on Climate Change*. Geneva, IPCC Secretariat.

Bernauer, Thomas (2002) Explaining success and failure in international river management. *Aquatic Science* 64: 1-19.

D'Souza, Rohan (2009) From Damming Rivers to Linking Waters: Is this the beginning of the end of Supply-Side Hydrology in India? *The Currents of Power: Water and the New World Order, hosted by the Centre for Advanced Studies (Oslo) and the University of Bergen*, Bergen, 20-21 April 2009.

Daoudy, Marwa (forthcoming 2009) Asymmetric Power: Negotiating Water in the Euphrates and Tigris. *International Negotiations* 14: 359-389.

Daoudy, Marwa and Elizabeth Kistin (2008) *Beyond Water Conflict: Evaluating the Effects of International Water Cooperation.* Paper prepared for the 49th annual Conference of the International Studies Association, San Francisco, 26-29 March 2008.

Evans, Graham and Jeffrey Newnham (1998) *Dictionary of International Relations*. London, UK: Penguin Books.

Falkner, Robert (2005) American Hegemony and the Global Environment. *International Studies Review* 7: 585-599.

Fischhendler, Itay (2008) Ambiguity in Transboundary Environmental Dispute Resolution: The Israel-Jordanian Water Agreement. *Journal of Peace Research* 45(1): 91-110.

GCI (2000) *Contraction and Convergence: A Global Solution ot a Global Problem*, Global Commons Institute: Website publication www.gci.org.uk/contconv/cc.html.

Haddadin, Munther (2001) *Diplomacy on the Jordan: International Conflict and Negotiated Resolution*. International Development Research Centre and Kluwer Academic Publishers.

Jägerskog, Anders and Lundqvist, Jan (2006) Benefit Sharing in International River Basins. *WaterFront*, No. 1, May 2006,

Kameri-Mbote, Patricia (2006) *Water, Conflict, and Cooperation: Lessons from the Nile River Basin*. No. 4 in the Navigating Peace series, Woodrow Wilson International Center for Scholars, Environmental Change and Security Programme, January 2007.

Kawash, Fadel (pers. comm) (2008) *Personal communication with head of Palestinian water negotiations team*. Personal communication with author, Ramallah.

Kjellen, Bo (2007) *A New Diplomacy for Sustainable Development*. London: Taylor & Francis.

Menniken, Timo (2007) China's performance in International Resource Politics: Lessons from the Mekong. *Contemporary Southeast Asia* 29(1): 97-120.

Molle, Francois (2008) Nirvana Concepts, Narratives and Policy Models: Insights from the Water Sector. *Water Alternatives* 1(1): 131-156.

Molle, Francois, Tira Foran and Phillipe Floch (2009) Introduction: Changing Waterscapes in the Mekong Region – Historical Background and Context. In: Molle, F., T. Foran and M. Käkönen, *Contested Waterscapes in the Mekong Region: Hydropower, Livelihoods and Governance*. London: Earthscan.

Phillips, David, Marwa Daoudy, Joakim Öjendal, Anthony Turton and Stephen McCaffrey (2006) *Trans-boundary Water Cooperation as a Tool for Conflict Prevention and Broader Benefit-sharing*. Global Development Studies No. 4. Stockholm, Sweden: Ministry of Foreign Affairs.

Phillips, David and Melvin Woodhouse (2009) *Benefit Sharing in the Nile River Basin: Strategies for Fresh Water Use at the Country and Sub-basin Levels*. Entebbe, Report prepared for the Socio-economic Development and Benefit Sharing Unit of the Nile Basin Initiative.

Rashid, Abdul Latif (2005) Address to the Conference from the Minister of Water Resources of Iraq. *Seminar on Agricultural Water in the Middle East, SIWI World Water Week*, Stockholm, Sweden, Stockholm International Water Institute and the Israel Palestine Centre for Research and Information, 24 August 2005.

Sadoff, Claudia W. and David Grey (2002) Beyond the river: the benefits of cooperation on international rivers. *Water Policy* (4): 389-403.

Selby, Jan (2003) Dressing up Domination as 'Co-operation': The Case of Israeli-Palestinian Water Relations. *Review of International Studies* 29(1): 121-138.

Shuval, Hillel (2006) Water in the Middle East: Conflicting Interests and Cooperative Approaces – An Israeli Approach to Resolving the Israeli-Palestinian Water Issues. *Water and Environment Workshop*, Prague, 12-14 June 2006.

Sosland, Jeffrey K. (2007) *Cooperating Rivals: The Riparian Politics of the Jordan River Basin*. New York, USA: State University of New York Press.

Terra Daily (2009) Iraq says Turkey to double water supply. *Terra Daily*, 25 March 2009,

UNDP (2006) *Beyond Scarcity: Power, Poverty and the Global Water Crisis*. Human Development Report 2006. New York, USA, United Nations Development Programme.

World Bank (2009) *West Bank and Gaza: Assessment of Restrictions on Palestinian Water Sector Development Sector Note April 2009*. Middle East and North Africa Region – Sustainable Development. Report No. 47657-GZ Washington, The International Bank for Reconstruction and Development.

WWF (2009) *Interest growns in neglected water treaty*. Worldwide Fund for Nature website, 21 March 2009. Geneva.

Zeitoun, Mark and Naho Mirumachi (2008) Transboundary water interaction I: Reconsidering conflict and cooperation. *International Environmental Agreements* 8: 297-316.

Zeitoun, Mark, Naho Mirumachi and Jeroen Warner (forthcoming 2009) Transboundary water interaction II: Soft power underlying conflict and cooperation. *International Environmental Agreements*.

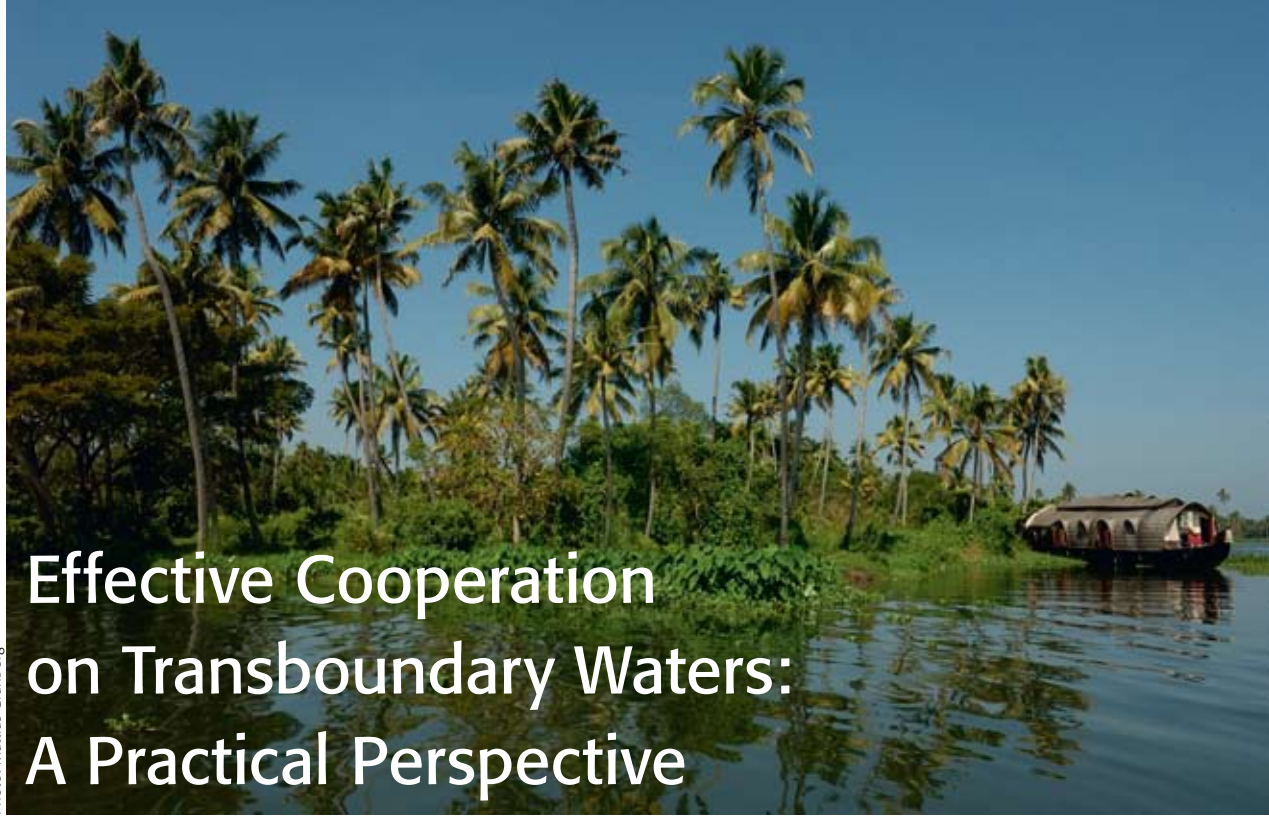


Photo: Mattias Granberg

Effective Cooperation on Transboundary Waters: A Practical Perspective

By David Grey, Claudia Sadoff and Genevieve Connors[1]

Building effective cooperation on transboundary waters is always a lengthy and complex journey. Embracing cooperation is no simple task for a nation state, not least because of the perceived costs of the erosion of sovereignty, however small that erosion might be. While there are many examples of where cooperation is non-existent or weak, there are also examples – across countries and across time – of effective cooperation. This essay examines these issues through a practitioner's lens to draw a few lessons from experience on why countries cooperate and how cooperation can be achieved.

Why do countries cooperate?

Why do countries cooperate on transboundary waters? At first glance, the obvious answer is that cooperation is by definition good and is, therefore, the right course of action. This is asserted time and again as a first principle in countless international meetings and proclamations. Yet the reality is more nuanced. The UN Convention on the Law of the Non-navigational Uses of International Watercourses was 27 years in preparation prior to its adoption by the UN General Assembly in 1997. Now, 12 years later, only 16 states have ratified the Convention and it has not entered into force. As a consequence, despite the irreplaceable role of water in lives, livelihoods and production, there is no universal treaty in force to regulate the use and protection of shared waters (Salman, 2007). The absence of this kind of universal treaty has not precluded cooperation between sovereign states, nor does it imply that the principles are not broadly accepted, but clearly most states are not ready to commit themselves to a binding legal obligation.

The record to date suggests, quite simply, that countries do not cooperate in the management of transboundary waters because they are compelled by an ethic of cooperation. They cooperate when the net benefits of cooperation are perceived to be greater than the net benefits of non-cooperation, and when the distribution of these net benefits is perceived to be fair. In other words, states work together when doing

[1] The findings, interpretations, and conclusions in this paper are entirely the authors'. They do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.

so offers special economic and political advantages over unilateral development, and when these larger benefits are shared.

Perceptions are pivotal. States must believe that greater economic benefits will be gained and distributed equitably. Indeed, the role of perceptions in a country's cooperation calculus underscores the importance of shared, trusted information. Perceptions are often distorted by inaccurate or mistrusted information, but might be tempered by more credible information. Perceptions can also be influenced by historical tensions and suspicions, which might be lessened through sustained dialogue. We will return later to these central themes of knowledge and dialogue.

Benefits themselves go beyond the obvious, and take different forms (Sadoff and Grey, 2002). This describes four types of benefits: environmental *benefits to the "river"* (e.g. improved water quality, conserved biodiversity); economic *benefits from the "river"* (e.g. increased food and energy production); *reduction of costs because of the "river"* (e.g. reduced geo-political tensions, enhanced flood management); and *benefits beyond the "river"* (catalysing wider cooperation and economic integration). Any one of these four benefit types can promote cooperation. The broader the basket of benefits, the greater is the scope for structuring mutually beneficial cooperation.

If these kinds of enhanced benefits are to be generated, they also must be shared – in a manner that is perceived to be fair. This can mean the separation of the physical location of river development where benefits are derived, from the physical location where benefits are distributed. For example, in the Senegal River Basin, the three countries of Mali, Mauritania and Senegal – through the OMVS (the Senegal River Basin Development Authority) – developed a clear methodology and framework to first quantify and then allocate the benefits and costs of multi-purpose investments across the entire basin. The Manantali Dam, for example, which is located entirely inside western Mali, was constructed through the OMVS in the 1980s for hydropower, irrigation and navigation benefits to be distributed across all three countries. The scale of benefits derived and the perceived fairness of the benefit sharing arrangement together with the political ideal of solidarity between the three countries have sustained substantive cooperation and a strong river basin organisation on the Senegal River (Yu, 2008).

It is our view that an increasingly important and compelling driver toward effective cooperation is the management of water-related risks (e.g. of floods) common to some or all riparian states within a basin. This is an example of the third type of benefit described above. This can also be seen as a growing focus on managing the destructive impacts of water, relative to capturing the productive potential of water – both of which are key aspects of achieving water security.[2] In recent years, there have been growing concerns globally regarding the uncertainties of our climate future and, in particular, the impact of a changing climate on water resources. Taken together with other changing "climates" – changes to demographic, financial, economic and political climates – the future challenges in managing the world's water resources look daunting and the risks great.

Co-riparian states can manage these risks that they face by pooling their resources to enhance information and early warning systems on their changing hydrologic variability and by fostering system-wide river basin management. Climate change raises the stakes of non-cooperation, encouraging nation states not only to capture additional economic benefits, but also to manage better their growing common risks. In transboundary river basins, existing risks are likely to be intensified by climate change. Effective cooperation in transboundary basin management could become a singularly effective risk management strategy.

History suggests that a perception of common risks can be particularly compelling motivation to manage and share these risks through cooperation. Cooperation between Canada and the Unites States on the Columbia River, for example, was catalysed in large part by recurring and sometimes devastating floods. This is true even though – and this is important – the perceived economic benefits of flood control were

[2] Water security can be defined as the "availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water-related risks to people, environments and economies". See D. Grey and C. W. Sadoff, "Sink or Swim? Water Security for Growth and Development" in Water Policy Vol. 9, No. 6. pp 545- 571. 2007.

considerably less than those of other benefits from the Treaty. Energy was the other key driver of the 1961 Columbia River Treaty and the new storage dams, constructed under the Treaty and cooperatively operated, enabled significantly more power generation than could otherwise have been produced by unilateral action (Yu, 2008).

Today, similar processes may play out in the immense Ganges-Brahmaputra-Meghna (GBM) Basin, which is shared by Bangladesh, Bhutan, China, India, and Nepal. The GBM is characterised by the world's highest mountains (including Mount Everest), greatest floodplains, and largest basin population, with over 500 million people, many of whom are very poor. Added to these superlatives are: a unique monsoonal climate, with 50 percent of precipitation in 15 days and 90 percent of runoff in 4 months; very little hydraulic infrastructure, with only 30 days of flow in artificial storage (compared to the 900 days of storage in the Colorado and Murray-Darling basins (Briscoe and Malik, 2006); extreme pollution (with consequent ecosystem damage and biodiversity loss); and very limited existing transboundary cooperation. Climate models suggest that monsoon intensity could increase and glaciers retreat, while populations, cities, industries and economies continue to grow rapidly. The risks faced by the basin's populations today are already high: 70 million people in India and Bangladesh were seriously affected by the 2007 monsoon, 4,500 were killed, and crops across 75,000 km^2 were destroyed. Although the dynamics are complex and causality is difficult to determine, it is possible that there are already large numbers of "climate migrants" leaving the basin, temporally or even permanently.

Future risks are undoubtedly high and could potentially be mitigated through cooperation. Joint institutions for information sharing could help predict and monitor the basin's changing hydrology and underpin early warning systems, thus enhancing both agricultural productivity and disaster preparedness. Cooperative infrastructure development and/or operation could help regulate river flows, to mitigate floods and droughts, generate power and irrigate fields. Cooperative environmental management could enhance water quality and ensure environmental flows for ecosystem health. And all of this cooperative engagement could improve regional relationships "beyond the river".

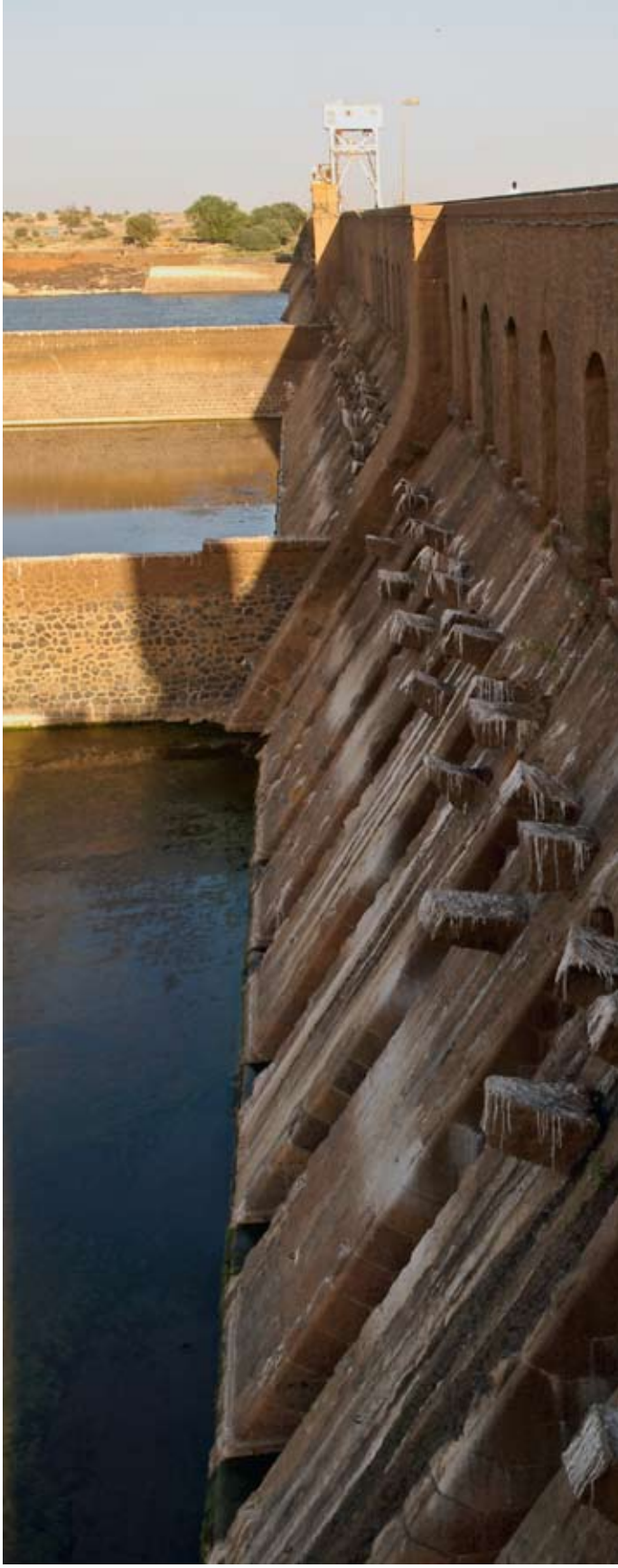
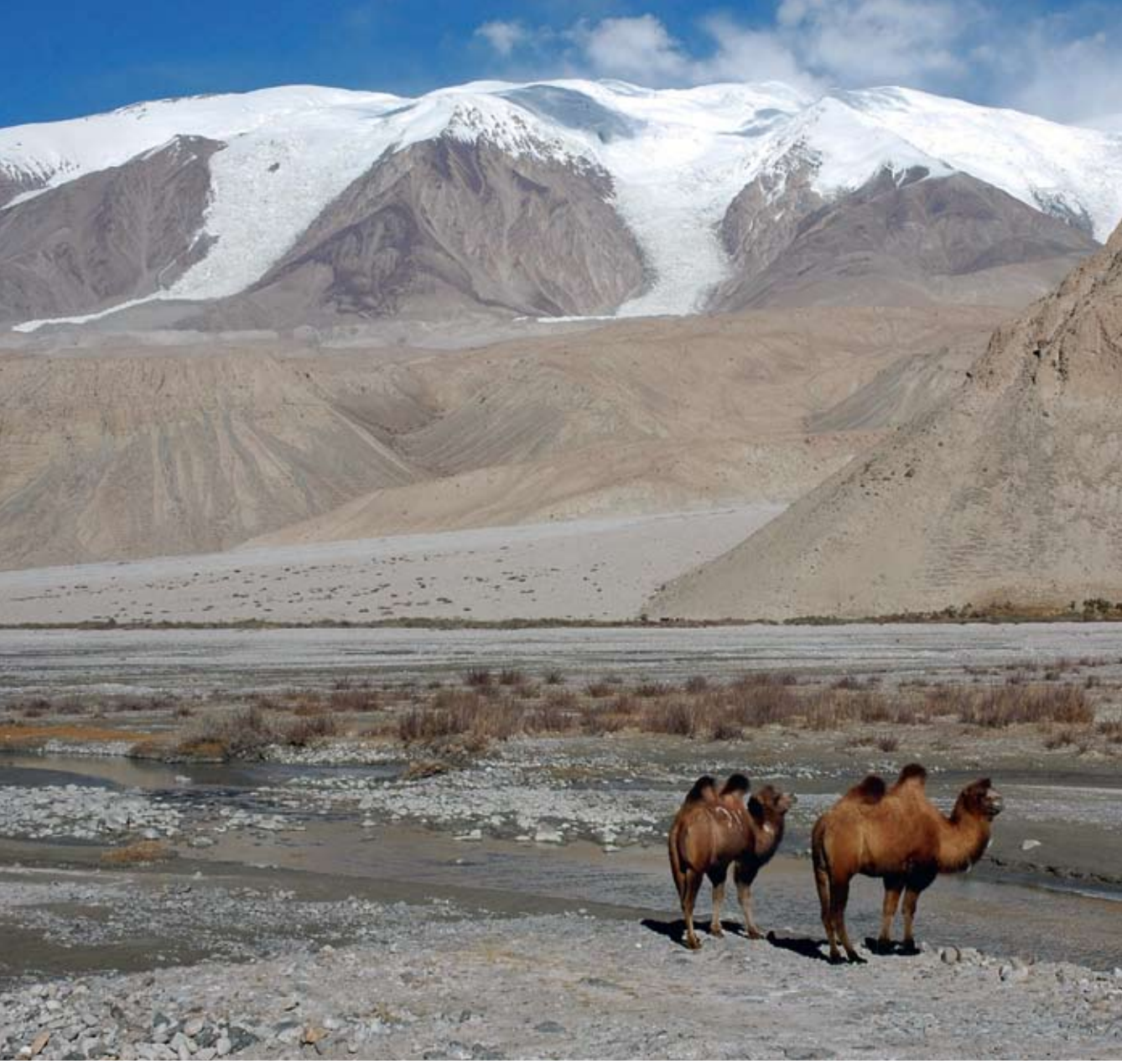


Photo: Arne Hoel/World Bank



How is effective cooperation achieved?

There are no blueprints for achieving cooperation – indeed it is often unclear what is meant by the term cooperation itself. The debate tends to be cast as an all-or-nothing proposition implying that "cooperation" is an absolute, in direct opposition to "water wars". In reality there are innumerable practical avenues of cooperation that states can undertake to their mutual advantage, each with different potential benefits and different associated costs. Effective cooperation can range from simple information sharing and hazard warning protocols, to a fully integrated approach to developing (investing in natural and man-made infrastructure) and managing (investing in institutions, information and capacity) basin-wide transboundary river flows. While the latter remains an aspiration probably not yet achieved in any transboundary basin, there are increasing examples of effective transboundary cooperation.

Different modes of cooperation must be considered in response to different circumstances, and will depend on many factors. A continuum can be conceived from unilateral action (independent, non-transparent national planning and management), to coordination (sharing information regarding national planning and

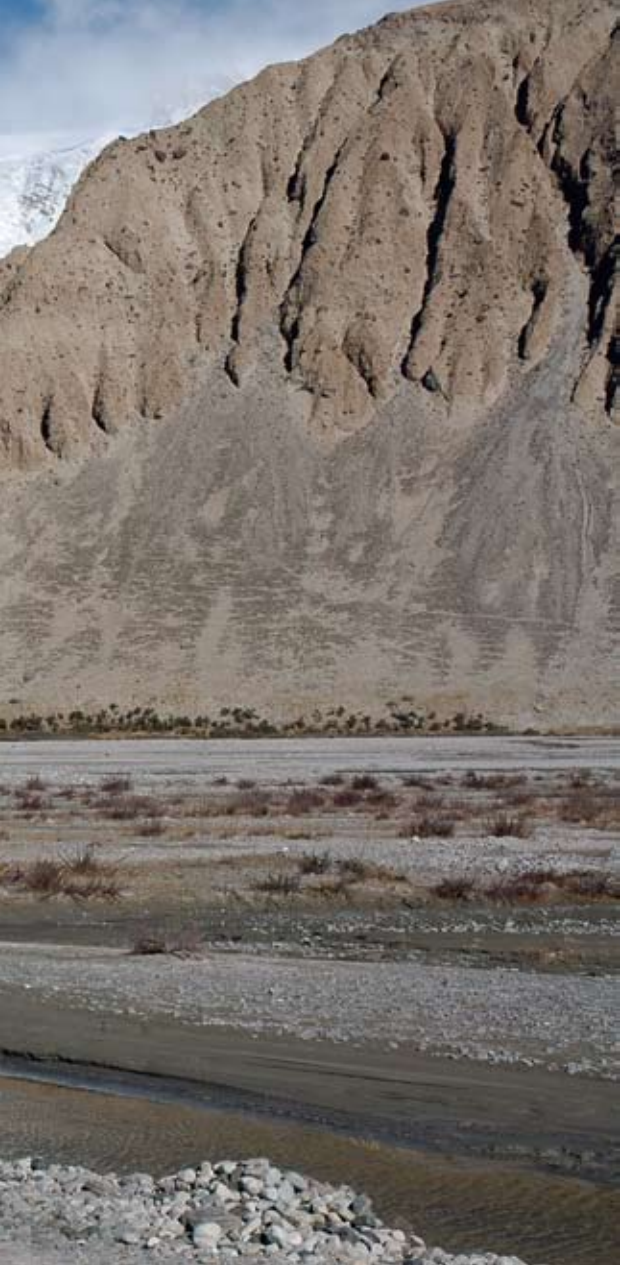


Photo: Xu Jianchu

management), to collaboration (adaptation of national plans for mutual benefits), to joint action (joint planning, management or investment).

For each international basin the optimal mode of cooperation will depend on a mix of factors including: hydrologic characteristics, the economics of cooperative investments, numbers and relationships of riparians, and the costs of parties coming together. It may not necessarily be the case that "more" cooperation reaps "more" benefits in all river basins (Sadoff and Grey, 2005). The art is in identifying "effective cooperation", a term that deserves clear definition.

Effective cooperation on an international watercourse is any action or set of actions by riparian states that leads to enhanced management or development of the watercourse to their mutual satisfaction.

While the reasons and the mechanisms for cooperation may be increasing, and increasingly apparent, getting there remains a difficult journey and typically requires a conscious, multi-year effort by all parties. But practical experience does tell us something about how to get there. Building the enabling environment – and in particular knowledge, trust and confidence among co-riparian states – is usually the first step in building cooperative transboundary institutions. The ownership of the cooperation agenda must be entirely with concerned riparian countries, in order to ensure commitment and endurance. However, experience suggests that invited third-party facilitation can be useful, especially on large international river basins with tense pasts and complex futures. Third party facilitation by trusted brokers and conveners can help generate impartial knowledge and analyses, create a neutral space for dialogue, and ultimately help secure financing for cooperative investment. We have learned that this facilitation must be patient, respectful and reliable over a long period of time, possibly a decade or more, and that it must almost invariably be low-profile. "No-footprint" is a useful rule, unless a footprint has a specific and strategic value.

Process is almost as important as product, at least in the early days, and can be costly. Time spent building effective communications, working relationships and a level playing field of knowledge and skill is an essential investment for reaching sound negotiation outcomes. The process can be as diverse as necessary; shared experience, joint learning, round tables, cooperative assessments can all be part of the process tool box. Starting from a low base might mean negotiating a "shared vision", which sets a goal of a better future, and then builds shared knowledge to provide the evidence to change the perceptions of benefits and catalyse cooperation.

There are many stories of "how" the path to real cooperation has been or is being explored – a variety of pathways to cooperation. Two evolving examples help illuminate this point, one based on informal dialogue, the other rooted in high level institutional structures.

Photo: Arne Hoel/World Bank

Among the countries that share the Rivers of the Greater Himalayas and where cooperation today is very limited, the current "Abu Dhabi Dialogue" (ADD) provides a path of informal consultation. Each year it brings together senior political, government, and non-government participants from seven countries. Through non-representative, non-formal, and non-attributable dialogue around the themes of "common problems seeking common solutions", participants build knowledge, relationships and trust. Together they have defined a *shared vision* of "a knowledge-based partnership of states fairly managing and developing the Rivers of the Greater Himalayas from the summits to the seas". To materialise this vision, the ADD Knowledge Forum has been launched in parallel to bring together key knowledge institutions and to finance collaborative research.

The Nile Basin Initiative (NBI) illustrates a different path. Since 1999 the NBI has been guided by a Council of Ministers and supported by a dedicated NBI Secretariat in Uganda. More recently, offices were established for two sub-basins in the Nile: the Eastern Nile Technical Regional Office in Ethiopia, and the Nile Equatorial Lakes Coordination Unit in Rwanda. These offices, working in a coordinated manner, are undertaking cooperative regional assessments and analyses, capacity building and investments in the Nile Basin.

In both examples, shared knowledge and patient dialogue are the common themes – however different the paths to cooperation might otherwise be. Knowledge is essential to identify the common opportunities and risks of transboundary water management, and to structure equitable benefit sharing arrangements. Sustained, information-based dialogue is essential to build a shared understanding, to enable productive negotiations, and to achieve robust cooperative outcomes.

So, states that are cooperating on international rivers will almost invariably have worked long and hard together to build trust, knowledge and institutions – often, but not always, with patient, trusted and committed external support. Their analysis, explicit or implicit, individual or collective, will have demonstrated that the benefits of cooperation are greater than the benefits of non-cooperation. The choices that they have made will therefore have been rational. They may still have much work to do to ensure that planned benefits are actually being derived and being shared fairly. But they have had the courage to change, moving from a past of non-cooperation towards a future of effective cooperation.

References

Salman, S. (2007) *The United Nations Watercourses Convention Ten Years Later: Why Has its Entry into Force Proved Difficult?* Water International, 32:1, 1-15, & pers. comm.

Sadoff, C. and D. Grey. (2002) *Beyond the River: The Benefits of Cooperation on International Rivers*, Water Policy, 4, 389-403.

Sadoff, C. and D. Grey. (2005) *Cooperation on International Rivers: A Continuum for Securing and Sharing Benefits*. Water International, 30:4, 420-427.

Yu, W. (2008) *Benefit Sharing in International Rivers: Findings from the Senegal River Basin, the Columbia River Basin, and the Lesotho Highlands Water Project*. World Bank AFTWR Working Paper 1, November.

Briscoe, J. Malik, R. (2006) *India's Water Economy: Bracing for a Turbulent Future*. The World Bank.

A Path Towards Realising Tangible Benefits in Transboundary River Basins

Jakob Granit and Marius Claassen

Leaders in both developed and developing countries understand the importance of shared water resources to public health, social development and economic vitality. However, they are often hard pressed to find practical approaches to move from understanding the problem to deliver tangible benefits and improve livelihoods.

This chapter offers a path towards realising tangible benefits from cooperation in a transboundary river basin. It supports the Transboundary Waters Opportunity (TWO) analysis, which identifies development opportunities in a basin. The TWO analysis can be used by governments, Regional Economic Communities (REC) and other potential investors to identify and promote cooperative development. Identified opportunities are prioritised before being evaluated through further pre-investment analyses such as Strategic Environmental Assessment (SEA). A new tool, the Barrier Analysis, is proposed. The Barrier Analysis identifies obstacles to cooperative management and development and suggests options to overcome social, economic, political and environmental constraints in transboundary river basins. The Barrier Analysis is a useful complement to standard project feasibility studies to ensure effective and implementation.

The transboundary water management and development dilemma

Limited access to water can constrain development, particularly with the forces of climate change, population growth and prevailing economic conditions converging to add pressure on limited water resources. Consequently, effective water resources management

Photo: Jakob Granit, SIWI

Photo: Alastair Morrison, SIWI

and development can promote sustainable growth and poverty reduction. Growing demands for goods, services and economic growth are increasing the pressure and competition for water resources at the regional, national and local levels. In regions where water is shared, transboundary water issues become even more critical to development. The management and development of such shared resources can no longer be seen only as a long-term concern. It is an issue of immediate urgency for basin states (UN Water 2009).

States are slowly shifting their view of transboundary water management. They are moving from a past preoccupation with discussions of the volumetric allocation of limited water resources between states towards a wider focus on water security. Water security is defined as the "availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water-related risks to people, environments and economies" (Grey and Sadoff 2007). Achieving water security requires more productive approaches than past dialogue between countries, which have traditionally concentrated on dividing water instead of sharing the resource and associated benefits. This narrow approach prevented many development opportunities from being realised. Rather than dividing the water volume along political boundaries, stakeholders can find new opportunities by taking an alternative approach that focuses on sharing benefits through regional cooperation and cooperative management and development. What is needed is a practical approach to understand the complex connections between social and economic development, water resources and development opportunities.

Transboundary waters opportunity (TWO) analysis

Countries that share water bodies need to cooperate and jointly explore opportunities and trade-offs to maximise sustainable development. Based on the work done internationally on benefit sharing, Phillips et. al. (2008) developed an approach that can assist basin states and other stakeholders to analyse potential benefits in a transboundary river basin to optimise economic growth, political stability and regional integration. It is intended to be used by basin state governments, RECs, and financing entities. The concept stresses four key development opportunities

and associated benefits: 1) hydropower production and power trading; 2) primary production; 3) urban and industrial development; and 4) environmental and ecosystem services. Other potential uses of water can be considered in different regional settings.

Water availability can be improved through innovative management approaches. The TWO analysis proposes three potential sources of water to support development. The first being "New water" which can be introduced to a basin through desalination technologies, inter-basin transfers or other means of adding water to the inland water cycle. Secondly, water can also be made available through more efficient use of existing water sources such as more efficient irrigation methods. Thirdly, other sources of water in a basin can be put to productive use, such as unallocated water.

The different potential combinations of water sources and water uses that can be explored through TWO analysis can be presented as development opportunities. By showing the positive gains that can be shared, stakeholders and countries can identify preferred options for development. Each river basin and regional context is unique and stakeholders can use the TWO analysis to explore and identify options at different levels of detail. The diagram (figure 1) can be used as a starting point for the analysis of development opportunities by different stakeholders. Practical examples of benefit sharing include the connecting of electricity transmission networks, the development of power pools for energy markets and water transfer schemes developed between basins to meet water demand in water scarce areas. Such practical ways of distributing benefits through market mechanisms benefit citizens beyond the actual watershed, national borders and economic communities (ibid).

Strategic environmental assessment: A pre-investment tool

The TWO analysis outlines water-related collaborative management and development opportunities in a transboundary river basin. This is an initial step towards realising tangible benefits in a basin in the key areas defined above. The feasibility of the identified development opportunities should be assessed through pre-investment analysis. Most pre-investment work is undertaken from a strategic perspective and done in support of in-country and inter-country consultations.

Riparian countries need structured approaches to evaluate, assess and agree on both positive and negative impacts from identified development op-

Categories: Sources / Development Opportunity Factors:	a) New Water	b) Efficient use of water	c) Other sources in basins that are not closed
1. Hydropower and power trading			
2. Primary production			
3. Urban growth and industrial development			
4. Environment and ecosystem services			
5. Others (every basin is unique and other opportunites may exist)			

Figure 1: Each river basin and regional context is unique. Stakeholders can use the TWO analysis to explore and identify options at different levels of detail.

Photo: Anton Earle, SIWI

portunities and programmes. All riparian countries should have access to the same information to evaluate benefits and trade-offs of cooperation. This allows for informed decision-making and agreement on next steps towards development. Such approaches promote transparency and trust which is important in the international context.

Strategic Environmental Assessment (SEA) is gaining increasing attention as a transparent and practical approach to analyse the impacts of development programmes early in the development planning process (Ahmed et. al. 2005; European Union, 2001; Hirji and Davis, 2009). It is a more integrated and longer term approach towards development programmes, compared to project specific feasibility studies and Environmental Impact Assessments (EIA). The SEA strives to bring cumulative environmental, economic and social impacts of major development programmes to the fore in the planning, project development and investment process.

In developing countries especially, SEA can support cooperative planning in infrastructure development that incorporates sustainable energy production for socio-economic development and environmental management. The SEA does not replace the traditional feasibility study and environmental impact assessments that are subsequent pre-requisites for project approval. It is an umbrella assessment to identify project options and ensure that identified projects moving into the final approval and financing stages can be compared with all options for meeting development needs in the country or region. For such comparisons, social and environmental factors are considered of equal importance to technical and economic factors (King et. al. 2008).

The SEA also provides information to potential investors from the domestic, regional and global market in support of major development initiatives. It provides upfront information to these investors from both the public and private sectors, facilitating their decision-making about entering and promoting project development. The SEA outlines the key risks and opportunities for different options as well as mitigation options.

Understanding and overcoming barriers to development

The TWO analysis and the SEA are two useful approaches for riparian countries to identify and agree on development options and subsequently to cooperatively analyse the impacts of such development opportunities.

It is also necessary to identify and assess the most significant barriers to development in the transboundary region in order to formulate effective strategies to circumvent those barriers or minimise their impact. This applies to both potential internal barriers and external barriers used in development theory (Cypher

and Dietz 2004). Internal barriers include highly unequal income distribution, low-level and inefficient infrastructure, the role and level of financial markets, the development level of the education system, the prevailing ideological thinking including religion, natural resources endowment, the role of the state and the strength of the democratic process, the extent of corruption, and the degree of market failures. External barriers can be created by multinational or transnational corporate control over resources, patterns of international trade, the functions of international financing institutions, geopolitical interests and power of states, and economic policies of states (ibid).

This experience in Barrier Analysis can also be applied to transboundary basins. In this context, the barriers blocking development in a river basin would primarily be external, such as those identified by Cypher and Dietz (2004), but would also include some internal ones. While much has been written about transboundary river basin management, little is said about barriers to cooperative development. Barriers for development in a transboundary river basin context could include the following:

1 A high level of inequality between riparian states (e.g. GDP per capita)
2 Major differences in political systems (e.g. authoritative vs. democratic)
3. A strong geopolitical influence in a basin by certain states
4. Difference in riparian state religious views and ethnic composition
5. A large difference between riparian states legal systems
6. Difference in access to investment markets by riparian states
7. The existence of civil strife in a basin
8. Different and/or low levels of in-country infrastructure
9. The absence of regional cooperative frameworks, e.g. Regional Economic Commissions or transboundary waters institutions
10. A basin that is closed i.e. with limited water resources or water quality constraints
11. Limited in-country capacity to manage water resources and to effectively participate in regional cooperation

If stakeholders jointly analyse the barriers they face, they could identify and address obstacles early in the cooperative management and development process. The objective of the Barrier Analysis is not to challenge state sovereignty, but to enable basin countries to identify strategies to overcome foreseeable obstacles to ensure that preferred development opportunities can be implemented more effectively.

Conclusions

Riparian states can explore preferred water-related development opportunities through the TWO analysis. Further cooperative pre-investment work is necessary in order to jointly agree on preferred management and development programmes and to mitigate potential negative impacts of development. The SEA approach allows for participation of many stakeholders, provides for informed decision-making, improves transparency and guides investment in projects across sectors. This is done through a systematic analysis of potential impacts of single- and/or multi sector programme-based development.

Riparian states often do not address existing barriers towards cooperative management and development. This can be due to the sensitivity of addressing differences in political and economic power within a river basin. This essay identified a set of potential elements that can be included in a qualitative Barrier Analysis. The Barrier Analysis should be undertaken to highlight differences and issues within and between states that may hinder development. Riparian states that identify a specific development opportunity or programme of investment should conduct a Barrier Analysis to facilitate and ensure implementation of the preferred project and programme options.

To promote smart management and development of a shared basin, participating states should consider using approaches to identify development opportunities, assess the cumulative impacts of the development programme and consider constraints to development. They can achieve this by performing TWO analysis, SEA and a Barrier Analysis to facilitate implementation of preferred development options. Such a step wise approach can be a practical way to unlock development opportunities in transboundary river basins.

References

Ahmed, K., Mercier, JR., Verheem, R. (2005) *Strategic Environmental Assessment – Concept and Practice*. World Bank

Cypher, James., Dietz, James. (2004) *The Process of Economic Development*. Edition: 2. Routledge.

European Union, (2001) *Directive 2001/42/EC of the European Parliament and of the Council on the Assessment of the Effects of Certain Plans and Programmes on the Environment*. EU

Grey, David; Sadoff, Claudia W., (2007) Sink or Swim? Water Security for Growth and Development, in: *Water Policy* 9, 07 (IWA Publishing) 545–571. Quotation: (Grey/Sadoff 2007)

Hirji, Rafik; Davis, Richard., (2009) *Strategic Environmental Assessment: Improving Water Resources Governance and Decision Making*, Water Sector Board Discussion Paper Series, Paper no. 12, World Bank, Washington

King, Michael; Noël, Raymond; Granit, Jakob, (2008) *Strategic/Sectoral Social and Environmental Assessment of Power Development Options in the Nile Equatorial Lakes Region – Lessons in cooperation*. Paper for the African Development Bank First Water Week, Tunis, 26 March, 2008.

Phillips, David; Allan, Anthony; Claassen, Marius; Granit, Jakob; Jägerskog, Anders; Kistin, Elizabeth; Patrick, Marianne; Turton, Anthony, (2008) *The TWO Analysis: Introducing a Methodology for the Transboundary Waters Opportunity Analysis*. Report Nr. 23. (SIWI, Stockholm).

UN Water (2009) *The United Nations World Water Development Report 3 – Water in a Changing World*. (UNESCO Publishing/Earthscan).

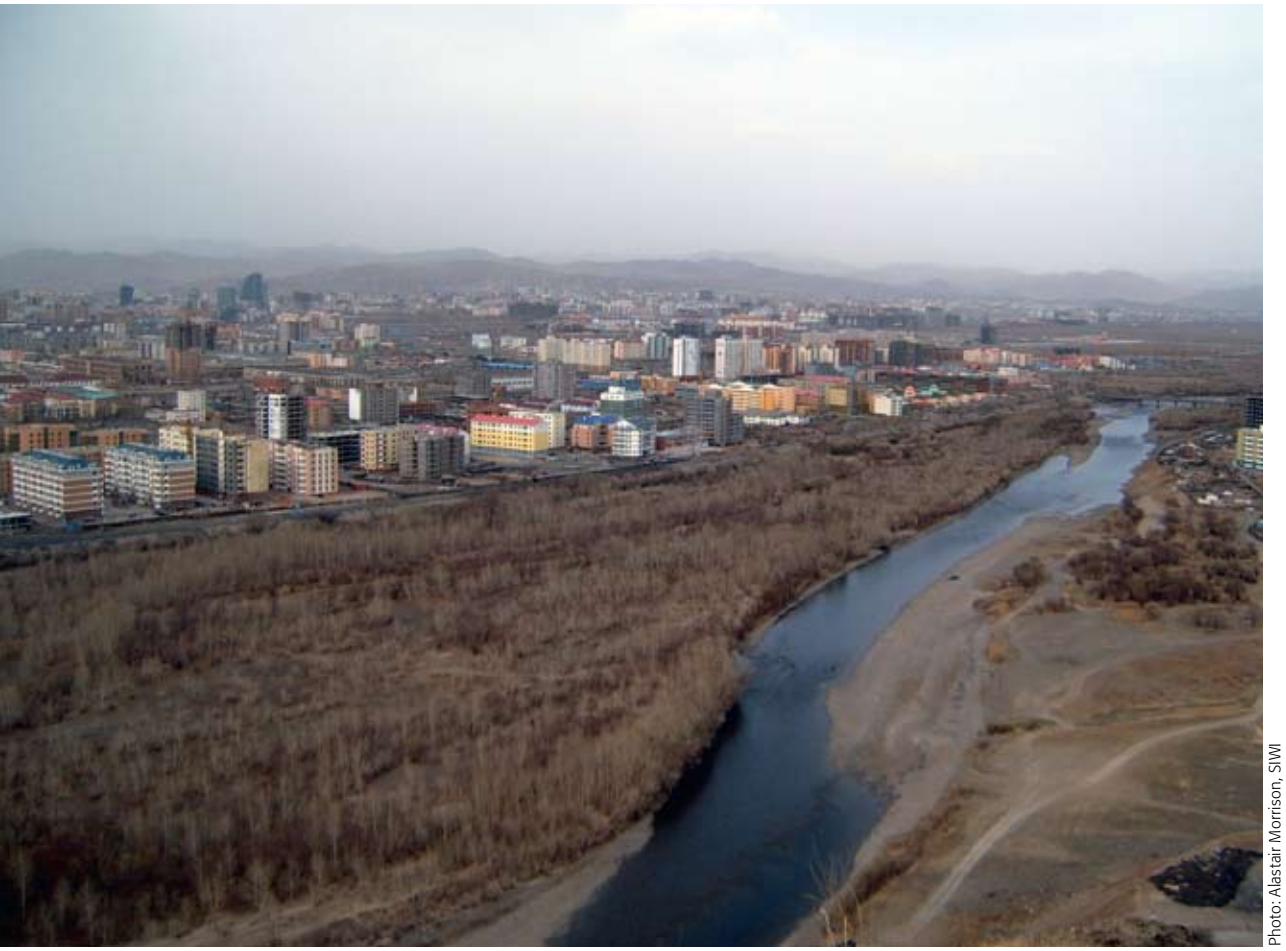


Photo: Alastair Morrison, SIWI

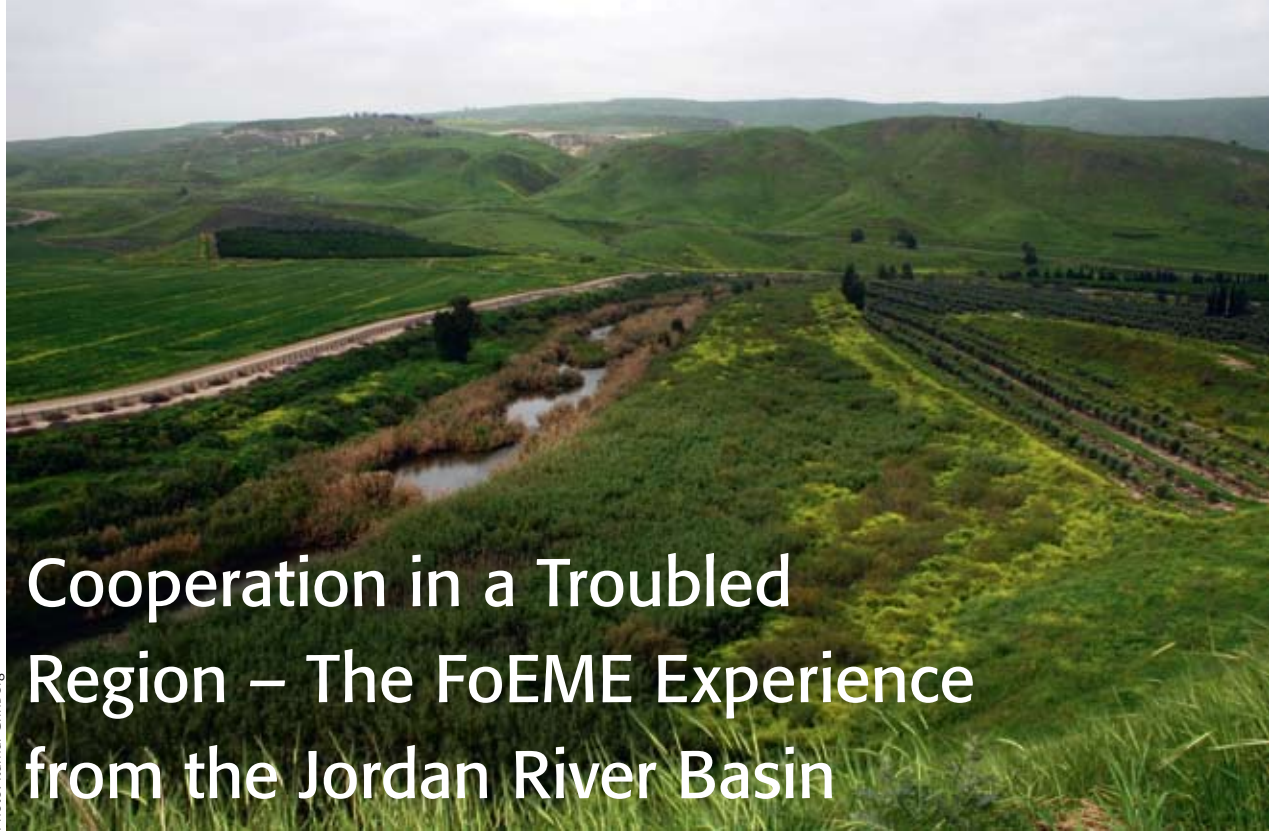


Photo: Itamar Grinberg

Cooperation in a Troubled Region – The FoEME Experience from the Jordan River Basin

By Munqeth Mehyar, Nader Khateeb and Gidon Bromberg

The Lower Jordan River has flowed freely for thousands of years. This important regional water resource once carried an average of 1.3 billion cubic metres of freshwater from Lake Tiberias to the Dead Sea every year. From 1930-1950 the river's waters even powered a hydroelectric power station, which in that period produced up to 24 percent of the electricity needs of Mandate Palestine. Sadly, the "mighty Jordan" has been devastated by over-exploitation, pollution and a lack of regional management.

The river's central location in the Great Rift Valley, at the meeting point of Asia, Africa and Europe, creates a lush wetland ecosystem. Rich in biodiversity, the wetland serves as one of the most important migratory flyways on the globe with an estimated 500 million birds travelling its length twice annually. The river is also sacred to many. It is immortalised in the Holy texts of the three Abrahamic traditions and remains an important cultural anchor for half of the world's population.

Today the river's flow has been reduced to a trickle. 95 percent of the river's flow is diverted to meet domestic and agricultural purposes in Israel, Syria and Jordan. This leaves only 70-100 million cubic metres of water per year to maintain the river ecosystem. The reduced flow to the Jordan River and its tributaries has devastated its terminal lake, the Dead Sea, and drastically reduced biodiversity along the river's banks. The culturally and historically important river has been transformed into little more than an open channel of agricultural run-off, diverted saline waters and wastewater.

With the execution of the Treaty of Peace between the State of Israel and the Hashemite Kingdom of Jordan in 1994, hopes were renewed that the two governments would act to restore the Lower Jordan River through coordinated management. Annex IV of the Treaty in fact committed the two sides to act towards the "ecological rehabilitation" of the river. In the 15 years that have passed since the signing of the Peace Treaty, neither government has taken any concrete action to return any measure of freshwater back to the river. On the contrary, a new dam was built on the Yarmouk River to capture the remaining winter floodwaters. In recent years, long stretches of the Lower Jordan have had such little flow during the summers that vegetation covers the little water left in the river. Summer grass fires that cross the river from

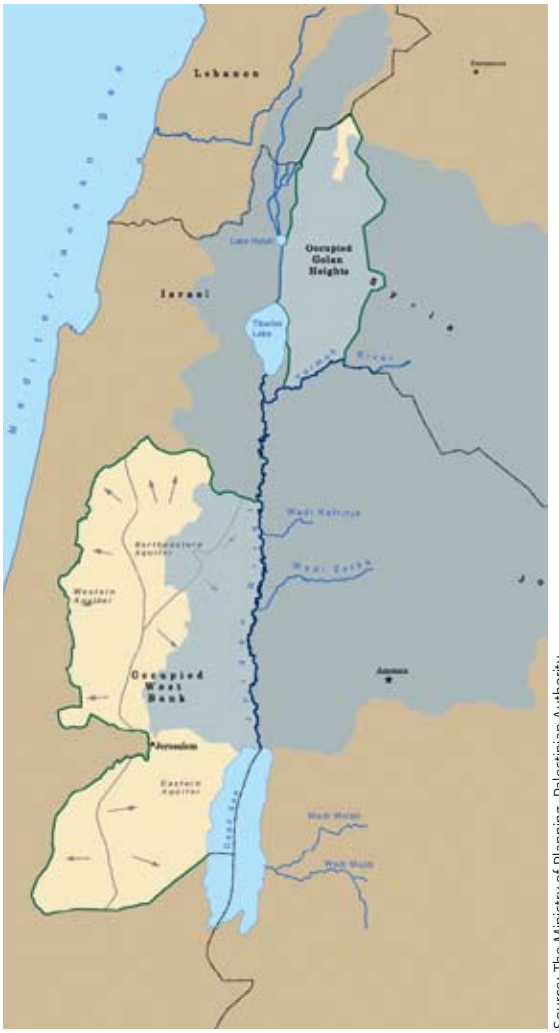
Israel and the Palestinian West Bank into Jordan and visa versa are now a serious problem. Indeed, for the past 60 years, much of the river – located in a fenced and mined border zone between Israel, the West Bank and Jordan – has been off-limits. This has enabled the ongoing draining and degradation of the river to take place out of sight and out of mind of area residents.

The story of the demise of the Lower Jordan is hardly unique. Around the world, human activity has pulled massive quantities of water from the great rivers – the Indus on the Indian subcontinent, the Yellow in China, the Rio Grande along the USA-Mexico border – to the extent that they now either disappear before reaching the sea or contain long sections that seasonally run dry. The underlying reason is always the same: rivers are not viewed as valuable in themselves. Instead, they are seen as exploitable resources for human and economic development. The vital "ecosystem services" they supply that support people, fish, animals, and plants, as well as economic development, are overlooked until they are lost.

Experience shows progress is possible

It is not too late to undo the damage the done to the Jordan over the past 60 years. Even in the midst of violent conflict, animosity towards the other and reduced precipitation due to climate change, it is possible to start the process to reverse the river's decline. Positive action, though still piecemeal and slow, is taking place. Increasing public awareness on the unacceptable state of the river has created political will at the municipal, national and international levels to reform policy.

At the grassroots level, thousands of Jordan Valley residents have participated in "knobbier's path tours" based in 15 communities. Part of FoEME's Good Water Neighbours project, the tours educate residents, youth and adults alike, on the state of the Lower Jordan and its tributaries. Through their participation, many residents learn how the river's waters are being diverted and come to understand the effects of present day pollution. They can see the missed economic opportunities presented by the unhealthy state of the river, particularly for rural, cultural and eco-tourism uses. Some tours actually cross the border to the other side. Critically, the FoEME local staff person that guides the tours, either in Arabic or Hebrew, at least describes the context across the river.



Source: The Ministry of Planning, Palestinian Authority

The Jordan River Basin, covering parts of Lebanon, Syria, Jordan, Israel and the Occupied Palestinian West Bank.

Often held with local and international media, participants of the tours come to understand that coordinated regional action is needed to improved the state of the river. Media participation helps tell the story of the Jordan River to the broader public, both local and international, and break through barriers of access to the river. Journalists can place the rivers plight at the centre of the public debate and create a constituency of local residents empowered to voice their concerns.

Jordanian, Israeli and Palestinian mayors were involved from the outset as necessary partners in support of regional water policy reform. Mayors are the most receptive to community resident's needs and perspectives. They are also key stakeholders with much to gain

from the economic opportunities of a rehabilitated river. Mayors have not only participated in tours in their own communities and that of their cross-border neighbours. On several occasions local Mayors have literally "jumped" into the river together in public events designed to help them express their commitment to regional river water policy reform.

The activities are starting to pay off. Concrete reform has been achieved, particularly in the removal of sewage. In Israel, a sewage treatment plant has been completed in the community of Beit Shean. This will end the current practice of the community dumping untreated sewage from the Beit Shean area into the river. The Jordan Valley Regional Council, also in Israel, has taken a large loan to start the design and building of a new sewage treatment plant. It will treat the sewage of Tiberias and Sea of Galilee communities, which are also at present discharged into the river. In Jordan, North Shuna, the largest community in the valley, has launched a project to collect sewage from cesspits for treatment rather then allowing the sewage to seep into the ground and pollute the springs in the Jordan River.

All the mayors have signed memorandums of understanding with their neighbours to commit their communities to rehabilitate the river and identify concrete actions that are within their respective powers to undertake. These commitments have enabled further financial support of joint projects. New initiatives include a crossborder Israeli/Jordanian Peace Park at the confluence of the Jordan and Yarmouk Rivers, the building of an environmental education centre in Auja, Palestine and the creation of a protected area park and visitors centre on the Ziglab stream, a tributary of the Jordan River, in Jordan.

Restoring and re-allocating the Jordan

Returning freshwater to the river is the key and most difficult issue to tackle. The Israeli, Jordanian and Palestinian governments have made public comments that state their commitment to "reviving" the river. Though these statements have yet to be followed up with any national government action, representatives of the environment, water and tourism ministries of the three governments have joined the advisory committees of a new FoEME project that investigates the means to rehabilitate the Lower Jordan River.

The Jordan River Rehabilitation Project initiated three new studies to strengthen the knowledge base

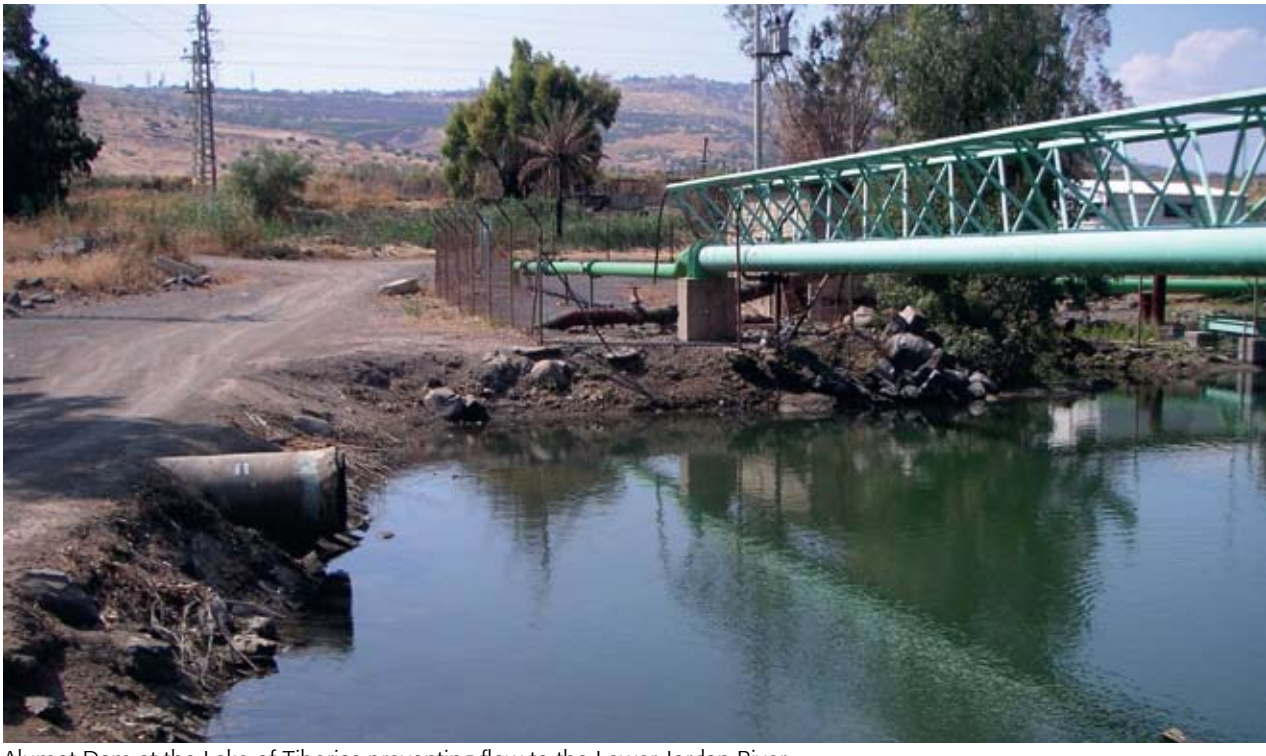


Photo: EcoPeace/ Friends of the Earth Middle East

Alumot Dam at the Lake of Tiberias preventing flow to the Lower Jordan River.

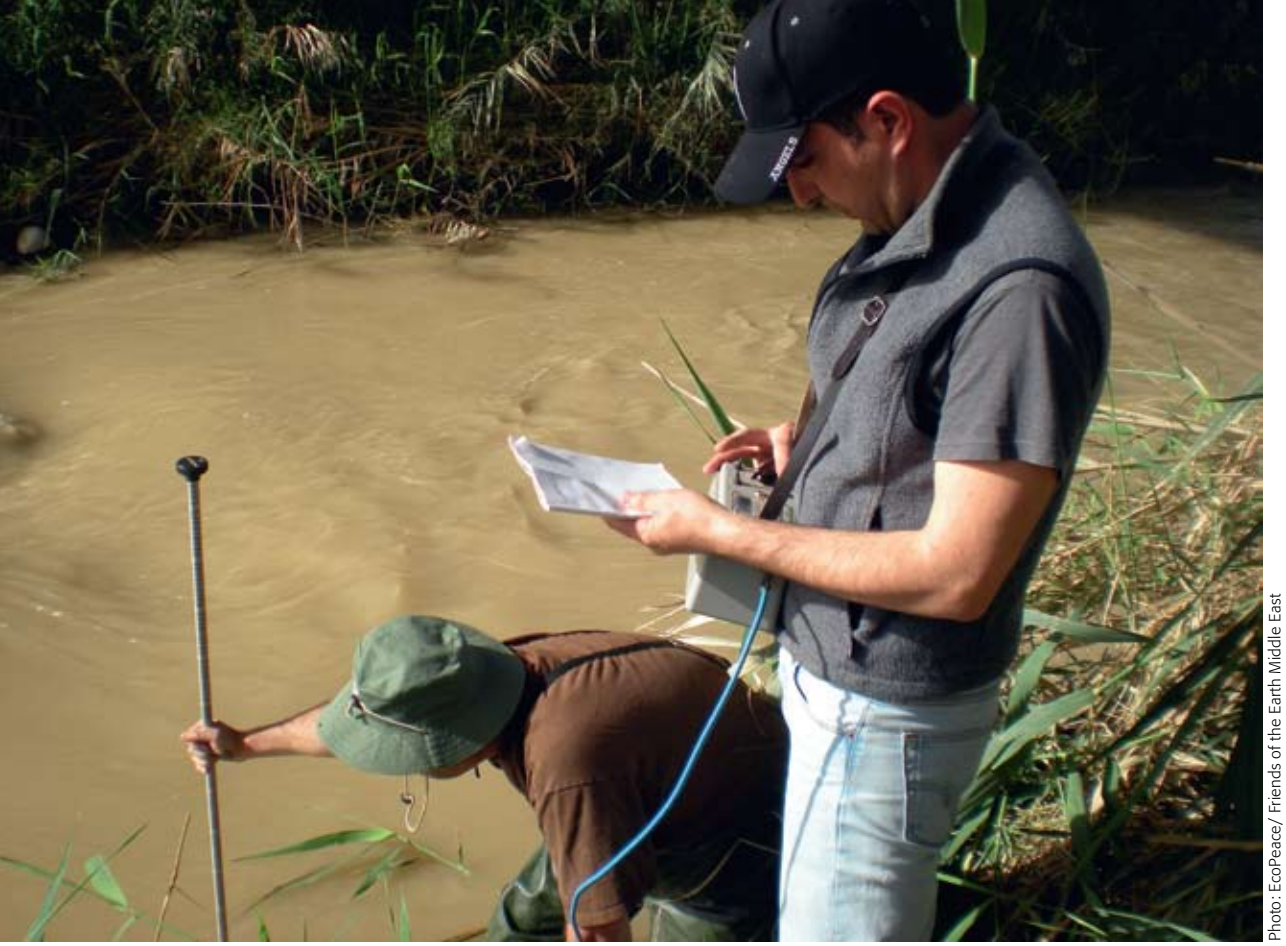


Photo: EcoPeace/ Friends of the Earth Middle East

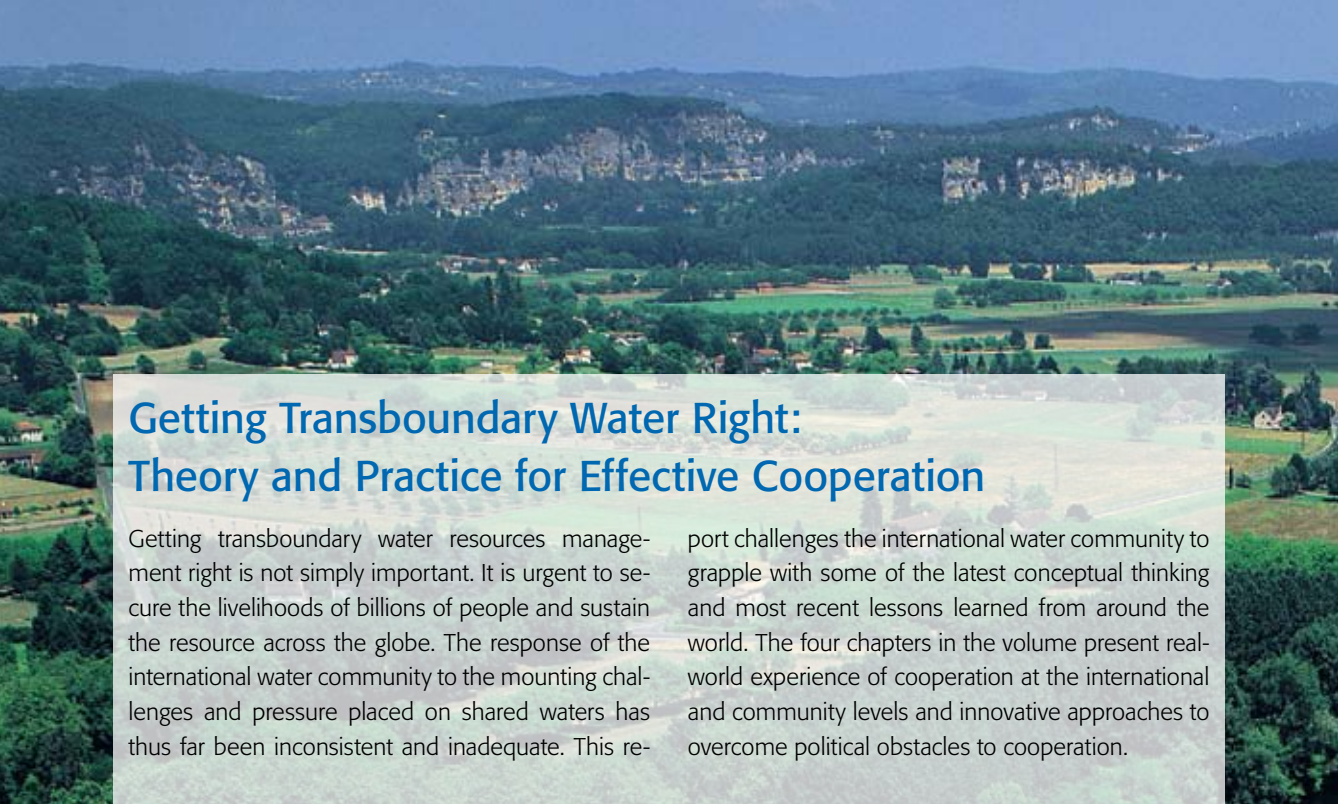
Water quality monitoring on the Lower Jordan River.

on the Jordan River. These studies will look into the political barriers to reform, and the environmental flow requirements to rehabilitate the river. They will perform an economic analysis of where the water could come from and at what price, and identify trade-offs and opportunities in national and regional water management reform. Each of these studies is undertaken trilaterally with Palestinian, Israeli and Jordanian experts working together.

Initial results from the studies have identified significant opportunities to redirect water to the Jordan River through more sustainable and efficient regional management of water resources. This can be done primarily through domestic and agricultural water demand management. Local members of the respective parliaments and high profile individuals are being identified to become the public champions of a rehabilitated Jordan River. They can work to create the national and regional level political will required to implement the measures recommended in the studies. Public hearings, parliamentary debates and regional conferences are planned to educate the public and create the political momentum to enact water policy reform to revive the Lower Jordan River.

The equitable sharing of Jordan River water resources between people and nature and among all of the river's riparians is paramount. This includes the Palestinians, who are presently denied from extracting any water from the river. Support from the International community is being targeted both to encourage the national governments to work together for water policy reform and to share international experience of riparian river basin management. Knowledge is welcome, be it from the Rhine River in Europe, the Great Lakes of North America or the Nile Basin Initiative in Africa.

For decades, conflict and human arrogance have been responsible for the near total demise of the Lower Jordan River. It is FoEME's experience that cooperation in search of peace and sustainability is the only hope to restore the river to health and to thereby create the economic and social opportunities for this "river of the people" to be rehabilitated.



Getting Transboundary Water Right: Theory and Practice for Effective Cooperation

Getting transboundary water resources management right is not simply important. It is urgent to secure the livelihoods of billions of people and sustain the resource across the globe. The response of the international water community to the mounting challenges and pressure placed on shared waters has thus far been inconsistent and inadequate. This report challenges the international water community to grapple with some of the latest conceptual thinking and most recent lessons learned from around the world. The four chapters in the volume present real-world experience of cooperation at the international and community levels and innovative approaches to overcome political obstacles to cooperation.

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