

Transboundary River Basins and the Water Politics:
Some perspectives for water and earth system governance

Naho Mirumachi
Department of Geography
King's College London

Work in progress—do not cite or quote

Paper prepared for 2008 European PhD Summer School on Earth System Governance
Earth System Governance: Theories and Strategies for Sustainability
Vrije Universiteit Amsterdam, 24 - 31 August 2008

1. Introduction

Governance has become a common policy phrase as well as an inflated academic concept. In light of increased global attention towards the environment and sustainability, governance encapsulates the politics, ideals and challenges of the global society. Earth system governance is a relatively new addition to the various attempts at conceptualizing elusive 'governance'. The uniqueness of earth system governance is that while basing its conceptual foundation in social theory it takes into account transdisciplinary earth system analysis (Biermann 2007). Both natural and social science have a part to play in earth system governance. According to Biermann (2007:329-331), earth system governance aids problems with certain characteristics: persistent uncertainty, intergenerational dependencies, functional interdependence, spatial interdependence and extraordinary degree of harm. Facing these problems threatens the autonomy of states, questions the legitimacy of state action based on the counter measures to the problem, and requires states to be more adaptive (Biermann 2007:333). The purpose of this paper is to further examine how states can be more adaptive in the context of transboundary water management.

With increasing spatial and temporal interdependence like population growth and widespread environmental degradation, water allocation is a contentious issue, especially in transboundary settings. Climate change poses enormous uncertainty on basin states. Recent high profile water disasters both in developed and developing countries like Hurricane Katrina (affecting the US in 2005) and Cyclone Nargis (prominently affecting Burma in 2008) starkly reminds of devastating harm. Though earth system governance has a bias to sudden environmental changes prolonged disasters can act as a catalyst to highlight the harmful effects to the ecology and society. Transboundary water management has characteristics that fall into the realm of earth system governance. Governing transboundary waters requires taking into account the political, economic, and social systems to manage water at different scales. There is great complexity in how the various systems and scales influence each other. Furthermore, there is an overlay of global effects to the regional and local systems. For example, water allocation cannot be detached with international crop trade and energy policies, especially in developing countries. The principles of earth

system governance (Biermann 2007)– ensuring credibility, maintaining stability, augmenting adaptiveness, and encouraging inclusiveness – give a general framework in examining how water can be governed.

2. Water allocation is a political process

Hydropolitics is an accepted term within the literature of transboundary waters and much research has been done under this name (e.g. Waterbury 1979, Elhance 1995 Ohlsson 1995, Wolf 1995, Trottier 1999, Allan 2001, Turton and Henwood 2002). However, it is often taken for granted that water is a political process. Mollinga (2008: 8) notes how “[t]en years ago, politics and the political were anathema in most water policy circles”. The fact that academic inquiry has polarized conflict and cooperation is another sign of this tendency to undermine the political aspect of water management. Specifically, international river basins have been characterized as either conflictive or cooperative. While it may be at first seemingly useful to understand the general trend of interactions over water as conflictive or cooperative, it obscures the dynamism of river basins. The classification of river basins in a dichotomy originates from the increased interest and concern of environmental security. Academia focused on resource scarcity and the link between resource scarcity and conflict in the early stages of environment and security research (Rønnfeldt 1997). This mode of enquiry led to academics, politicians and representatives of international organizations using phrases alluding to crisis, like “water war” (Stucki 2005, Ravnborg 2004). The repercussion of such discourse is the surge of water cooperation literature and policy directives. There are now studies that indicate how cooperation, rather than conflict, is the norm in international basins (Wolf 2003), how water provides opportunities for conflict prevention and peace (Cosgrove 2003, Philips et al 2006), and how to expand the pie of benefits for all basin states (Sadoff and Grey 2002, 2005). Kistin and Phillips (2007) argued that the focus on cooperation and agreements as an embodiment of cooperation does not examine if and how problems of transboundary waters are solved. Zeitoun and Mirumachi (2008 in print) argued that the conflict and cooperation continuum is a result of a crude understanding of how transboundary water interactions are done between riparian states. The fact that it is transboundary water *interactions* that we must be examine, not conflict and cooperation, highlight the fact that water is about politics. As Barnett (2000) aptly puts it:

... if there is conflict over water, then that conflict is the result of a *failure of politics* to negotiate a settlement over the shared use of water [emphasis in original]. The idea that a war over water, or any other resource, is not a war about politics is dubious. (Barnett 2000: 276)

Transboundary water allocation involves collective action of a range of actors, not just basin states but also subnational groups, international and transnational organizations. Each actor has its own view or “rationality” of how water should be managed and developed (Verweij 2000). Cultural theory (or Grid-group analysis or Theory of Plural Rationality) is a useful tool in this regard to show that actors are not homogenous. Figure 1 shows how four general groups of actors – government, environmentalists/NGOs, industry/private sector, and individuals – will have varying attitudes towards international cooperation. As a result, water can be politicized by one group of actors playing up an image of threatened water resources or in other cases, another group of actors depoliticizing it to deflect attention on scarce water resources.



Figure 1 Different cultures and different perceptions of cooperation within a society

Source: Adapted from Verweij 2000: 22, 64, Allan 2003: 17

Mollinga (2008, 2001) usefully summarized four types or “domains” where politics of water can be observed. Inter-state hydro-politics mentioned above is one domain. Within the states, there is the politics of water policy. The political arena for policy formulation and implementation is a battleground for actors (often but not inclusive to domestic actors) to influence, change and shape policies. The everyday politics of water resources management highlights the social power relations over the practical management of water and water infrastructure. The fourth domain is the global politics of water. Major international forums of discussion such as World Water Forums, World Water Council, and Global Water Partnership, World Commission on Dams, and World Trade Organization have had impact on the agenda relating to water (Mollinga 2008).

Earth system governance has a massive task of incorporating the four domains of water politics. One crucial way to incorporate the understanding of the multiple domains is by understanding that the political process is subject to change. The Transboundary Waters Interaction Nexus (TWINS) (Mirumachi 2007, Mirumachi and Allan 2007) is one such tool. It highlights the changes in the relationship between riparian states, in particular changes of conflict and cooperation intensities. Conflict and cooperation are observed at the same time. For example, low conflict intensity

can co-exist with low cooperation intensity. Sadoff and Grey (2005) correctly argued that conflict and cooperation are “extremes” in the way basin states perceive river development and not necessarily useful. What they failed to further emphasize was that various “modes of cooperation” exist with conflict. Politics over water may be dynamic or static (Mirumachi and Allan 2007).¹ As earth system governance is about a political process of allocating various natural and non-natural resources (Biermann 2007), it is important that it takes into account such variance of dynamism.

3. ‘Adaptive states’ and Non-adaptive states: Implications on governance perceptions

Earth system governance examines how a state can make robust its state capacity for internal and external adaptation to changes to the natural environment (Biermann 2007: 333). In the context of transboundary waters, the water development paradigm will largely define this robustness of state capacity. Allan (2003) has identified five paradigms of water management (Figure 2). Water use increases as societies experience industrial modernity. This is when resource capture is done intensively, whether in the form of dams, irrigation channels, or groundwater pumping schemes. The ‘hydraulic mission’ is central to the water policies of states. The consequences of large-scale water capture give rise to environmental concerns where management practices are reflexive. The first reflexive modernity paradigm is driven by the rationality of environmental awareness, which emphasizes sustainability and sustainable water allocation measures. This can progress into economically valuing water and introducing water efficiency measures. Once water management is treated as a political and institutional process, measures such as Integrated Water Resource Management (IWRM) play a central role. It is clear that if a water user (i.e. basin state) is in the reflexive modernity paradigm, it is starting to adapt to changes to the natural environment. The adaptiveness is increased as it moves into the fifth paradigm, which is holistic and inclusive of various stakeholders.

However, as Allan (2003) pointed out, not all states are in the paradigm of reflexive modernity. While the ‘North’ or developed states have gradually moved on to this stage, the ‘South’ is, in many situations, still expanding their hydraulic mission. Thus depending on the state of modernity, there can be discrepancies in how water use (Figure 3). This also indicates the difference in adaptiveness. States executing their hydraulic mission will see governance as a way of ensuring water security, for example in the form of measures against water scarcity or floods. States that emphasize environmental and economic use of water will see governance as a way of ensuring harmonized use between human society and the environment, between agricultural and industrial sectors, between urban and rural water users. There will be political and socio-economic challenges in implementing credibility, stability, adaptiveness, and inclusiveness. In reality, some are ‘adaptive states’ and others ‘non-adaptive states’; or more adaptive states and less adaptive states. Biermann and Dingwerth (2004) argue that the breadth of action a nation-state can do to alleviate the impacts of dramatic natural changes is decreasing and international cooperation with both state and non-state actors will be required. When action is called based on river basin units or on more general regional units, the difference in water governance

¹ Mirumachi (2007) and Mirumachi and Allan (2007) applied the TWINS tool to international river basins. However, this tool can be applied at other scales such as the subnational to trace the politics of policy. See for example Warner and Winnubst (2008) for their analysis on Dutch flood policy.

perception can cause tension between states, thus limiting the collective adaptive strategies and its effectiveness.

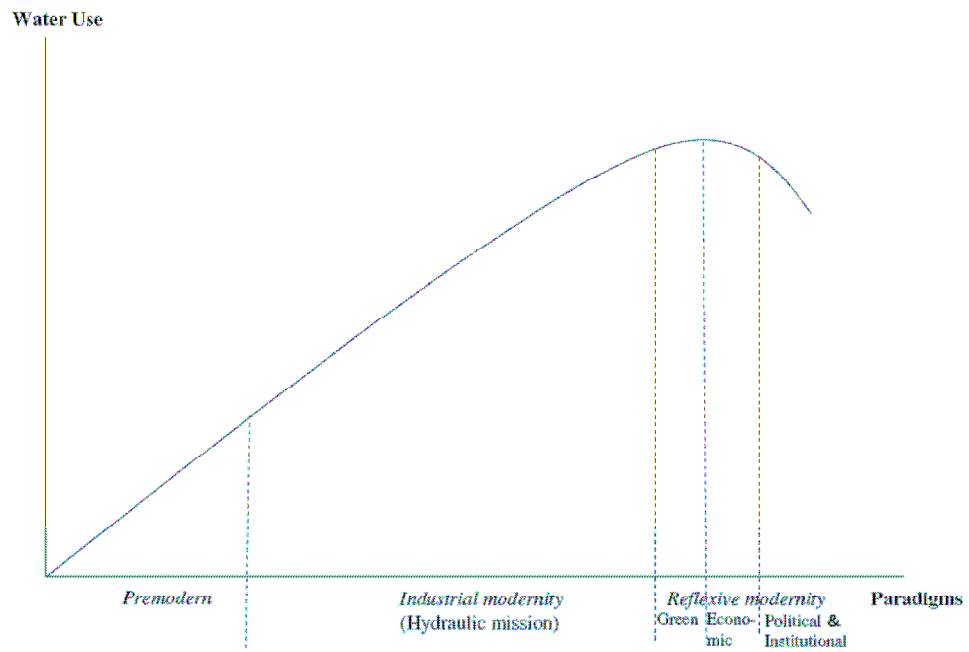


Figure 2 Paradigms of Water Management
Source: Adapted from Allan (2003: 10)

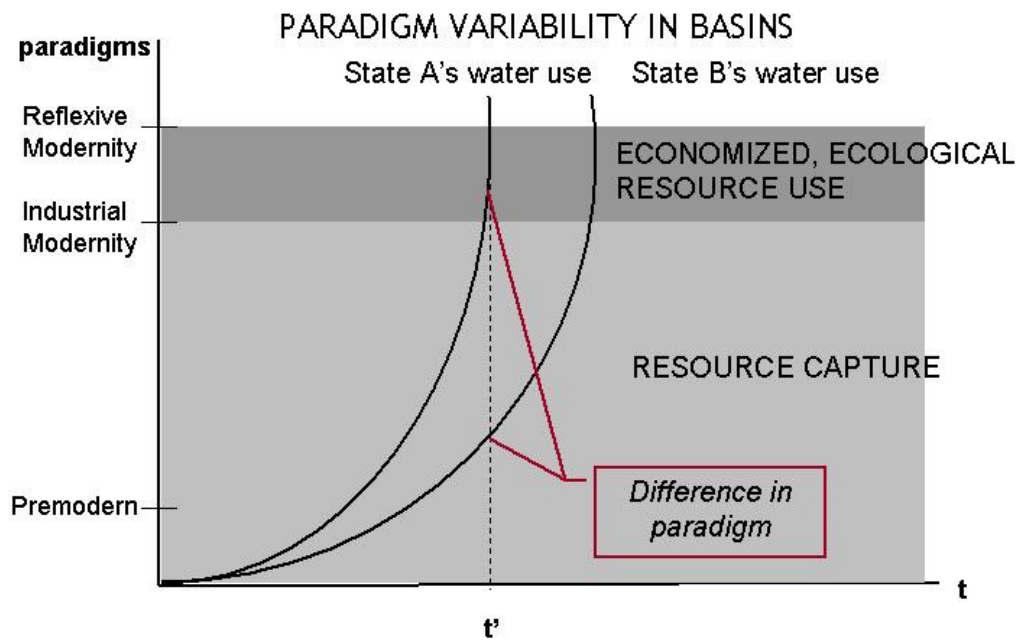


Figure 3 Paradigms variability between basin states
Source: Based on Allan's original diagram (2003)

4. Adaptiveness and drivers of water politics

Mirumachi and Allan (2007) listed some drivers that would, in theory, encourage cooperation or exasperate conflict in the water politics (see Figure 4). While this list is not comprehensive, it aids to create a certain narrative in how a range of drivers operates. Many of these drivers relate to the capacity of basin states in managing transboundary waters. For example, the drivers of conflict directly address the coping capacity of basin states in cases of external pressures to hydrology. These drivers are universal to Mollinga's four domains of water politics. River basin organizations and regimes in theory are designed to enhance the capacity of states to cope with not only the pressures on hydrology but also for optimal use. These river basin organizations and regimes are underpinned by certain principles like equitable and reasonable use, and no harm as determined in international water law. IWRM is another set of principles applied to river basins. International and national NGOs, international financing institutions (IFIs), World Bank, regional development banks and donor agencies can support and endorse these principles. Water science also plays a crucial role in forming the discursive nature in promoting certain principles.

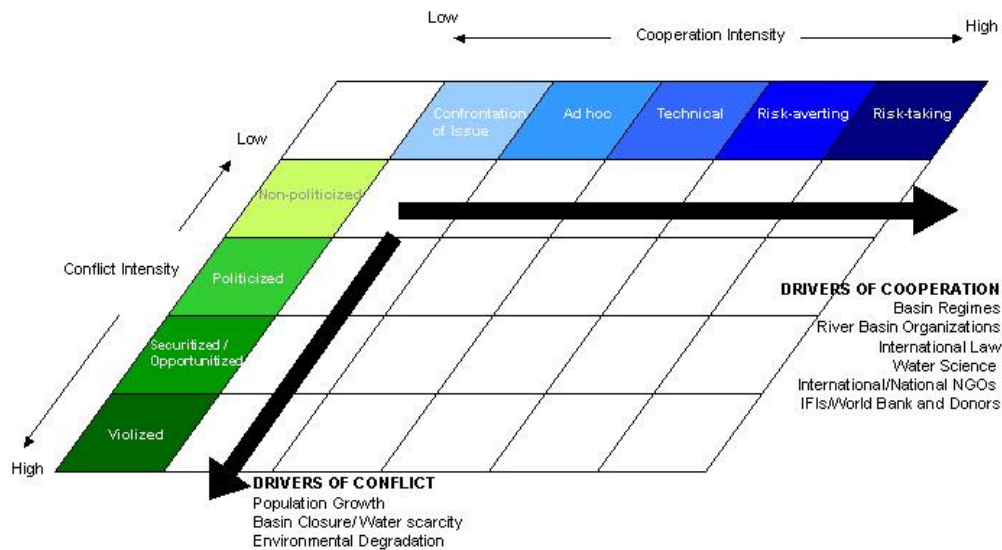


Figure 2 Drivers of conflict and cooperation in transboundary water interactions
 Source: Revised from Mirumachi and Allan (2007)

Biermann (2007:333) argues that autonomy, legitimacy, and mitigation and management strategies will come into focus, as states have to become more adaptive to natural changes. As the ecological impacts of natural changes will be transboundary, states are subject to other states' activities regarding the degree of consequences. As opposed to economic interdependence where states could limit the degree of dependence, "no exit option remains" in ecological interdependence

(Biermann and Dingwerth 2004: 6). If there are no options, states will have to solve the problem by addressing one's and other's state activities, making autonomy a tricky question. States will have to work with other states and non-state actors like transnational corporations, regional NGOs and international organizations in shaping earth system governance that is resilient not only in the immediate times but also in the future. States will have to prove legitimacy of their actions. Biermann (2007: 333) lists capacities that have to be enhanced to mitigate and manage natural threats: administrative, organizational, technological and financial capacities. The drivers of water politics can increase and decrease the level of autonomy, legitimacy and strategies.

Using the right principles at the right time

It is important that appropriate principles are identified in addressing mitigation and management strategies. As argued earlier, it is unrealistic to expect countries in a water-capture paradigm to implement tools that are devised for the water-saving paradigms. For example, a fifth paradigm tool of IWRM will be difficult to implement in water-capture paradigms. Take the example of the Mekong river basin. Laos has been increasing its efforts to become the "battery of Asia" (Vientiane Times 30 October 2007) and has some controversial plans to build dams on the mainstream (IRN 2007). These plans to expand dam infrastructure represents the Lao hydraulic mission. Despite there being efforts to implement IWRM and participatory measures, the results have been limited in the continuing hydraulic mission period, leaving room for the question of "whether IWRM principles and basin management are so crucial in countries like Laos and Cambodia, which hardly divert 1percent of their water" (Molle 2005:25). Bandaragoda (2006) showed how implementing IWRM has slowed down in five developing economies of Asia (China, Indonesia, Nepal, Philippines, Sri Lanka) because irrigation remains the main practice in the water sector and the political economy foundation is weak for implementing policies and laws.

Principles are embedded or reflected in agreements, memorandums and treaties. Principles can be considered as a way of proving legitimacy for mitigation and management strategies that states propose. When international financing institutions (IFIs) and donors also endorse such principles, it could be seen as increased legitimacy. However, as Dingwerth and Pattberg (2006) pointed out with the example of global governance, governance can become a political program. Numerous international water forums have promoted good water governance. IFIs and donors who participate in introducing tools for governance will have to be aware of stages of water management paradigms or else efforts will be misguided.

Political stability and diversified political economy

Political stability is an important factor in fostering governance. Water management is difficult to prioritize as state activity when there is political instability. Mirumachi (2008) found that in Lesotho, domestic instability caused water management to be considered as a periphery issue for the elites in power. Developing large-scale water infrastructure was used a tool for enhancing the economy, rather than as part of a holistic plan to ensure water security. Keskinen et al. (2008) observed that in Cambodia, which still has problems of political stability, domestic political purposes can preside over regional cooperation even though cooperation through the Mekong River Commission is still considered important.

Transboundary water governance is a costly activity (Nicol et al. 2000). Setting up river basin organizations and maintaining environmental regimes have high transaction costs. Increasing administrative, organizational, technological and financial capacities (Biermann 2007) requires structural changes to current practices on the state and basin as a whole. Considering that there is limited investment in transboundary water managing institutions (Nicol et al. 2000), many river basin organizations have a modest budget that needs to be spread over multiple projects of environmental monitoring, livelihood security, confidence, trust building, and administration. In the past, the Lake Chad Basin Commission have had only 600,000 to 900,000 USD for investment budget to fulfill its eight key mandate components, including data gathering and dissemination, monitoring studies and informing states, maintaining communication between riparians and examining riparian complaints (Stucki and Niassé 2008). While river basin organizations offer a platform for cooperation between states and non-state actors, there needs to be political economy conducive for utilizing the organization effectively. Allan (2001 and in Mirumachi and Allan 2007) argued that as states progressing from resource capture to resource sharing and finally, finding resource alternatives, they are able to have more options for adaptation. Political stability and diversified political economy in combination could facilitate maintaining autonomy over its natural resources while offering options for cooperation.

5. Conclusion

The paper examined several drivers of water politics and how they impact challenges to the 'adaptive state' in the context of earth system governance. In order for a state to transform into an adaptive one, challenges of autonomy, legitimacy of individual state actions, mitigation and management strategies must be overcome. Governing water under earth system governance is comprehensive because of its five principles: credibility, stability, inclusiveness and adaptiveness. Principles that are expressed through various drivers of water politics need to be applied in appropriate management stages in order to legitimize adaptive strategies and re-allocation of resources for such strategies. The political climate as well as the political economy is an important consideration when states need to be dependent on other actors to increase its adaptiveness. While analysis of drivers gave some indications, it needs to be further refined and substantiated to clarify the causal link between each individual driver, and between the drivers and specific challenges. In addition, it will be important to examine power relations of the actors. Agency beyond the state is raised as a research challenge within earth system governance (Biermann 2007). Understanding how the behavior of state and non-state actors and their relationships in the light of power structures will further develop analysis on (1) the causes and (2) degree of the decrease in autonomy and legitimacy, and increase in mitigation and management strategies.

- Allan, J.A. 2001, *The Middle East Water Question: Hydropolitics and the Global Economy*, I.B. Tauris, London; New York.
- Allan, J.A. 2003, *IWRM/IWRAM: A New Sanctioned Discourse?*, SOAS/KCL Water Issues Group Occasional Paper 50, SOAS/King's College London, London.
- Bandaragoda, D.J. 2006, *Status of institutional reforms for integrated water resources management in Asia: Indications from policy reviews in five countries. Working Paper 108*, International Water Management Institute (IWMI), Colombo, Sri Lanka.
- Barnett, J. 2000, "Destabilizing the Environment-Conflict Thesis", *Review of International Studies*, vol. 26, pp. 271-288.
- Biermann, F. 2007, "'Earth system governance' as a crosscutting theme of global change research", *Global Environmental Change*, vol. 17, no. 3-4, pp. 326-337.
- Biermann, F. & Dingwerth, K. 2004, "Global environmental change and the nation state", *Global Environmental Politics*, vol. 4, no. 1, pp. 1-22.
- Cosgrove, W.J. (ed) 2003, *Water Security and Peace: A Synthesis of Studies Prepared under the PCCP-Water for Peace Process*, UNESCO-IHP.
- Dingwerth, K. & Pattberg, P. 2006, "Global governance as a perspective on world politics", *Global Governance*, vol. 12, no. 2, pp. 185-203.
- Elhance, A.P. 1999, *Hydropolitics in the Third World : Conflict and cooperation in international river basins*, United States Institute of Peace Press, Washington, D.C.
- Keskinen, M., Mehtonen, K. & Varis, O. 2008, "Transboundary cooperation vs. internal ambitions: The role of China and Cambodia in the Mekong region" in *International water security: Domestic threats and opportunities*, eds. N. Pachova, M. Nakayama & L. Jansky, United Nations University Press, Tokyo ; New York, pp. 79-109.
- Kistin, E. & Phillips, D. 2007, "A Critique of Existing Agreements on Transboundary Waters, and Proposals for Creating Effective Cooperation between Co-riparians", *Third International Workshop on Hydro-Hegemony, London, May 12-13, 2007*.
- Lawrence, S. & Middleton, C. 2007, "Mainstream dams threaten the mother of all rivers", *World Rivers Review*, vol. 22, no. 2, pp. 6-7.

- Mirumachi, N. 2008, "Domestic issues in developing international waters in Lesotho: Ensuring water security amidst political instability" in *International water security: Domestic threats and opportunities*, eds. N. Pachova, M. Nakayama & L. Jansky, United Nations University Press, Tokyo ; New York, pp. 35-60.
- Mirumachi, N. 2007, "Fluxing Relations in Water History: Conceptualizing the range of relations in transboundary river basins", *Pasts and Futures of Water: Proceedings from the 5th International Water History Association Conference, 13 - 17 June 2006, Tampere, Finland*.
- Mirumachi, N. & Allan, J.A. 2007, "Revisiting Transboundary Water Governance: Power, Conflict, Cooperation and the Political Economy", *International Conference on Adaptive and Integrated Water Management, 12-15 November 2007, Basel, Switzerland*.
- Molle, F. 2005, *Irrigation and water policies in the Mekong region: Current discourses and practices*, Research Report 95, International Water Management Institute (IWMI), Colombo.
- Mollinga, P.P. 2008, "Water, politics and development: Framing a political sociology of water resource management", *Water Alternatives*, vol. 1, no. 1, pp. 7-23.
- Mollinga, P.P. 2001, "Water and politics: Levels, rational choice and South Indian canal irrigation", *Futures*, vol. 33, pp. 733-752.
- Nicol, A., van Steenberg, F., Sunman, H., Turton, T., Slaymaker, T., Allan, T., de Graaf, M. & van Harten, M. 2000, *Transboundary Water Management as an International Public Good: Prepared for The Ministry of Foreign Affairs, Sweden*, Swedish Ministry of Foreign Affairs, Stockholm.
- Ohlsson, L. 1995, *Hydropolitics : Conflicts over water as a development constraint*, University Press; Zed Books, Dhaka; London ; Atlantic Highlands, N.J.
- Phillips, D., Daoudy, M., McCaffrey, S.C., Öjendal, J. & Turton, A.R. 2006, *Transboundary Water Cooperation as a Tool for Conflict Prevention and for Broader Benefit-sharing: Prepared for the Ministry for Foreign Affairs, Sweden*, EGDI Secretariat, Ministry for Foreign Affairs, Stockholm.
- Ravnborg, H.M. (ed) 2004, *Water and Conflict: Conflict Prevention and Mitigation in Water Resources Management*, Danish Institute for International Studies, DIIS, Copenhagen.

- Rønnfeldt, C.F. 1997, "Three Generations of Environment and Security Research", *Journal of Peace Research*, vol. 34, no. 4, pp. 473-482.
- Sadoff, C.W. & Grey, D. 2005, "Sink or swim? Water security for growth and development", *Water Policy*, vol. 9, no. 6, pp. 545-571.
- Sadoff, C.W. & Grey, D. 2002, "Beyond the River: The Benefits of Cooperation on International Rivers", *Water Policy*, vol. 4, pp. 389-403.
- Stucki, P. 2005, *Water Wars or Water Peace? Rethinking the Nexus between Water Scarcity and Armed Conflict*, PSIS Occasional Paper Number 3/2005, Programme for Strategic and International Security Studies (PSIS), Geneva.
- Stucki, V. & Niasse, M. 2008, "The role of domestic security in the functioning of the Lake Chad Basin Commission" in *International water security: Domestic threats and opportunities*, eds. N. Pachova, M. Nakayama & L. Jansky, United Nations University Press, Tokyo ; New York, pp. 110-126.
- Trottier, J. 1999, *Hydropolitics in the West Bank and Gaza Strip*, PASSIA, Palestinian Academic Society for the Study of International Affairs, Jerusalem.
- Turton, A.R. & Henwood, R. (eds) 2002, *Hydropolitics in the Developing World: A Southern African Perspective*, African Water Issues Research Unit, University of Pretoria, Pretoria.
- Verweij, M. 2000, *Transboundary Environmental Problems and Cultural Theory: The Protection of the Rhine and the Great Lakes*, Palgrave, Houndmills, Basingstoke, Hampshire; New York.
- Warner, J. & Winnubst, M. 2008, Learning and fighting: Joint planning for river management interventions reconsidered. Paper presented at the Political Science Association Annual Conference, Swansea University, 1-3 April 2008.
- Waterbury, J. 2002, *The Nile Basin: National Determinants of Collective Action*, Yale University Press, New Haven.
- Wolf, A.T. 1995, *Hydropolitics along the Jordan River : scarce water and its impact on the Arab-Israeli conflict*, United Nations University Press, Tokyo ; New York.
- Wolf, A.T., Yoffe, S.B. & Giordano, M. 2003, "International Waters: Identifying Basins at Risk", *Water Policy*, vol. 5, no. 1, pp. 29-60.

Zeitoun, M. & Mirumachi, N. 2008 (in print), "Transboundary Water Interaction I: Reconsidering conflict and cooperation", *International Environmental Agreements: Politics, Law and Economics*.