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Transboundary river basin agreements in the Mekong and Zambezi basins: enhancing environmental security or securitizing the environment?

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Abstract Multilateral agreements are emerging as important mechanisms for structuring cooperation in politically and ecologically complex transboundary river basins around the world. While such agreements are offered and legitimized as a means to advance ecological and human security, they instead often promote state-centric environmental securitization. As a result, seemingly progressive agreements grounded in international law are likely to precipitate and mask environmental degradation until it becomes serious or even irreversible, creating both ecological and human security crises at a variety of scales. Case studies of wetland ecosystems in both the Zambezi and Mekong basins reveal the material and discursive linkages between international agreements and security. By drawing on critical approaches that acknowledge both the socially constructed and the multi-dimensional nature of sovereignty, this paper exposes significant institutional barriers to ecologically sustainable transboundary cooperation in the two basins.

Keywords Environmental security · International watercourse law · Mekong River basin · Sovereignty · Transboundary river basin · Zambezi River basin

1 Introduction

Transboundary river basins present significant challenges for environmentally and socially sustainable governance. In these basins, the difficulty of reconciling development pressures and ecological protection is exacerbated by the disjunction between ecosystems and political boundaries. Flowing water, suspended sediment, cycling nutrients, and migrating fish make clear the fact that political borders are not

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biophysical barriers. Transboundary river basins inspire cooperation across borders, yet they can also be sites of seemingly intractable conflict.[1]

This ''tension between modern hydrology and territorial administration'' (Wescoat 1992, 305) has inspired a number of responses. Most prominent are multilateral or bilateral agreements, which have evolved as important mechanisms for guiding cooperation in politically and ecologically complex basins (Beach et al. 2000). Two such agreements are the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin[2] and the Southern African Development Community (SADC) Revised Protocol on Shared Water Course Systems, which lays the foundation for cooperation among the Zambezi basin countries.[3] The agreements were conceived, and continue to be legitimized, as means to promote sustainable development and minimize the potential for conflict among riparian states. Cooperation among states is seen as an important first step from which other ecological, political, and social benefits will naturally follow (see Sadoff and Grey 2002). Cooperation structured by multilateral river basin agreements will, therefore, enhance environmental security.

Or will it? In fact, there has been surprisingly little scrutiny of how, exactly, these agreements might work to promote sustainability and environmental security. Part of the problem lies in the failure to critically investigate the way in which security is understood, both explicitly and implicitly, in these agreements. We argue that while an important intent of the Zambezi and Mekong agreements is the promotion of environmental security through sustainable development, these accords are, in fact,

[1] The study of conflict and cooperation between states in international river basins has been termed hydropolitics (Elhance 1999). Most research on hydropolitics does not problematize this definition to any great extent (see, for example, Swain 1993; Wolf 1998). Turton (2002) notes that this is a narrow definition, which does not capture the full range and complexity of issues concerning conflict and cooperation in international river basins. He offers the following definition: ''[Hydropolitics] is seen as the authoritative allocation of values in society with respect to water'' (16). Our understanding of hydropolitics has more in common with Turton's definition. We do not investigate the conditions under which sovereign states engage in cooperation or conflict over water. Rather, we ask questions about the values, representations, and assumptions that frame and construct understandings and interpretations of both conflict and cooperation. Our approach is best characterized as *critical* hydropolitics (Sneddon and Fox 2006).

[2] The Mekong basin has been the focus on transboundary water cooperation and development since the late 1940's, when the United Nations Economic Commission for Asia and the Far East established a Bureau of Flood Control to advise and assist governments in the region (United Nations 1968). In 1957, following the work of the U.S. Bureau of Reclamation and the Wheeler Commission, which resulted in plans for large-scale multipurpose development in the form of a cascade of 180 dams, the Mekong Committee was formed, comprising Cambodia, Laos, Vietnam, and Thailand. The Committee became the Interim Mekong Committee beginning in 1978 (its work was interrupted by war and post-conflict political and economic isolation in Cambodia) and was reformed as the Mekong River Commission in 1995.

[3] SADC's Protocol applies to all transboundary basins in the 12 states on the Southern African subcontinent, not just the Zambezi. Transboundary governance initiatives in the Zambezi basin date to 1987, when the Southern African Development Coordinating Conference adopted the Zambezi River Action Plan (ZACPLAN) under the auspices of the United Nations Environment Program. There has been limited implementation of this basin plan (Chenje 2003), and the more recent Protocol now guides transboundary development and management. In November 2006, the Zambezi basin states came together to sign an agreement to create the Zambezi River Commission (ZAMCOM). Of the eight riparian states, Zambia did not sign the agreement, and three states—Malawi, Tanzania, and Zimbabwe—did not ratify it. ZAMCOM is intended to enable more effective participation and management of basin resources. It would operate according to the guidelines set forward by the SADC Protocol.

more likely to lead to environmental 'securitization'. We define environmental securitization as a state-based endeavour to protect access to and control over resources falling within territorial boundaries (see Dalby 2002; Turton 2001; Volger 2002). The concern for environmental securitization in international agreements emerges from a particular conceptualization of the relationship between environment and security, one that is bound up with the ''larger construction of geopolitics'' in which sovereignty and national security trump all other concerns (Dalby 2003, 5073). The assumptions upon which this geopolitically-informed security discourse rest—that states and states alone are the sole arbiters of 'security' and can ensure it for their citizens—rarely permit the prioritization of ecological and social sustainability, which are at the heart of environmental security (Commission on Human Security 2003; Nef 1999; Page and Redclift 2002; Thakur and Newman 2004). For the purposes of this analysis, environmental security is best understood by drawing on Barnett's (2001) definition of environmental *insecurity*, which is ''the way in which environmental degradation threatens the security of people, with a particular emphasis on the differentiated impacts of environmental degradation on different groups of people'' (12). In these basins, where the livelihoods of millions of people depend on intact and productive ecosystems, we argue that long-term stability and security are thrown into question by current multilateral agreements due to the environmental alteration that they permit and even encourage.

As is the case with concepts such as 'sustainable development' or 'basic human rights', very few people or institutions would claim to be working against human or ecological security. In both the Mekong and Zambezi basins, there is widespread support for sustainable livelihoods, peace, and ecosystem protection—all essential elements of environmental security. The desire to integrate these elements into basin-wide governance is expressed repeatedly by persons involved in river basin management. A key architect of the Zambezi River Commission has noted: ''Water brings support to economies through tourism and biodiversity and also to culture ... it is about people, so we need to broaden our view of the resource itself.''[4] A representative of the Mekong River Commission has promoted its river basin management as a ''holistic'' and ''basin-wide'' approach, which recognizes that ''many of the poorest people depend most heavily on the wild resources of the river basin.''[5] In addition, governments have devoted considerable resources to crafting frameworks for cooperation. Yet, in both basins genuine environmental security is, we argue, being actively undermined by the codification of rules and principles contained in regional agreements. While often cast as international *environmental* agreements, accords over transnational basins—particularly in the Global South—primarily serve as vehicles to promote the developmental goals (e.g., hydroelectricity production and irrigation expansion) of their signatories. A goal of the research presented here is to investigate this inherent contradiction, highlighting the ways in which both agreements subvert environmental and livelihood security.

One explanation for the gap between, on one hand, the intent of riparian states to promote sustainable development through international agreements and, on the other hand, ecologically deleterious outcomes is an overall reluctance to move towards the sorts of post- or trans-sovereign arrangements that are likely necessary

[4] Jetfetr Sapukwanya, Zambezi River Authority. Interviewed in Lusaka, Zambia, May 2004.

[5] Ian Campbell, Mekong River Commission, November 2002, Dialogue on River Basin Development and Civil Society in the Mekong Region, Ubon Ratchathani, Thailand.

to address the disjunction between ecological processes and political organisation. Clearly, ''states are not ecosystems'' (Taylor 1994, 161), and states—the ''power container[s]'' of modernity (Giddens 1985, 13)—will not be easily convinced to adopt holistic, ecosystem-based management strategies that require some forfeiture of state power. Since states are the only international actors that possess the ''key set of privileges'' (Hochstetler et al. 2000) constituting sovereignty, it is not surprising that, as Duda and La Roche (1997) note, ''the lack of progress in dealing with well-known water quantity conflicts . . . is rooted in the desire of countries not to 'give away' their future, i.e., not to relinquish their sovereignty . . . over the most precious development resource, water'' (131). However, efforts by states to negotiate treaties and conventions, from the Montreal Protocol to the Convention on International Trade in Endangered Species, signal widespread recognition of the efficacy of cooperation around transboundary environmental issues and problems. To the extent that these agreements and the legal principles upon which they rest enable environmental governance (and therefore advance ecological and human security), they are significant and worthwhile efforts.[6]

But, it is deeply problematic to assume that all such agreements will advance sound environmental governance, no matter how well intentioned. Cooperation among states built around the premise of development and equitable allocation of a shared natural resource offers no guarantee that the resource will be utilized in a sustainable fashion (Sneddon and Fox 2006). This brings us to the second aspect of the explanation for the contradiction between intent and outcome in transboundary river basin agreements: sovereignty as currently constructed is inadequate as a foundation of multilateral agreements seeking to promote holistic environmental governance. This dilemma is both complex, bound up as it is with the socially constructed and multi-dimensional nature of sovereignty, and worrisome, because it reveals how the illusion of ecologically meaningful cooperation obscures the problematic consequences of transboundary agreements.

Our investigation of this dilemma builds on theories of the social construction of sovereignty, whereby sovereignty and the state are understood as constitutive of one another, with states defined ''in terms of their claims to sovereignty, while sovereignty can be defined in terms of the interactions and practices of states'' (Biersteker and Weber 1996, 11). To investigate environmental consequences of the social construction of sovereignty, we focus our analysis on the mutually constitutive relationship between representations of the natural environment, international law, and sovereignty. We further incorporate an understanding of sovereignty as multi-dimensional. As such, it can be unbundled to reveal patterns of legitimacy, autonomy, and control (Litfin 1997; 1998). While the precise meaning of each concept is contestable, we draw on Litfin (1997) for the following definitions. Autonomy refers to independence in making and implementing decisions, control is the ability to

[6] Environmental or ecosystem governance takes into consideration processes at a variety of scales, recognizes the natural variability and uncertainty of ecological processes, and includes in decision-making those affected by rules and policies. Ecosystem governance implies that both the ''integrity and resilience of democratic ideals as well as critical ecological processes'' are taken into consideration in environmental management (Cortner and Moote 1999: xi). Researchers from both the natural and social sciences understand ecosystem governance as a key component of ecologically sustainable resource management (see Brown and Macleod 1996; Cortner and Moote 1999; Gunderson et al. 1995; Lee 1992; Norton 1998; Walters 1986). Ecosystem governance is a logical first step towards ensuring human and ecological security.

produce an effect or influence an outcome, and legitimacy refers to the right to make rules and participate in formal agreements. Evidence of sovereignty's socially constructed and multi-dimensional nature can be seen in the practice of ''sovereignty bargains'' in regional cooperation (Byers 1991; Litfin 1997). When a state engages in a sovereignty bargain in negotiations or cooperation, it cedes some dimension of sovereignty while retaining others. The Mekong and Zambezi agreements, both of which are grounded in international watercourse law, compel states to surrender only some autonomy of decision-making, keeping legitimacy and control largely intact. Yet, surrendering autonomy does not lead to ecologically or socially meaningful cooperation in these transboundary rivers, while giving the impression of doing so. We demonstrate how assumptions about, and specific representations of, the natural environment are instrumental to both the social construction of sovereignty and the legitimization of sovereignty bargains. In short, we contend that transboundary river basin politics—whether played out among states or between state agents and local communities—and the struggles over resources at multiple scales upon which they are based, play an important and often overlooked role in the ongoing construction of sovereignty in the world today, with important consequences for environmental security.

To summarize, the research establishes the ways in which the Mekong and Zambezi agreements are promoting environmental securitization at the expense of ecological and human security. Rather than advancing environmental governance to safeguard the rights of communities and ecosystems, the agreements are likely to precipitate and mask environmental degradation until it becomes serious or even irreversible, contributing to insecurity at a variety of scales. Failure to recognize both the socially constructed and the multi-dimensional nature of sovereignty makes it difficult to anticipate such problematic consequences from seemingly progressive environmental initiatives.

The paper begins with a biophysical introduction to the Mekong and Zambezi basins and the agreements that structure cooperation. We then analyze the agreements by drawing on conceptual work in critical geopolitics, environmental security, and the social construction of sovereignty. We ground our analysis by examining how intergovernmental cooperation as currently structured is influencing wetland ecosystems, given that wetlands are pivotal in terms of the linkages between ecological and human security. The paper concludes with recommendations for recognizing and moving away from securitization in transboundary river basin politics and moving towards a more livelihood-based and ecologically literate environmental security. Importantly, we do not seek solely to criticize current cooperative arrangements. Rather, our intent is to reveal barriers—discursive, territorial, and institutional—to making ecological and livelihood security more central concerns of international river basin agreements.

2 The Zambezi and Mekong basins

Extending for 1400 kilometres, the Mekong River is the eighth largest river in the world and the longest river in Southeast Asia. The river originates on the Plateau of Tibet, flows through Yunnan Province in China, forms the border between Laos and Burma, flows eastward into Laos, and becomes the Lao-Thai border. The river then reaches Cambodia and becomes part of the Tonle Sap (Great Lake) ecosystem,

flows through the Mekong Delta in Vietnam, and empties into the South China Sea (Fig. 1). The Zambezi River originates in the Kalene Hills on the Central African Plateau and ends 3200 km downstream where the delta in Mozambique meets the Indian Ocean. Its basin covers approximately 25 percent of the land area of eight states—Angola, Zambia, Namibia, Botswana, Zimbabwe, Malawi, Tanzania, and

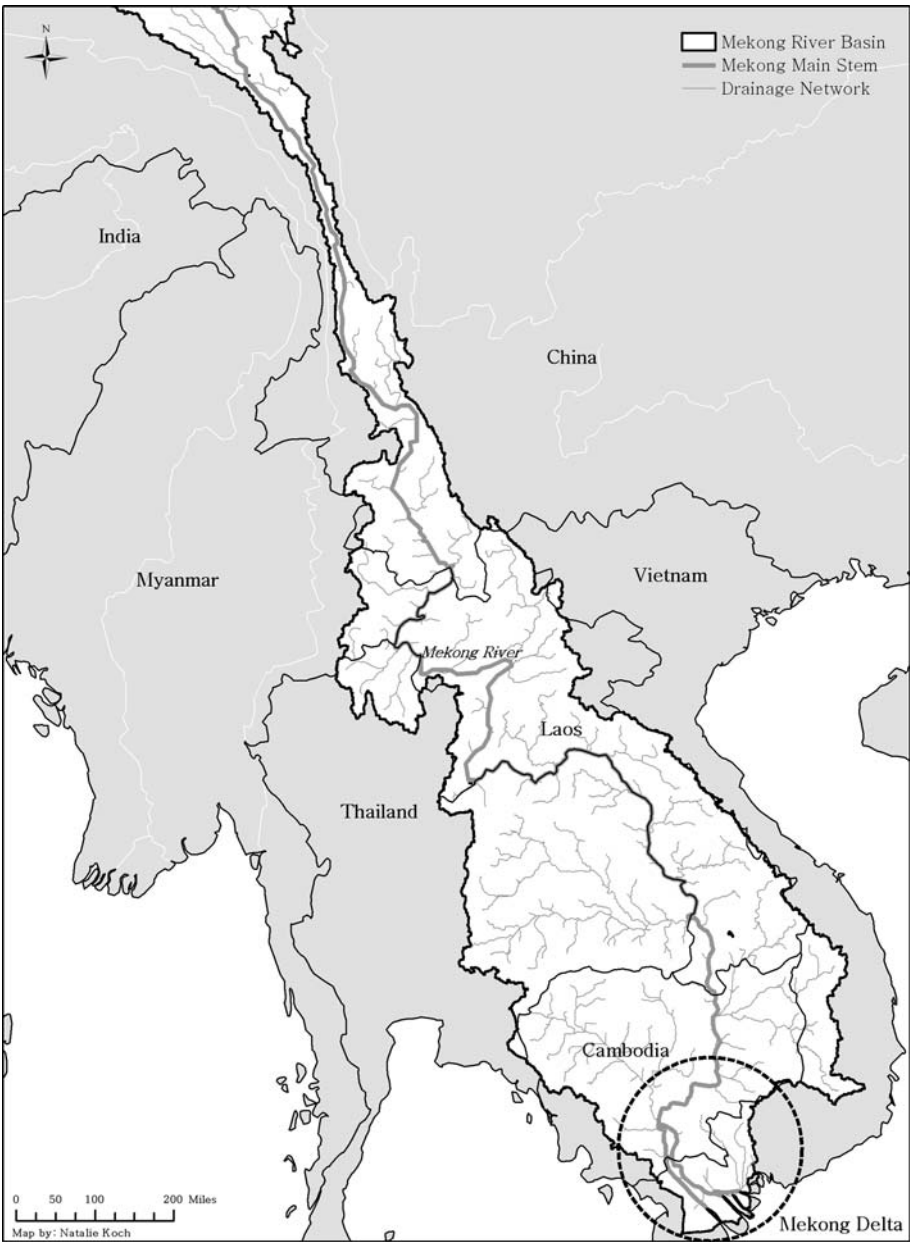

Fig. 1 Mekong River Basin

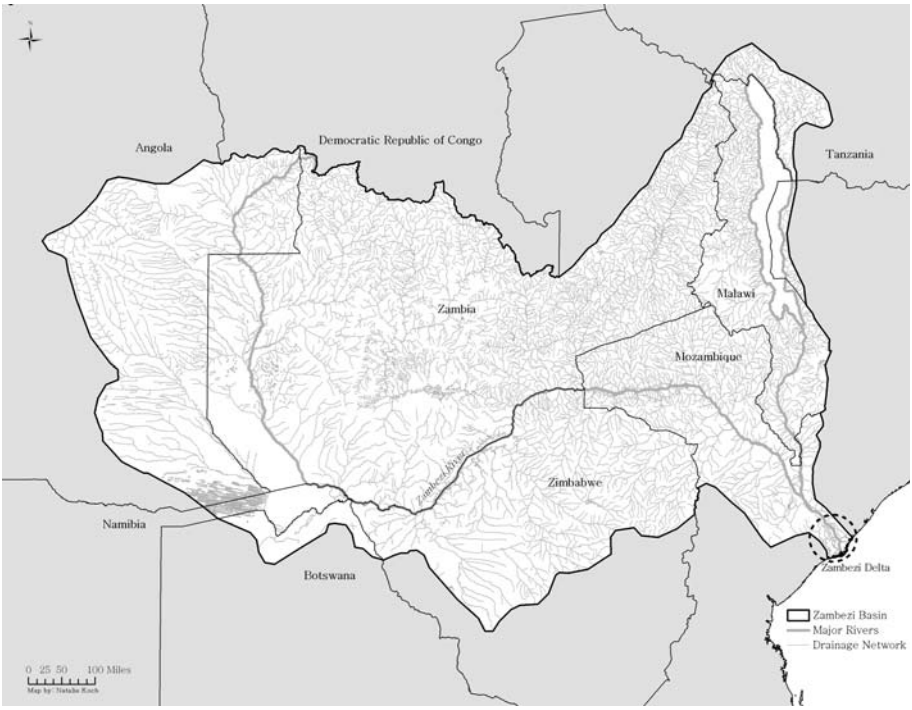

Fig. 2 Zambezi River Basin

Mozambique (Fig. 2). One rationale for selecting these two basins lies in the similar outcomes of transboundary agreements despite important geographical and biophysical differences.

There are also several key characteristics that are common to both basins. First, both basins are comprised of states that are legacies of colonial rule. Not only were the states themselves created by external actors, but the idea that space should be demarcated and organized politically into sovereign, territorial states is itself a product of Western European political and social processes (Murphy 1996; Painter 1995, 31).[7] In both basins, the years following decolonization have been marked by violent political conflict, leaving a legacy of poor social infrastructure, authoritarian governments, and, until quite recently, ongoing armed conflict. Importantly, very few conflicts over water have occurred solely among riparian states. Rather, most have been at the sub-national scale, frequently between state agencies and local

[7] In the Mekong basin, state borders were demarcated by the British (Burma) and the French (Laos, Cambodia, and Vietnam), with Thailand serving as a non-colonized buffer between the two powers. Prior to the imposition of the modern territorial state, which is based on absolute space (Taylor 1999, 69), political organization in the region was based on space ''conceived in terms of cosmology rather than geography'' (Jerndal and Rigg 1998, 814). The political world was modelled on the mandala, with states occupying ''vaguely defined geographical areas'' (Wolters 1999, 28). In the Zambezi basin, the Berlin Congress of 1884–1885 divided Africa among the European powers and created modern states in the Zambezi basin. The British ruled present-day Zimbabwe, Zambia, Malawi, South Africa, and Botswana, the Portuguese controlled Mozambique and Angola, and the Germans controlled Namibia and Tanzania. The arbitrary boundaries of these states completely disregarded pre-existing political, cultural, ethnic, and linguistic regions.

communities who disagree over water resource development projects. The Agreement and Protocol, due to their state-centric approach, have virtually no mechanisms for preventing or addressing conflicts at local scales. As we argue, the expectation of inter-state conflict over water is crucially bound up with the social construction of sovereignty and highly dependent upon a particular representation of river basin ecosystems.

Today, the human landscapes of both basins are characterized by cultural and livelihood diversity, and also serious poverty. While human development and well-being vary across the basins' national territories and landscapes, countries such as Laos, Cambodia, and Burma in the Mekong, and Malawi, Mozambique, and Angola in the Zambezi, remain some of the world's most impoverished places. Many of the poorest people in both regions live close to subsistence level, often depending on river ecosystems for some part of their livelihoods. Governments, multilateral development banks, and private investors in both basins place a high value on water resource development as a way to spur economic growth and alleviate poverty, evidenced by the SADC's Regional Strategic Action Plan (RSAP) and the Asian Development Bank's Greater Mekong Sub-Region (GMS) initiatives. The basins are seen as the engines of regional economic growth, to be spurred through hydroelectric development, the construction of energy infrastructure and regional transportation grids, and tourism development (Bakker 1999; Hirsch 2001; Mafuta 2005; SADC 2003).

Both the Mekong and the Zambezi are globally significant sites of biodiversity. There are at least 1200 and possibly as many as 1700 species of fish in the Mekong (Coates et al. 2003). There are a high number of endangered aquatic and terrestrial mammals in the region (including the Irrawaddy dolphin, Clouded leopard, and Asian elephant) and 280 species of birds (World Wide Fund for Nature 1998). The Zambezi basin is characterized by similarly high biodiversity, with more than 6,000 species of flowering plants, 700 species of birds, and 200 species of mammals (Chenje 2000). The fauna of the basin include large charismatic mammals such as the lion, giraffe, elephant, hippopotamus, and buffalo.

Wetland ecosystems in both basins demonstrate vividly the manner in which human security is linked to particular ecosystem services.[8] In the Zambezi, wetland resources across the basin—from the Barotse floodplain and Kafue flats in Zambia to the delta in Mozambique—have been described as the ''lifeblood of both human activities and the environment'' (Chenje 2000, 43). These wetlands are centers of biodiversity, with 133 bird species in the Bartose floodplain, 132 species in the Lower Shire, and 118 in the Zambezi Delta (Chenje 2000). They are simultaneously centers of human activity, sustaining fisheries, providing landscapes for floodplain recession agriculture, and bringing in tourism revenues. Nearly 20 million people—more than 50 percent of the population of the Zambezi basin—are concentrated around its wetlands (Matiza-Chiuta 1999). In the Mekong, wetland ecosystems store water, create habitat, and sustain agriculture and fisheries, thereby supporting millions of people and thousands of plant, fish, and animal species (Hubbel 1999; Tarr 2003). Mekong fisheries, of which the most productive are inextricably linked to the great

[8] Wetlands, according to the Ramsar Convention, include ''areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salty, including areas of marine water the depth of which at low tide does not exceed six meters'' (cited in Chenje 2000, 47).

floodplains of the Tonle Sap and Mekong delta, produce approximately two million tons of fisheries products each year, with between 64 and 93 percent of rural households, depending on location, in the Lower Mekong involved in fisheries (Coates et al. 2003, 12–14).

Wetlands, as the concrete sites of food production and sustainable livelihoods for millions of residents in each basin, are central to our analysis. These are the locales where the implications of prioritizing environmental securitization over human and ecological security play out most dramatically. Degradation of wetland ecosystems is increasing the vulnerability of millions of people, and degradation is being both accelerated and overlooked by cooperation as structured in basin agreements. This has to do, in part, with how the river ecosystems are represented by international watercourse law, which privileges the abstract notion of national sovereignty. This in effect marginalizes the specific human-environment dynamics of each basin that, we argue, are fundamental to long-term ecological and livelihood sustainability.

3 International watercourse law and the social construction of sovereignty

The United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses, the most recent effort to create a constitutive foundation for legal regimes in international watercourses, codifies the legal principle upon which the Mekong Agreement and SADC Protocol are based. The Convention is the outcome of 20 years of work by the International Law Commission (McIntyre 2004). For the purposes of our analysis, two aspects of the Convention are particularly relevant: the idea of a 'watercourse' and the codification of the principle of reasonable and equitable utilization. The principle of equitable utilization underpins agreements in the Mekong and Zambezi basins (Agreement 1995; Revised Protocol 2000), and the logic of this principle is dependent upon conceptualizing river basin ecosystems as watercourses; i.e., as water flowing through relatively well-defined channels. The extent to which these two basins rely on rules of customary international law to structure cooperation makes them somewhat unusual, a point made by a recent global review of international river basin treaties (Giordano and Wolf 2003, 78). While drawing on the language and rules of the UN Convention is widely interpreted as a positive development (both the Zambezi and Mekong agreements are often cited as promising models of river basin cooperation), we argue that reliance on general principles of international watercourse law, whose overarching goals support the maintenance of sovereign rights, undermine ecological integrity in both basins.

This is due, in part, to the fact that legal principles of international watercourse law promote a specific geopolitical and environmental discourse or 'geo-graph'. Geo-graphs are ''simplified descriptions of the earth'' that transform specific places and regions into the objects of politically influential narratives (Ó Tuathail 1996, 476). The narratives, in turn, are woven throughout and provide support for international policies and agreements. The dominant geo-graph in the Mekong and Zambezi basins is the 'watercourse', a ''system of surface waters and groundwaters'' (United Nations 1997) that, in practice, simplifies the complex ecological processes and systems that constitute a river *basin* ecosystem. The geo-graph of a watercourse is both foundational to international watercourse law and instrumental to the social

construction of sovereignty as it is applied in international river basins, enabling environmentally problematic sovereignty bargains.

An important assumption underpinning our analysis thus far is that states, sovereignty, and international law exist in a ''mutually constitutive interplay'' (Strang 1996, 23). In other words, sovereignty generates the institution of international law, and international law supports the practice of sovereignty.[9] When states enter into an agreement based in international law, they reproduce the rules associated with the underlying practice of sovereignty, rules that give states the legitimacy that make such agreements possible. Of course, by participating in international legal agreements, states do surrender some sovereignty, even as it is being reinforced. This is where recognition of the multi-dimensional nature of sovereignty is critical, since while ''international law itself is a limitation on state autonomy, a limitation to which the state has consented'' (Henkin 1995, 100), autonomy is only one dimension of sovereignty.

And, in the case of watercourse law, there is another element in the mutually constitutive relationship—that of representation. As expressed by simplified geographs, representation of the environment as 'resource' or as 'object of development' (see Mitchell 1995) is a critical, and often overlooked, component of the interplay, particularly as it relates to the exercise of legitimacy and control, which are two ecologically significant aspects of sovereignty. Representation is often concealed by taken-for-granted assumptions about the purpose and utility of ecological entities. In the case of international river basin agreements, the assumption is that river basins are in essence best represented as watercourses that can and should be developed, managed, and controlled to further national development. We argue that representing basin ecosystems as simplified watercourses, where the flow of water in the main channel and major tributaries is virtually the only concern, discursively transforms them from unpredictable, variable, complex land-water ecosystems into legal structures and natural resources, both of which can be demarcated, reduced to parts, rationally managed, and subjected to substantive rules of law such as equitable utilization. Once made legible to the logic of international law and the science of natural resource management, the river-as-legal structure and river-as-natural resource support and construct sovereignty by recognizing states as the only entities with the authority and legitimacy to sign international agreements, as well as by reaffirming state authority to manage and control resources in the name of national security and development. This process, in brief, is what we associate with environmental securitization.

In the following section we build our analysis around two key arguments: (1) that watercourses support the sovereign territorial ideal, while drainage basins or river ecosystems undermine it, and (2) that the principle of equitable utilization is only logical in the case of a watercourse. To explain exactly how this happens, why it matters, and what it means for ecological and human security, we first provide a brief

[9] The territorial state is the locus of sovereignty in the modern political world. In a world of territorial states, sovereignty, through both its external and internal dimensions, structures the Westphalian system of mutual rights and responsibilities (Litfin 1998, 7; Weber 1995). Externally, sovereignty means recognition by other states in the international system of states (Bierstecker and Weber 1996, 2). External sovereignty can also be described as legal sovereignty. States are recognized by other states as legitimate powers. Internally, sovereignty refers to autonomy and control within territorial boundaries, which means that states agree not to intervene in the 'internal' affairs of other states (Litfin 1998, 5).

history of the evolution of international watercourse law. We then explain why discursively turning river ecosystems into legal structures and natural resources is constitutive of sovereignty. Lastly, we show how this particular geo-graph facilitates ecologically problematic sovereignty bargains and therefore undermines environmental security in the wetlands of both basins.

4 International watercourse law—re-imagining rivers, constructing sovereignty

Several key organizations contributed significantly to the evolution of international watercourse law and the principle of equitable utilization: the Institute du Droit International, the International Law Association (ILA), and the United Nation's International Law Commission (ILC). Of particular importance are the Helsinki Rules on the Uses of Water of International Rivers put forth by the ILA in 1966 and the Draft Articles of the Law of the Non-navigational Use of International Watercourses, developed by the ILC between 1970 and 1994, which were adopted in revised form by the UN General Assembly in 1997. With different emphases, these international legal instruments put forward the following key principles: the notion of reasonable and equitable use of shared waters; the obligation not to cause significant harm to other nations when utilizing shared water resources; the duty to inform and consult with downstream neighbours regarding planned uses; and the need to share water data and related information. While the 1997 Convention has not entered into force yet, it remains a very influential and important document (McIntyre 2004). The Convention functions as a set of rules in the form of a coherent body of rights and obligations for the guidance of states in their mutual use of international rivers (Burchi 1992, 17). This is particularly clear in the case of the Mekong and Zambezi agreements, as we will show.

The development of these rules and articles has been characterized by an extended controversy over the principles of 'equitable and reasonable utilization' and 'no significant harm' (Beaumont 2000; Duda and La Roche 1997, 131; McCaffrey 2001), which are frequently seen as contradictory. The principle of equitable utilization determines the legitimacy of a use by balancing all factors relevant to a particular case and then determining whether the use is an equitable and reasonable one. The principle establishes that ''each riparian state is entitled to a reasonable and equitable share in the beneficial uses of the waters of the drainage basin'' (Legal Study Team 1993, 4). The 'no significant harm' rule precludes uses that result in significant harm to another state. The two are generally seen as conflicting, because ''while the former rule might permit significant harm as a result of an equitable use of the watercourse, the latter would not'' (Wouters 1996, 419–420). Because equitable utilization is more attuned to the sovereign right of upstream states to develop their portion of the river, it is usually preferred by upstream states. The no significant harm rule is generally (but not always) favoured by downstream states (McCaffrey 2001, 307). While it is ''difficult to answer the crucial question of which of the two rules—equitable utilization or prevention of significant harm—takes precedence over the other under Article 7 in the event they come into conflict'' (ibid. 308), of particular relevance for our analysis is the extent to which equitable utilization has been privileged in the Mekong and Zambezi agreements and the extent to which it is, in practice, the less-ecologically sensitive rule. As the case studies of downstream wetlands (the Mekong and Zambezi deltas) demonstrate, equitable utilization does

little to prevent upstream development (such as dams and water diversions), which are causing significant harm to peoples and ecosystems.

Another key controversy that shaped the Draft Articles was the choice of the term 'watercourse' instead of 'drainage basin' or 'watershed.' The decision to use the term watercourse was both deliberate and significant. The Commission rejected the terms 'watershed' or 'watershed ecosystem' because those terms so clearly acknowledge linkages between land and water (Brunnée and Toope 1997; Korhonen 1996, 488). Any regulation of land use by local or national agencies to protect river ecosystems could thus be interpreted as a threat to the sovereign territory of states. The watercourse idea emphasizes water as a physical substance to be allocated (Wescoat 1992), thereby adhering to historic understandings of how to protect river ecosystems by ''emphasizing water quality and only one aspect of water quantity: minimum flow'' (Poff et al. 1997, 769). The result is a disregard for interactions within the entirety of the river basin between flowing freshwater, streamside vegetation, and upland environments (Korhonen 1996, 482–483). A watercourse makes possible and logical the principle and practice of equitable utilization, whereby allocating water among states, ultimately for developmental purposes, becomes the key international issue. Agreements based on these ideas may be successful in protecting states' rights to water access and control in the short term, but ecological and human security will be sacrificed. By misrepresenting rivers within the standards of international water law, states are able to re-conceptualize them as resources and legal structures, thereby justifying the largely unmitigated exercise of control and legitimacy. Ensuring ecological security in large, transboundary river basins will require a move away from both watercourses and equitable utilization, because both rely on erroneous understandings of river basin ecology.

Contemporary river ecology emphasizes the dynamic and variable nature of river ecosystems (Poff et al. 1997; Stanford et al. 1996; Tockner et al. 2000), with a particular focus on the interface of ecology and hydrology (Gurnell et al. 2000). Research has revealed the importance of the flood pulse and aquatic/terrestrial transition zone (Junk et al. 1989), and ecosystem approaches to river protection and restoration note the key role of riparian areas and ecological connectivity (Gregory et al. 1991). River ecologists recognize the complex spatial linkages created by the four-dimensional nature of the river continuum (Stanford et al. 1996: 391), noting, for example, how 'batch' processes such as flood pulses sustain ecosystems. In other words, rivers are, in reality, much more complex and spatially variable than the ''single-thread channels from headwaters to the sea'' (Ward et al. 2001, 313) suggested by the image of a watercourse.[10] They are, in fact, created and sustained by links between vertical, temporal, lateral, and longitudinal dimensions. Wetlands, in particular, require seasonal, regular and episodic flooding to function, with the timing and duration of floods being especially significant (Chenje 2000, 47). Flooding creates connectivity between rivers, riparian areas, and floodplains. At the interface of land and water, it is obvious that ''rivers are not simply water'' (Graf 2001, 24). In choosing to prioritize the longitudinal dimension and the allocation of water,

[10] There are a number of (older) concepts in stream ecology that prioritize the longitudinal dimension and therefore reinforce the idea of a single-thread channel. Most notable is the River Continuum Concept (Vannote et al. 1980). This concept disregards floodplains and groundwater (Ward et al. 2001), which makes it blind to the land-water interactions that define wetlands. The River Continuum Concept supports the representation of rivers as watercourses, but it does not describe actual ecological processes in large, floodplain rivers.

watercourse law reflects a discursive and conceptual disregard for the past two decades of research in river ecology. Rivers are simply not recognized as the living habitats that they are (Westcoat 1992). Notably, it is the disjunction between reality and representation that creates important spaces for analysis. Flowing water, migrating fish, and suspended sediment are not ''flawlessly aligned with the Westphalian ideal'' (Strang 1996, 23), which allows one to see how the mutually constitutive relationship between state, sovereignty, and representation comes into being. A closer examination of the international agreements centered on the Mekong and Zambezi provides concrete examples of this relationship.

5 The river as natural resource and legal structure—ceding autonomy, maintaining control, and reinforcing legitimacy

Both the Zambezi Protocol and Mekong Agreement rely, explicitly and implicitly, on the idea of a watercourse. The Zambezi Protocol begins by: ''Bearing in mind the progress with the development and codification of international water law initiated by the Helsinki Rules and that the United Nations subsequently adopted as the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses'' (2000, 1). Not only does it 'bear in mind' the Convention, but also the document adopts the idea of a watercourse so thoroughly and deeply that the word river (let alone basin or watershed) is absent entirely from its pages. The Mekong Agreement, which was drafted before the UN adopted the 1994 rules, does not actually use the word watercourse, instead referring to the Mekong River basin. Nonetheless, it adopts the principle of equitable utilization, which is bound up and dependent on the idea of a watercourse. The document prioritizes sovereign equality and territorial integrity (Article 4) and the maintenance of flow in the mainstream (Article 6), both of which are inconsistent with a basin approach. In other words, the document uses the rhetoric of a basin, but adheres to the logic of a watercourse. We argue that both the explicit adoption of a watercourse in the Zambezi and the implicit reliance on the idea in the Mekong aid in the conceptualization of rivers as territorially-bound resources amenable to, as well as constitutive of, the logic of sovereignty. The control of water is vested solely in the hands of states. This is problematic because ensuring ecological and human security will require significant surrender of control by basin states. As it is, riparian states are compelled to give up autonomy of decision-making only through notification and consultation with other basin states.

In both basins, for example, large dams and diversion projects are key expressions of control over the landscape. Dams, in particular, facilitate control through the storage of water for energy generation or transfer. Dams and other water engineering projects –seen as essential infrastructure critical for promoting and sustaining regional economic development, trade, and investment—are important for maximizing development potential (SADC 2003, 3). Both agreements emphasize the rights of each country to utilize and therefore control watercourses ''within its territory and without prejudice to its sovereign rights'' (Revised Protocol, Article 3), based on ''sovereign equality and territorial integrity'' (Agreement, Article 4). Such assurances appear repeatedly in each document, and the result can be clearly seen in the emphasis placed on hydroelectric development in each basin, not necessarily within the agreements themselves, but within the statements of development

planners and associated documents (e.g., MRC 2001). Importantly, states do surrender some autonomy of decision-making in this process. Both the Mekong Agreement (Article 5) and the Zambezi Protocol (Article 4) contain provisions that stipulate an obligation to consult with or notify riparian neighbours prior to the construction of specific projects. In the case of the Mekong, the procedures essentially allow states to do whatever they choose on tributaries within their territorial boundaries, thus reaffirming sovereign power (see Sneddon and Fox 2006). In the Zambezi, the procedures are more detailed, with provisions for a six-month waiting period for project implementation in certain cases (Article 4) and instructions about what actions to take in the case of a failure to notify. Yet, Article 4 ends by giving states the right to proceed with projects deemed 'urgent', allowing them to notify and provide information after implementation has begun. As with the Mekong, both the language of the document and evidence in the basin itself suggest that states' rights to control the river within its territory is in no way compromised by the transboundary agreement.

In the Zambezi Basin, more than 30 large dams have been built throughout the basin, and post-Protocol plans for additional large dams include the Mphanda Nkuwa dam on the mainstream in Mozambique, the Gwayi-Shangani dam in Zimbabwe, and the Batoka Gorge project on the mainstream between Zimbabwe and Zambia. The Gwayi-Shangani dam is the first step of a larger project to divert water from the Zambezi to the city of Bulawayo in Zimbabwe. In the Mekong Basin, the Theun Hinboun and Nam Theun II projects in Laos and Yali Falls scheme in Vietnam are just a few of the dams that have been built or are being planned under the auspices of the Mekong Agreement. In June 2003, Vietnam began construction of its second large dam on the Se San River, while Thailand continues with plans to divert water from the Mekong to irrigate its arid Northeast region.

The fact that dam building and diversions are going forward in both basins reflects both an affirmation of states' rights to do what they choose with water within their territories and a confidence in humankind's ability to engineer and control nature. These assumptions are inextricably bound to particular representations of river ecosystems. Representing complex and unpredictable ecosystems as watercourses transforms them easily into natural *resources*, which, in turn, induces values of utility and rational use, suggesting an environment that requires human intervention and management (see Smith 2000: 178). States are seen as the rightful mangers of natural resources, which often means seeking some optimal yield or maximum return in the name of national development. Managing resources ''is something state agencies 'do' as a result of the state's distinctive position in society'' (Bryant and Wilson 1998, 322), and those resources are managed intensively due to the ''imperatives of economic growth'' (Sanderson 1995, 381). A watercourse, because it is essentially water that is confined spatially to the main channel and tributaries, is a resource that lends itself to management and control. The water can be transformed into a ''target variable'' that is controlled to achieve a particular social or political objective (Holling 1995, 7), with a goal of reducing the very variability and unpredictability that creates and characterizes the ecosystem. Unlike a river that is understood as unpredictable, chaotic, and ''intrinsically unmanageable'' (Hinton 1996, 49), a watercourse is easily portrayed as a ''technical matter for expert regulation or as a matter for global management'' (Dalby 2002, xxx). In short, complex river ecosystems are not easily reconciled with the sovereign territorial ideal, while watercourses

lend themselves quite well to the practice of sovereignty, particularly as expressed by control.[11]

A watercourse, unlike an unpredictable riverine-riparian ecosystem, also reflects a ''sovereign mode of knowledge'' (Dalby 2002, 161) that can be advantageously applied to the environment. It, however, like other such simplified geo-graphs, is ''politically inadequate for the new and more complex understandings of natural systems and ecological impacts'' (ibid. 161). A watercourse promotes policies that support securitization, which is primarily about access to and control over resources (see Vogler 2002). Yet, because the sovereign-territorial ideal, more often than not, does not describe the specificities of ecological, social, or cultural processes in the diverse locales that constitute a national territory, managing a complex ecosystem (which may or may not correspond to territorial boundaries) in accordance with the ideal will do little to advance human and ecological security. Managing rivers as though they were watercourses is likely to lead to ''suppression, and in some cases permanent loss, of environmental heterogeneity and biodiversity, fundamentally reducing the productive capacity of biotic resources (Stanford et al. 1996, 393). Case studies from a variety of ecosystems show that, historically, ''attempts to manage ecological variables (e.g., fish, trees, water, cattle) inexorably led to less resilient ecosystems, more rigid management institutions, and more dependent societies'' (Holling 1995, 6–7). Human and ecological security will suffer as greater control is exercised over ecosystem processes.

Similarly, representing the river as a watercourse helps transform it into a legal entity subject to principles such as equitable utilization. The river as legal structure reinforces state legitimacy, since riparian governments are the only parties able to participate in decision-making around transboundary rivers once they fall under the purview of international law. The only actors recognized by the Protocol are 'watercourse states' (Article 1.2), and the only parties recognized by the Mekong Agreement are the states of Cambodia, Lao PDR, Thailand and Viet Nam. It is assumed that the interests and security of communities at other scales, both human and non-human, will be adequately protected by states. While both documents require states to notify and consult before diverting and developing the river in certain cases, the notification and consultation takes place among states. The non-involvement of other actors is not surprising, since states are ''still the principal actors in the international law-making process'' (Fuentes 2002, 113), evidenced by the fact that there is a ''general unwillingness of states to allow any party other than another state to sign an international agreement'' (Murphy 1999, 231). The state-centric nature of international law emphasizes the welfare of the state, so that ''environmental degradation becomes an international, political, and geographic issue [only] when it undermines a state's resource base and compromises its national security'' (Cutter 1999, 171).

Ultimately, once the river is defined as a watercourse, subject to the principle of equitable utilization, all the communities that are linked to and dependent upon the ecological processes outside of the main channel are rendered invisible. They are not parties to international agreements, nor are they seen as having legitimate interests in the allocation or equitable utilization of water among states. Obligations therefore

[11] Ironically, the 20th century is replete with examples of efforts to control water through large-scale dam construction stymied by the unruly and unpredictable behaviour of river systems. The end of result of many such projects has been quite severe social and biophysical disruptions (McCully 2001).

extend only to the ''rights and legitimate interests of other States'' (Revised Protocol, Article 4.1). Moreover, complex aquatic and riparian ecosystems are difficult to control and partition, but water in a channel lends itself to quantification and allocation. In both agreements, the restraints on resource use pertain to the exploitation of water itself, and not necessarily to the terrestrial environments or land-water interfaces, which comprise the *basin* ecosystems. Reasonable and equitable utilization pertains to ''water utilization and inter-basin diversion'' (Agreement, Article 5) of the ''watercourse'' itself (Revised Protocol, Article 2). While both the Agreement and the Protocol include language about the protection of ecosystems and environmentally sound development, we argue that this is extremely unlikely to occur, given the few restrictions placed on states to use the river within their territories howsoever they deem fit, and considering the lack of representation by communities that will be affected by this control of the river.

6 Sovereignty bargains and wetland ecosystems

The principle of equitable utilization of watercourses reinforces legitimacy and control by states, compelling them to give up some autonomy of decision-making through notification and consultation among themselves. While this ensures environmental securitization by guaranteeing states the right to exploit resources falling within their national boundaries, it undermines ecological and human security through the disruption of ecosystems and livelihoods. Evidence of the threat to human security can be seen in the wetlands of each basin. In both the Mekong and Zambezi cases, variability of flow and high flows during the rainy season are critical to the integrity of wetland ecosystems, but maintaining flows to sustain complex land–water interactions cannot be accomplished unless states are willing to give up their right to total control over the river's flow within their territories. The following brief examples demonstrate how human and ecological security are being compromised in each basin as a result of development occurring under the Protocol and Agreement. More specifically, the SADC Protocol and the Mekong Agreement have created, in the name of inter-state cooperation, the institutional conditions whereby the implementation of large-scale development projects (e.g., hydroelectric dams) that detract from ecological and livelihood security is more feasible than in the past. Moreover, there is little in either accord to prevent or mitigate the socially and deleterious impacts likely to result from such projects when such projects, undertaken by an individual state, do not directly impinge on the sovereignty or 'environmental security' of neighbouring states.

7 The Zambezi delta

The wetlands of the Zambezi, totalling some 66,000 square kilometres, are important throughout the basin, from the floodplains of eastern Caprivi in Namibia, to the Kafue Flats in Zambia, to the Zambezi delta in Mozambique. The Zambezi delta, which has been described as the ''lifeline of central Mozambique,'' and which has high conservation value as one of the most productive and biologically diverse tropical floodplains in Africa (International Crane Foundation 2003), is particularly relevant to our analysis. The delta has been adversely affected by dams built in the

past, specifically the massive mainstream Kariba and Cahora Bassa dams (built in 1959 and 1975, respectively), and it will be impacted further by the planned Mphanda Nkuwa Dam in the Lower Zambezi Valley downstream of Cahora Bassa in Mozambique.

For wetland ecosystems such as the delta, dams are particularly problematic because they alter the natural flow regime that creates and sustains the ecosystem. A dam can be understood as a ''cataclysmic event in the life of a riverine ecosystem'' (Ligon et al. 1995, 183), one that affects all aspects of a river's ecology, from the flow of water to the movement of sediments, nutrients, biota, and energy. Prior to the construction of dams, the annual flooding of the Zambezi nourished the floodplain, which provided opportunities for flood recession agriculture, hunting, fishing, and the use of other natural resources to support livelihoods. Wattled cranes, African elephants, Cape buffalo and other species thrived in the delta. With the construction of large dams, this ecosystem has been increasingly altered and threatened. For example, in the floodplains of the Marromeu Complex of the Zambezi delta (a wetland of international importance under the Ramsar Convention), wetlands along the southern bank of the Zambezi river ''have only been flooded significantly on three occasions'' since the construction of Cahora Bassa in 1975 (Bethune 1999, cited in Chenje 2000, 49). Absent annual floods, the wetlands of the delta have suffered loss of biodiversity, saltwater intrusion, loss of fishing, farming and grazing opportunities, and a decline in the productivity of the coastal prawn fishery.

In 1997, recognizing the critical importance of the natural and seasonal flow regime of the Zambezi, scientists and resource managers began discussing and proposing controlled releases from Cahora Bassa to restore important ecological functions in the delta (Chenje 2000, 63). The construction of Mphanda Nkuwa will make it much more difficult to implement these plans, since Mphanda Nkuwa will require that Cahora Bassa continue to operate according to its current release patterns. This means that instead of a return to releases mimicking annual flows, downstream ecological and human communities will experience a series of mini-floods, daily fluctuations that flood riverbank gardens and sandbars and disrupt fishing. A study found that Mphanda Nkuwa would dislocate more than 1400 people at the reservoir site and impact tens of thousands of people living downstream (Hillman and Traedal 2003).

For the government of Mozambique, Mphanda Nkuwa is a dam that will contribute to overall state security by providing an additional source of hydroelectric power. While some of the power will be dedicated to rural electrification and domestic industries, the vast majority will be sold to nearby states, prominently South Africa. It represents the right of the state to secure access and control over the river within its territory and use it to promote economic development. While the SADC Protocol seeks to prevent conflict between states over use of transboundary waters, it has no mechanisms for curbing the control that Mozambique seeks to exercise over the river within its territory. It has no mechanism for preventing and addressing conflicts at the sub-state scale. Nor does the Protocol recognize the many human and non-human communities that will be adversely affected by the dam. They are not seen as legitimate actors by the states that are members of the Protocol. And, because the resulting human insecurity is not seen as a threat to the security of any given state, it is not deemed a problem. Mozambique simply has to notify the other river basin states of its development plans in order to be a compliant and responsible member of the basin community. Compliance with the Protocol in this

case is ecologically and socially meaningless, since the autonomy that is surrendered has no real on-the-ground consequences. The Protocol therefore enables securitization of the environment at the expense of human and ecological security. It enables states to act as responsible members of the basin community by engaging in sovereignty bargains that require only some surrender of autonomy. Moreover, because Mozambique is the furthermost downstream state in the basin, its actions are not seen as an immediate threat to any other states, which means that the provisions in the Protocol for addressing and mitigating damages from river development and alteration cannot be invoked. A similar logic operates in the wetlands of the Mekong system.

8 The Mekong delta

In the Mekong basin, Vietnam's dam building activities on the Se San River and Lao PDR's dam building on a number of Mekong tributaries are compelling examples of the ineffectiveness of the Mekong Agreement in protecting human and ecological security. All of these activities are upstream of the Tonle Sap ecosystem, a vast inland wetland in Cambodia that is entirely dependent on the natural flow regime of the Mekong River. As a tropical river, the seasonal variability of the Mekong's flow is of particular importance (Dudgeon 1992, 167; Hudson-Rodd and Shaw 2003). In the Mekong basin, the annual flood (with peak flows in September-October) increases river flows to nearly thirty times those of the dry season (Phranjsavong 1996, 26). Rather than being catastrophic, floods are predictable annual events that facilitate the exchange of water, sediment, nutrients, and organisms between the channel and the floodplains. In such an ecosystem, the absence of a flood constitutes a problematic disturbance (Sparks 1992, 145). Annual floods cause the Mekong to reverse its flow, which expands Tonle Sap to five times its dry season size and submerges 1.25 million hectares of forest and agricultural land beneath 10 meters of water for several months (Bonheur and Lane 2002). The flooding sustains an incredible level of biodiversity, including a range of invertebrates, snakes, turtles, crocodiles, fish, birds, and a number of globally threatened mammal species (ibid. 34). Most importantly in terms of livelihood security, the annual flooding of the Mekong creates a fishery in the Lower Mekong (which includes Tonle Sap) that produces an estimated two million tons per year of fishery products and comprises between 1,200 and 1,700 different species (Coates et al. 2003; Jensen 2001). Fish rely on the onset of annual floods, that are remarkably consistent year-to-year in their timing and duration, to signal migratory and reproductive behaviour and to open up floodplain habitats for reproduction and crucial food sources (White 2002; Sverdrup-Jensen 2002), and many economically important fish species synchronize breeding and feeding with the flood season, migrating laterally into inundated floodplains (Dudgeon, 1992, 171). Food security in Cambodia depends upon this productivity and biodiversity, with over a million people relying on the fisheries for their livelihoods (Bonheur and Lane 2002). Flooding also creates agricultural landscapes that allow recession agriculture and wet rice cultivation. Similar to the Zambezi delta, human and ecological security are inextricably bound to an intact ecosystem.

Upstream of the Tonle Sap ecosystem, Lao PDR contributes approximately 35% of the Mekong's total annual flow, and Viet Nam contributes approximately 11% (Phanrajsavong 1996). Since 1995, Lao PDR has constructed or is planning to build

numerous dams on its tributaries, including the Theun Hinboun, Nam Theun II, Xe Kaman 1, and Nam Theun 1 dams. Vietnam has built the Yali Falls dam on the Se San River, a major tributary of the Mekong, and in 2003 began building a second large dam on the river (Hirsch and Wyatt 2004). Without question, the cumulative impact of numerous dams on tributaries of the Mekong, in addition to those that China has completed and is constructing on the main channel's upper reaches (see Magee 2006), will be felt downstream in the Tonle Sap ecosystem. A particular concern is the attenuation of the flood peak that accompanies dam operation. Because the dams are being built to generate electricity, they will retain water during the wet season for release during the dry season and during times of peak demand. Similar to the Zambezi, this means rivers will no longer flood annually in a relatively predictable manner, but will experience mini-floods at unexpected times, often on a daily basis. Moreover, there will be an overall regulation of the river's discharge rates that will lead to higher flows during the dry season and lower ones during the wet season. This is an entirely different flow regime than the natural one to which people and species have adapted.

Under the Agreement, there are virtually no restrictions on what a country can do within its own territory. The assumption is that states have the right to control the river within their own national boundaries. As in the Zambezi, the Mekong states must notify or consult before construction of a water resource development project begins, although the Agreement only requires notification (the less strict of the two standards) for tributary development. Specifically, ''On tributaries of the Mekong River, including Tonle Sap, intra-basin uses and inter-basin diversions shall be subject to notification to the Joint Committee [of the Mekong River Commission]'' (Article 5). This means that Lao PDR and Viet Nam can build as many dams as they deem necessary and economically feasible on tributaries within their borders, and that Thailand can divert water from its tributaries as it sees fit. The primary concern of the Agreement is with development on the mainstream that does not interfere with other states' water development plans as codified in the principle of equitable utilization, particularly with regard to maintaining a minimum flow in the channel during the dry season. Yet, the water of the mainstream cannot be separated from that of its tributaries. The tributaries feed the mainstream, and the mainstream is connected to the tributaries by nutrients, sediment, energy, fish and other aquatic species. The tributaries contribute much of the flow that feeds the annual floods. Failure to recognize the importance of the flood peak, of land-water interactions, and of tributary-mainstream interconnectedness reflects the dominance of a water-course mentality. Cooperation around the river is truly carried out as though the river were a ''single-thread channel[s] from headwaters to the sea'' (Ward et al. 2001, 313). The text of the Agreement in effect allows the water in the river channel to be severed from its basin, implying that states can more easily justify their right to control, manipulate, and disrupt the river's flow, despite the fact that human and ecological security are being undermined. States are under no obligation to consider how their actions might affect downstream communities; nor are there mechanisms for mitigating harm that might come about as a result of upstream activities. They can be responsible members of the basin community simply by notifying the Joint Committee of their intentions.

This is a clear example of sovereignty bargains at work. Relatively meaningless surrender of autonomy through notification and consultation will do nothing to ensure that long-term ecological and human security are sustained. Rather, since

control and legitimacy remain largely intact, these 'everyday' forms of security, revolving around livelihoods, will be undermined even while states are adhering to the requirements of the Agreement. Although opposition to the dam-building programs of Mekong states has emerged in response to the many concerns mentioned above, much of this opposition has come from sub-national and transnational non-governmental organizations who are not recognized as having a legitimate say in transboundary river basin governance.

9 Conclusion

Current models of transboundary river basin cooperation in the Mekong and Zambezi basins do little to advance sustainable ecosystem governance. Instead, the Mekong Agreement and the Zambezi Protocol enable a deeply problematic securitization of the environment. The projects and policies that underpin this securitization are directly responsible for declining human and ecological security in both basins. We argue that this situation is especially worrisome because seemingly progressive transboundary river basin agreements are obscuring a clear understanding of who is responsible for increasing insecurity. This obfuscation is possible because the agreements depend on and perpetuate mis-representations of riverine ecosystems, and because they allow sovereignty bargains that are likely to hasten ecologically deleterious development activities rather than ensure the integrity of each basin's ecosystems.

We suggest that in both the Mekong and Zambezi basins, ecologically and socially meaningful cooperation among state and non-state actors would challenge sovereignty more fully. Genuine efforts towards human security, and the ecological thinking upon which those efforts must be based, entail serious consideration of ''what postsovereign politics is and might become'' (Dalby 2002, 161–162). Such efforts imply a re-thinking of the notion that states should be the primary managers of the natural environment. Surrendering control requires a more accurate consideration of the ecological dynamics of river ecosystems and recognition of the value of free-flowing, uncontrolled rivers. This too implies a re-thinking of society-nature relations and of how we represent the natural world. In other words, in working towards social and ecological sustainability, states (and the agreements that they craft) must confront and address more directly the disjuncture between ecosystems and the sovereign territorial ideal.

Taylor (1994, 161) asserts that, ''As we approach another negative-sum game – testing the fragility of the Earth's ecology—anti-territoriality will have to be part of the solution with territoriality the problem.'' The anti-territoriality of which Taylor writes can only be brought about by reconsidering the sovereign-territorial ideal, whereby states aspire to maximize autonomy, control, and legitimacy. As the Mekong and Zambezi examples demonstrate, there is little opportunity for moving towards sustainable governance when sovereignty remains largely intact. Kuehls goes so far as to suggest, ''a true ecosystem management program would radically alter current political economic systems which are part and parcel of the construction of geopolitical space'' (1998, 48). While this may be the case, it is also likely that less radical modifications to current international agreements could have significant, positive implications for communities and ecosystems in transboundary river basins.

A first step would be to recognize that state security is not synonymous with human and ecological security. An agreement that prioritizes environmental security rather than securitization would look much different than current arrangements. Such an agreement would necessarily be based on what we know (and do not know) about the complex and highly interrelated dynamics of the hydrology and ecology of large river basins, since the functioning and integrity of the ecosystems within those basins is inextricably linked to human and ecological security. The 'environment as the ideological framework' would therefore replace sovereignty as the organizing principle around which cooperation is structured (Margesson 1997, 33). This, in turn, would likely demand a sort of ''hybrid problem-solving governance in which sovereign states and nonstate parties actively collaborate, roughly as equal partners, to address certain kinds of complex problems'' (Karkkainen 2004, 74) associated with transboundary river basins. This is not so far-fetched, as the case of the Danube River Basin reveals. There, epistemic communities and local governments are meaningfully involved in the transboundary Environmental Program for the Protection of the Danube River Basin (Margesson 1997). Cooperation along these lines would not be based on the principle of equitable utilization between states. Rather, it might be guided by an idea similar to the principle of 'community of interests' (Radosevich 1995), which takes into account the many interdependent actors and ecological processes in a complex political-ecological system.

Regardless of how agreements evolve in any given river basin, they will require the recognition and creation of new political spaces. New political spaces imply some level of deterritorialization, and, indeed, possibilities for ''empowerment . . . are latent in a deterritorializing world system'' (Agnew and Corbridge 1995, 9). The transnational river basin, precisely because it transgresses political boundaries, should be thought of as one of these 'new political spaces', in part because treating a river system as a basin rather than as a simple network of channels threatens the dominant geopolitical order, its understanding of territory, and, perhaps most problematically, the economic development desires of states. While this may be threatening to states in the short term, their failure to evolve—and their insistence on preserving the sovereign territorial ideal in the face of its inadequacy—will only hasten the sorts of human and ecological security crises that ultimately undermine the power and legitimacy of states.

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