

CHAPTER 4

The hydropolitical dynamics of cooperation in Southern Africa: A strategic perspective on institutional development in international river basins

Anthony Turton

Abstract

The dominant hydropolitical literature on transboundary rivers relates to conflict. This is not an accurate version of reality for the Okavango River basin. This chapter introduces two concepts of security and two concepts of peace, linking all four into a more nuanced approach. Experience from transboundary rivers in Southern Africa shows that where institutions such as OKACOM exist, they reduce the conflict potential by institutionalising rules and procedures, thereby creating confidence and reducing uncertainty. The securitisation of water resource management is generally undesirable, because it stunts institutional development by undermining the extent to which hydrological data is shared between all riparian states. Consequently, if conflict is to be mitigated, then the management of transboundary rivers needs to be desecuritized, or placed in the normal political domain where it can be openly debated, a healthy condition that results in viable policies.

Introduction

The Okavango River basin is unique in a number of aspects, not least of which is the fact that it is an endoreic system that terminates in the sands of the Kalahari Desert. Here it is essentially 'lost' as evapotranspiration, after flowing through parts of Namibia and Botswana, both of which are developing economically and are also water-stressed. It is also a relatively pristine ecosystem, with limited industrial development along its entire course, which has tended to transform it into an internationalised river basin with many interested roleplayers beyond the three riparian states. The basin includes areas where conflict has been endemic over the last quarter of a century. For example, the largest portion of the basin lies in Angola, which has been embroiled in a civil war since 1975, with high numbers of internally displaced refugees. This has generally destabilised the region where the Okavango basin is situated (Meissner 2000:118). Renegade elements of the Angolan civil war have randomly attacked both military (Europa 1995:2176) and civilian targets on

occasion, some in the Caprivi Strip, thereby undermining the tourist potential of Namibia. Similarly, a series of disputed islands found in the adjacent Chobe/Linyanti wetland complex have seen the mobilisation of troops from both Botswana and Namibia in the recent past (Africa Research Bulletin 1996; Ashton 2000:82-86; Economist Intelligence Unit 1996:7; News Digest 1995; Rakabane 1997; SAPA 1996; Southscan undated; Turton 1998:178-192; Vines 1996). The propensity for heated rhetoric is high (Electronic Mail & Guardian 1997; Pretoria News 1996; Radio Botswana 1996; Ramberg 1997; Republikein 1995; Weekly Mail & Guardian 1996a; 1996b; World Rivers Review 1997) and the Permanent Okavango River Basin Water Commission (OKACOM), according to Swatuk (2000:183), has not been particularly strong in developing, agreeing and implementing institutional management structures. OKACOM has thus not yet shown itself to be sufficiently robust to withstand some of these inherent tensions.

It is against such a background that this chapter on the dynamics of institutional development is set. The chapter introduces the reader to four essential concepts – ‘negative peace’ and ‘positive peace’; ‘security of supply’ and ‘national security’ – and then analyses the hydropolitical dynamics of two key phenomena – securitisation and desecuritisation – which can be found in various international river basins in Southern Africa (Turton 2003). It concludes with a discussion of the role that river basin organisations such as OKACOM play in de-escalating the inherent conflict potential by creating a forum in which trust and confidence can be built. Consequently, institutions are a critical element for the peaceful and sustainable utilisation of shared resources like international rivers, particularly in areas of endemic conflict such as those found in many parts of Africa. Such institutions have to be elevated based on their strategic relevance if the African Union (AU) and the New Partnership for Africa’s Development (NEPAD) are to reach their objectives of poverty eradication and good governance.

Conceptual issues

The hydropolitical literature, particularly with respect to institutional development, is relatively new and tends to be characterised by vaguely defined concepts. For the purpose of this chapter, and in an attempt to develop conceptual clarity, key concepts to be used are explained below.

Two forms of peace relevant to international river basins

Two distinct forms of peace can be found, each with its own characteristics, and more importantly, each with a different prognosis for long-term economic growth and political stability. Consequently, this conceptual distinction needs to be factored into any institutional analysis, by virtue of the role that institutional development plays in each case. The first is ‘negative peace’, which exists when there is a mere absence of

war (Ohlsson 1995:5). It is this type of peace that exists in large parts of Southern Africa at present, particularly in the wake of the collapse of the Cold War and the demise of apartheid in South Africa. The second is ‘positive peace’, which focuses on the existence of prospects for social development (Ohlsson 1995:6). As such, positive peace is more than its counterpart, also consisting of intangible elements such as investor confidence, a normative order based on historic experiences of cooperation, functioning institutions that reduce the transaction costs of cooperation, and economic fundamentals that are conducive to stable and sustained growth.

In terms of this thinking, “water scarcity ... is defined as a threat, not first and foremost to international peace, but to the ability of developing countries to pursue a successful social development policy” (Ohlsson 1995:6). Stated differently, human security, as it is now commonly observed, consists not only of the absence of military conflict, but also of the existence of a broader range of conditions that must be met so that human beings can live full lives in the absence of fear and threat. Seen in this light, the strategic objective to be attained in the Southern African Development Community (SADC) Water Sector, is the shift in paradigm from the existing form of cooperation that is inherently a manifestation of negative peace, to a more complex paradigm that is deeply rooted in the more enduring foundation of positive peace. It is contended here that only when the latter objective has been reached, the appropriate levels of economic growth and political stability will be generated that are the very essence of NEPAD. It is therefore argued that an essential element of the AU is good governance, with no better challenge existing than the equitable management of the 15 river basins that are shared between two or more states in the SADC region. In fact, it is this aspect that makes SADC somewhat unique globally, because few other developing regions of the world have so many international river basins that are as strategically important to their respective riparians (see Wolf et al 1999).

Two forms of security relevant to international river basins

Water resource management is generally the domain of specialists, most of whom are engineers by formal training. Yet, the focus of their actions, in the context of international river basins such as the Okavango, falls within the domain of foreign policy and international relations (Henwood & Funke 2002). This is particularly relevant in areas of negative peace as defined above, because the actions of these engineers can be associated with threat perceptions in a national security context, potentially placing them in the domain of high politics. For this reason, it is important to understand that there are two distinct forms of security that can be found in the water resource management discourse of the SADC region.

The first form of security is related to engineering, and what can be called the ‘hydraulic mission’ of society. The term hydraulic mission has been used by some authors (Reisner 1993:112-114; Swyngedouw 1999a; 1999b) to describe the official state policy that seeks to mobilise water as a foundation of social and economic

development. The concept has also been used by other authors, but using terms such as the ‘high dam covenant’ (Waterbury 1979) and the era of ‘heroic engineering’ (Platt 1999). All of these essentially describe what is known in engineering parlance as ensuring the ‘security of supply’ of a given resource. It can therefore be said that local water scarcity prompts engineers to improve the ‘security of supply’, which is normally done by means of developing infrastructure such as dams, interbasin transfers (IBTs) and water reticulation systems like pipelines and aqueducts.

But this is not the whole story, because in the context of international river basins, particularly those found in arid and semi-arid regions of the world, any attempt to improve ‘security of supply’ by one riparian country merely cascades perceptions of insecurity elsewhere into the river basin. This means that the second distinct form of security found in international river basins is ‘national security’. As Buzan (1991:16) notes, the concept of national security does not lend itself to neat and precise formulation because it deals with a wide variety of risks with little knowledge about their probabilities, and contingencies that are only dimly perceived. Buzan (1991:16-17) cites a number of examples of definitions, at least two of which can be used in the context of water resource management:

“[National security is] the ability of a nation to pursue successfully its national interests, as it sees them” (Hartland-Thunberg 1982:50).

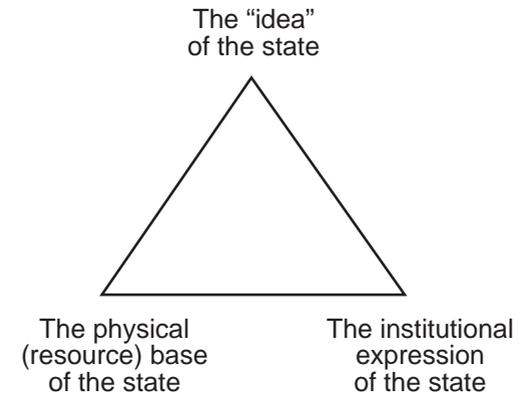
“A threat to national security is an action or sequence of events that (1) threatens drastically and over a relatively brief span of time to degrade the quality of life for the inhabitants of a state, or (2) threatens significantly to narrow the range of policy choices available to the government of a state” (Ullman 1983:133).

Noting that the concept of ‘national security’ is inherently difficult to define, Buzan (1991:65) suggests the use of a simple model to guide an exploration into the nature of the state and ‘national security’ (see figure 1).

Building on this, Buzan (1991:70) suggests that ‘national security’ implies that the object of security is the nation, raising questions about the linkage between the nation and the state. While the ‘idea’ of the state is somewhat nebulous and difficult to measure, institutions are more easily identifiable and are usually associated with complementary processes of government (Buzan 1991:85). The physical base of the state, in contrast to the other two components of the state, includes all the natural resources and manmade wealth contained within its borders (Buzan 1991:90). The physical base is also the area where states share the most similarities in relation to security, because threats to the physical objects (natural resources) are common to different states (Buzan 1991:91). This leads Buzan (1991:95) to conclude that, since the state ultimately rests on its physical base, threats to that component of the state count as fundamental national security concerns. Waever (1995:47) concurs, saying that the new discourse on security is about national security that focuses on the people

Figure 1

The component parts of the state



Source: After Buzan 1991:65.

who make up the nation; thus the security of individuals can be affected in terms of economic welfare, environmental concerns and cultural identity. Given the fact that state power is directly linked to the economic capability of the state, if the economy declines so too does state power. Thus, in times of intense power rivalry, relative economic performance or threats to the economic growth potential of the state may be perceived as being a national security issue, regardless of the wisdom of so doing (Buzan 1991:127). Stated differently then, the hydraulic mission of rapidly developing countries is about mobilising water resources and improving the ‘security of supply’ as a foundation for social and economic stability, which are also key elements of ‘national security’. This has clear implications for water resource management in international river basins, particularly in water-scarce regions, where access to water has a direct impact on the economic growth potential of the state concerned. This is clearly relevant to the Okavango River basin.

Weak states – defined as those with a low degree of sociopolitical cohesion (Buzan 1991:97) – such as states that have been embroiled in endemic civil wars, will tend to find it difficult to sustain institutional expressions of the state. This leads Buzan (1991:102) to conclude that the weaker the state is (in terms of sociopolitical cohesion) the more ambiguous the concept of national security will become in relation to that state. Consequently, a very weak state can be defined more as a gap between

its neighbours, with little political substance underlying the facade of internationally recognised statehood (Buzan 1991:103). This has obvious implications for institutional development in an international river basin containing both strong states (those with a high degree of sociopolitical cohesion) and weak states (that have been hollowed out by civil war or have a low degree of sociopolitical cohesion). Significantly, national security is dependent upon international dynamics, and especially regional dynamics (Waeber 1995:49). The proximity of insecurity in neighbouring states therefore exacerbates the conflict potential between riparians in an international river basin that straddles political borders.

Integrating these four concepts

It is necessary to establish a conceptual linkage between these four concepts. Table 1 shows the different outcomes in terms of threat perception for the two different forms of peace, shown as a function of the two forms of security.

Seen in this light, it is apparent that security can be approached either objectively (there is a real threat), or subjectively (there is a perceived threat), and there is no way of ensuring that these two approaches are aligned (Wolfers 1962:30 in Buzan et al 1998:30).

Institutional dynamics

Having established the linkage between some key concepts, institutional dynamics can be explored as they relate to river basin organisations (RBOs) such as OKACOM. Research currently under way (Turton 2002a) has shown that at least two distinct forms of institutional dynamic can be found in international RBOs in Southern Africa:

- zero-sum dynamics based on rivalry, perceptions of national insecurity and negative peace with a probable win-lose outcome; and
- plus-sum dynamics based on cooperation, perceptions of national security and positive peace with a probable win-win outcome.

***Securitisation of shared water resources:
Zero-sum hydropolitical dynamics***

The most common form of hydropolitical dynamic found in developing regions, particularly those emerging from periods of protracted political conflict such as wars of liberation or civil wars, is one based on zero-sum outcomes. Such outcomes have an inherently high conflict potential because the gain of one party is seen to be the loss of another, manifesting as a win-lose series of interactions. As noted in table 1, threat perceptions are important, because it is those perceptions of risk that become the fundamental drivers of decision-making. If it is accepted that almost all decisions in government are made against a background of imperfect knowledge about the

Table 1
Integration of four key concepts showing the most likely threat perception to arise from each combination

	Negative peace	Positive peace
Security of supply	<ul style="list-style-type: none"> • Attempts to improve the security of supply by one riparian cascade into other parts of the basin as insecurity of supply for other riparians. • Tends to be a unilateral action. 	<ul style="list-style-type: none"> • A basin-wide development plan improves the security of supply for all riparians in a coordinated and non-competitive manner. • Tends to be a negotiated action.
National security	<ul style="list-style-type: none"> • Insecurity in the region where the basin lies heightens the sense of national security threat from unilateral action by other riparian states. • Improvements to the security of supply by one riparian can therefore become a national security issue for another riparian under these conditions. 	<ul style="list-style-type: none"> • Greater regional security translates into improved security perceptions within the basin. • Conflict potential is institutionalised. • Water resource management is less of a national security threat because the range of unilateral actions available to other riparians is reduced.
Threat perception	<ul style="list-style-type: none"> • Other riparians are potential competitors for scarce water resources, therefore a zero-sum outcome is probable. 	<ul style="list-style-type: none"> • Other riparians are no longer competitors for scarce water resources, therefore a plus-sum outcome is probable.

intentions and capabilities of other potential opponents in the state system (Le Marquand 1977:22), then rationality suggests that a precautionary principle would be adopted. Under conditions of inherent national insecurity (negative peace), the precautionary principle dictates that the decision maker would assume the worst-case scenario and then formulate strategy accordingly. This, in turn, would be perceived by the opposition as a potential threat to their own national security, so they too would

be forced to adopt a precautionary approach in their own decision-making, because they also function with incomplete knowledge. This rapidly escalates into a spiral of insecurity as shown in figure 2, not unlike the dynamics of the arms race during the Cold War, with hydraulic infrastructure replacing weapons in the *realpolitik* of water resource management. As Buzan and others (1998:18) note:

“[A] water shortage could become securitized at the global level, but the major battles will most likely be regional. Upstream and downstream powers and other potential beneficiaries from a particular river or lake will see each other as both threats and potential allies, which might play into other rivalries and constellations in the region and thus become tied into a more general regional security complex.”

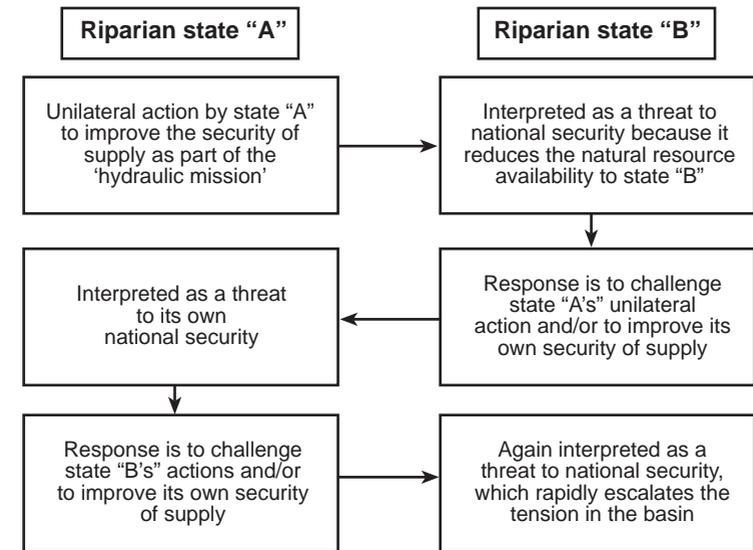
Under these conditions, national interest is the key driving force, with all states locked into rivalry, particularly with respect to the survival of the state as an entity. All actions that restrict the state in its unilateral quest for power will thus be perceived as threats to its own national interest and will consequently be interpreted as national security threats. Interestingly, in the context of realist theory, the notion of limited warfare plays an important role. For example, in the writing of Kissinger (1961:170), reference is made to limited warfare in which proxy forces square off against one another in different parts of the world, each representing one of the superpowers, which are unable to confront each other for fear of total annihilation through the deployment of nuclear weapons. It is precisely this type of endemic conflict that has engulfed Southern Africa, where proxy forces became engaged in limited local wars, as smaller theatres of the bigger Cold War. It is therefore impossible to escape the lasting results of realist political dynamics in Southern Africa, because the region was so deeply embroiled in the global rivalries of the Cold War.

Under such conditions, the securitisation of water resource management is more or less an inevitable outcome. This means that water resource management, particularly in the context of international river basins, becomes closely linked over time to the national security perceptions of the states concerned, driven in part by suspicion, and resulting ultimately in stunted institutional growth as fears of the erosion of state sovereignty undermine possible cooperative efforts (Turton 2002b).

**Desecuritisation of shared water resources:
Plus-sum hydropolitical dynamics**

Waever (1995:56) notes that security and insecurity are not in binary opposition, but are social constructs. By using the term ‘security’ in relation to something else, this suggests that a problematic situation exists in which some extraordinary measures need to be taken in response. Seen in this light, insecurity is a situation with a security problem but with no response. Consequently, the problematique of securitisation can be transcended, not by couching the problem in security terms, but rather by viewing

Figure 2
The escalation pattern of hydropolitical tensions based on the zero-sum dynamics of realism



it away from such terms. This implies the politicisation of the problem, rather than the securitisation of the problem, thereby allowing normal political processes of dialogue, negotiation and agreement to resolve the issue. Seen in this light, politicisation allows the issue to be dealt with in the open as a matter of free choice between the parties involved. In this context, security (or the securitisation of the issue) should be seen as being a failure to deal with the matter as normal politics (Buzan et al 1998:29). Desecuritisation of water resource management is thus a healthy manifestation, because it opens up the discourse and allows a wider range of roleplayers to become involved in the resolution of the core problem. This tends to foster institutional development and manifest as a win-win outcome, which is inherently more conducive to economic growth and hence positive peace.

How is this to be achieved? In a comprehensive analysis of various international river basins, it was found that a country could benefit from a lack of agreement with other riparian states in some cases. Under these circumstances, usually found in

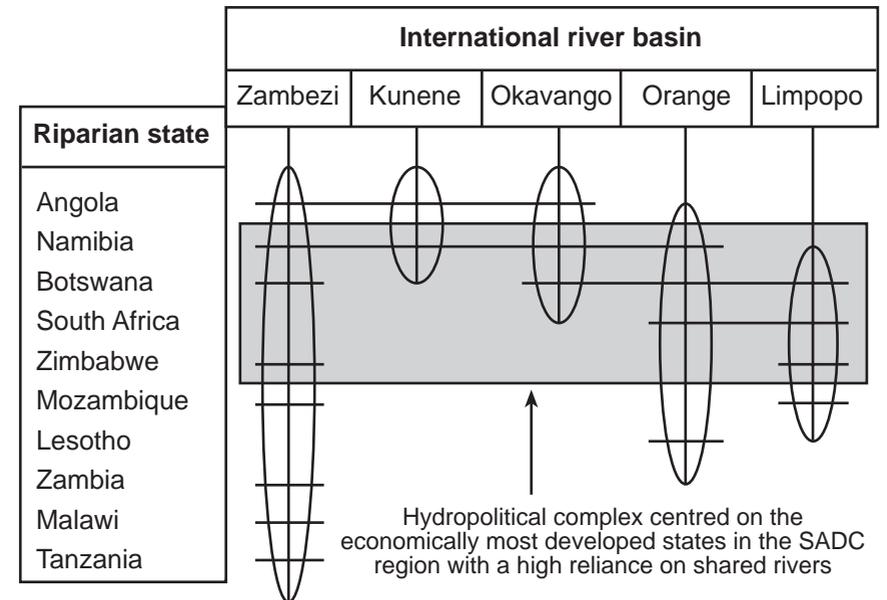
upstream riparians, there is little incentive for cooperation and a history of distrust and ill-will between the riparians can destroy the confidence needed for a joint programme (Le Marquand 1977:131). The conclusion to this study, however, was that mutual self-interest is the most common basis for cooperation (Le Marquand 1977:132).

If mutual self-interest is a key driver of cooperation, and desecuritisation is the key to the establishment of positive peace, it is necessary to understand the fundamental dynamics of this process. Returning to the quotation by Buzan and others (1998:18) noted earlier, the concept of a regional security complex was introduced. A security complex is defined as a set of units (states) of which the major processes of securitisation, desecuritisation, or both are so interlinked that their security problems cannot reasonably be analysed or resolved apart from one another (Buzan 1991:190; Buzan et al 1998:201; Buzan & Waeber 2001:31). In terms of this conceptualisation, a region like SADC is locked into a security complex by virtue of a number of fundamental drivers not related to water resource management (see Buzan 1991:186-229). Riparians in water-scarce regions can also be part of a hydropolitical security complex. For example, Schulz (1995) has noted the existence of such a complex in the Tigris and Euphrates basin, while the author has identified an immature hydropolitical complex in SADC that is clustered around the Orange, Limpopo, Okavango, Kunene, Incomati and Maputo basins (Turton 2001; 2003). A hydropolitical security complex can therefore be defined as being a special form of regional security complex that exists when those states are part ‘owners’ and technically ‘users’ of shared rivers, and start to consider the rivers to be a major national security issue (Schulz 1995:97). Significantly, the fact that problems occurring within the basin can only be resolved in the context of cooperation within the same river basin, means that a hydropolitical complex exists, irrespective of the fact that water resource managers may deny the existence of such a complex (Turton 2002a). In this regard, the concept is an analytical tool, rather than an actor-defined condition (Buzan et al 1998:20). It therefore becomes instructive to develop an understanding of how states are linked with one another through shared river basins in water-scarce regions where most of the readily available water has been allocated to some form of economic activity or another. Figure 3 shows the linkages between the Okavango River basin riparian states and other countries (and international river basins) within SADC.

This means that the four most economically developed states in the SADC region – South Africa, Botswana, Namibia and Zimbabwe – which are also the most water-stressed, are locked into a relationship of potential competition (or cooperation) over the management of the shared river systems that form the foundation of their respective economic development potential, and hence national security interest. This can be seen as a distinct component of the regional political dynamics, likely to become a specific driver of either conflict or cooperation in the future, with marked peaks in activity during times of regional drought. The hydropolitical complex that is clustered around these shared river basins can therefore be seen as a distinct layer of political interaction within the emerging Southern African regional security complex

Figure 3

Linkage between the riparian states in the Okavango river basin and other riparians in adjacent international river basins



Note the linkage between the four most economically active countries.

(Turton 2001; 2003). Due to the fact that water resource management is not fully securitised yet, and is in fact being desecuritised in post-apartheid Southern Africa as evidenced by the spate of new regimes for the management of international river basins, this hypothetical hydropolitical complex is not being called a ‘hydropolitical security complex’. This places Southern African shared rivers in a different category to those found in the Middle East, where the concept initially emerged.

Institutions and a regional hydropolitical complex

Institutions are key components in the process of the desecuritisation of water resource management and are thus an important interceding variable. It is therefore

necessary to understand more about their internal dynamics, particularly with respect to their capacity to transform the zero-sum outcomes of securitisation, into the potential plus-sum outcomes of politicisation (or desecuritisation) instead. As with the concept of 'national security', an institution is also difficult to define. One of the oldest definitions (and still one of the most useful) is that an institution is a set of formal and informal rules, including their enforcement arrangements (Schmoller 1900:61 in Furubotn & Richter 2000:6). A river basin organisation like OKACOM is thus an institution only if:

- it contains a set of formal or informal rules; and
- it also contains an enforcement arrangement in order to sanction non-compliance with those rules.

While the first aspect clearly exists in OKACOM in terms of article 3.6 of the agreement (Treaty 1994:3), there is no mention of any enforcement arrangement. This means that, technically, OKACOM is not a true institution, simply because no sanction for non-compliance exists in a formal sense. It is this aspect that can be considered as a major distinguishing feature of an RBO that is functioning under conditions of negative peace.

An organisation like OKACOM, however, can be described as a regime. In this regard, a regime is defined as a set of implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations (Krasner 1982:186; 1983:2). Regimes are designed to manage complexity, and complexity increases with the level of interconnectedness (Krasner 1983:12). In other words, a regime is similar to an institution, but it functions specifically in an international political environment, and it does not necessarily embrace any form of sanction for non-compliance. Regimes are therefore specific forms of institution. Significantly, this places water resource management into the realm of international relations because it impacts on the attainment of national political and economic objectives, rather than purely water resource management that happens to be practiced in a river basin shared by two or more riparian states. Krasner (1983:2-3) notes that a distinction must be made between regimes and agreements. In this regard, agreements are ad hoc and often 'one-shot' arrangements, whereas the purpose of regimes is to facilitate agreements. Jervis (1982:357; 1983:173) expands on this by noting that a regime implies that the norms and expectations not only facilitate cooperation, but also result in a form of cooperation that is more than merely the following of short-term self-interest. Regimes are like contracts that involve long-term objectives by seeking to structure relationships in a more stable way. The most important function of these arrangements is not to preclude further negotiations, but to establish stable mutual expectations about the pattern of behaviour that can be expected from other roleplayers, while a favourable negotiating climate is being established (Keohane 1983:146-147). Consequently, rules of international regimes are frequently changed, bent or even broken in order to meet the exigencies of the moment, but this action does not necessarily mean that regimes have no constructive

purpose. Importantly, rules within regimes are rarely enforced automatically, and they are not self-executing (Keohane 1983:147).

Seen in this light, OKACOM has grown from a former agreement (Treaty 1990) between Botswana and Namibia that established the Joint Permanent Water Commission (JPWC) for the purposes of advising on waters of common interest (article 1.2) – the Okavango, Chobe/Linyanti and possibly even the Orange rivers. OKACOM has a more specific focus than that of the JPWC, but is not necessarily more complex as an institution because it has no permanent secretariat, no internal funding mechanism and no formal sanction for non-compliance of agreed upon rules and procedures. In similar vein, OKACOM is not necessarily the final agreement on the issue of managing the Okavango River basin either. Research in the Orange River basin (Turton 2002a; 2003) has shown that the Lesotho Highlands Water Project (LHWP) has grown from earlier more simple agreements (Treaty 1986a; 1986b; 1999a; 1999b). The Orange-Senqu River Commission (ORASECOM) (Treaty 2000) that was established to manage the whole Orange River basin recognised these agreements (article 1.4), as well as the Cooperation Agreement Between South Africa and the Transitional Government of Namibia (Treaty 1987), the two separate agreements on the establishment of the Permanent Water Commission (PWC) (Treaty 1992a) and the Vioolsdrift and Noordoewer Joint Irrigation Scheme (Treaty 1992b). ORASECOM is probably the most complex river basin organisation in Southern Africa, because it involves so many riparians, and existing, often highly elaborate bilateral schemes, without necessarily having jurisdiction over these schemes. It is clear just how dynamic the process of regime creation is and, more importantly, the role that regimes play in reaching agreements and facilitating the convergence of diverse riparian interests over time.

It therefore becomes instructive to examine some of the core aspects of regimes as they relate to the management of international river basins like the Okavango. Krasner (1983:12) has shown that regimes are needed to manage complexity. In fact, the increase in complexity can become one of the fundamental stimuli for regime creation in the first place, particularly where the unilateral action of one actor can cause significant harm to another. Central to this is the generation of knowledge, which can be understood to be the sum of technical information and theories about such information that commands consensus at a given moment in historic time among interested actors (Haas 1980). Where RBOs are concerned, knowledge refers to the uncontested data that forms the basis of any given regime (Turton 2002a:20). Taking this as the point of departure, it becomes evident that there are at least five distinct, but equally important elements to this form of knowledge that need to be understood in the context of RBOs (Turton 2002a:193-194):

- Technical information lies at the base of knowledge, but data on its own does not constitute knowledge.
- This technical information must be processed and evaluated before it becomes knowledge, so there must be agreed upon scientific methodologies at work within the chosen institutional setting.

- Consensus needs to be generated on the validity of the initial data, as well as the methodologies used to evaluate this data if the resultant output is to become knowledge. Consensus-building is a social process with a strong political dimension.
- The resultant output of this process must result in changed perceptions about the core problem being confronted by the regime. If there is no change in perceptions about this core problem over time, then the knowledge is probably not legitimate simply because insufficient consensus has been reached on the initial data, the methodology used to evaluate the data, or the final result of the process.
- This new knowledge must become the basis for policy that guides the regime in the attainment of the institutional goal that arises from the changed perception of the core problem being confronted.

Seen in this light, the difference between information and knowledge is the process of legitimisation. Knowledge is institutionalised and is seen to be legitimate, whereas information is not necessarily so. Legitimate knowledge, when captured in an institutional setting, results in more than adaptation – it results in institutional learning as well. Adaptation becomes the response to the process of institutionalised learning, which in turn is the result of the social processes of consensus-building and legitimisation (Turton 2002a:194)

The primary function of regimes in the context of water resource management is to foster the convergence of ideas around the need to transform the potential zero-sum outcome of uncontrolled competition for water in international river basins, into plus-sum outcomes based on the reduction of uncertainty for all of the riparian states involved. This is the fundamental issue confronting OKACOM. If this is successfully achieved, and indications are that it is a likely probability because the political will exists, then regime creation will desecuritize the management of water resources in the Okavango River basin and contribute to the transition from a condition of negative peace to a more enduring condition of positive peace. The solution of the core problem therefore rests on three critical issues:

- the generation of a comprehensive and uncontested set of hydrological and related data that will form the foundation of all water management decisions in future, including the allocation of water between riparian states;
- the negotiation of a common set of rules and procedures that have been agreed upon by all riparian states and are thus uncontested, including allocative processes and mechanisms of compliance verification and sanction; and
- the agreement on a formal conflict mitigation structure as an integral institutional arrangement that is capable of dealing with the inherent conflict potential that is related to equitably sharing water between all riparian states in water-stressed river basins.

Seen in this light, the long-term survival of the regime is dependent upon the ability of the emerging institutional arrangement to generate sufficient uncontested

knowledge. This knowledge should result in the redefinition of the perception of the core problem away from water as an absolute scarcity and thus a limitation to the economic growth potential of the state (and therefore a national security issue), to water as a relative scarcity, capable of being managed by recourse to a wide range of coping strategies (Turton 2002a). The exact nature of such strategies is beyond the focus of this chapter.

If the generation of ‘uncontested data’ is an absolutely fundamental component of institutional development, it is helpful to dwell for a few moments on an analysis of this construct. There are two distinct elements to this notion. The first is ‘data’ and the second is the ‘uncontested’ nature of the data. Research in process suggests that there are two distinct types of ‘ingenuity’ – to use Homer-Dixon’s concept (1994; 1995; 1996; 2000) – or two distinct forms of ‘second-order resource’ – to use Ohlsson’s concept (1999) – that are relevant to each of these elements:

- Technical ingenuity, or the ability to solve problems through technical innovation, is necessary to generate data. This specific form of second-order resource is typically found in formal water management institutions (Turton 2002c:75), but it can also be in short supply, which is typically the case in countries that are emerging from long periods of debilitating conflict and/or poverty.
- Social ingenuity, or the ability to negotiate agreements, is necessary to build trust, legitimise the methodologies used to gather, process and interpret the data, and to adapt institutions as needed over time. This specific form of second-order resource is typically also in short supply in developing countries that are engaged in the early phases of their respective hydraulic missions. Under such conditions, social ingenuity is typically found in informal water management institutions (Turton 2002c:74), which are mostly incapable of developing technical solutions to complex problems such as those found in international river basins.

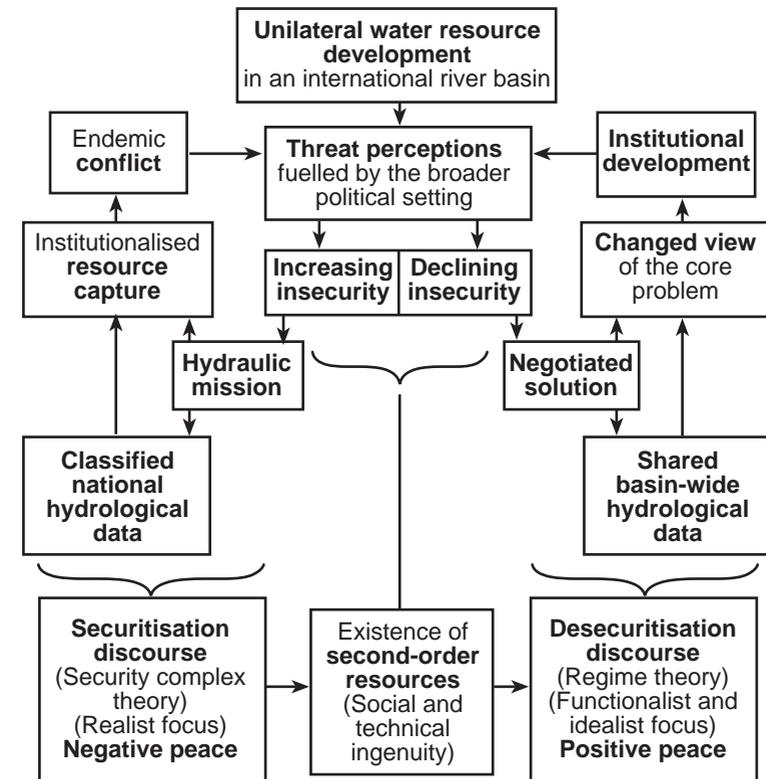
It is consequently the existence of second-order resources that determines the outcome of water regimes in semi-arid parts of the world. Seen in this light, the trajectory of RBO development in the SADC region has two likely alternatives as shown in figure 4. The one alternative, represented schematically on the left-hand side of this figure, is the securitisation dynamic. This can be regarded as being the *realpolitik* of water resource management. It will likely result in zero-sum outcomes and thus have an inherently high conflict potential, with stunted institutional development and limited regime creation, located in a broader setting of negative peace at best. The other alternative, represented schematically on the right-hand side of figure 4, is the desecuritisation dynamic. This can be regarded as being the functionalist or idealist approach to water resource management, that will likely result in plus-sum outcomes, and thus have a higher degree of predictability (due to the institutionalisation of the conflict potential) with more complex institutional arrangements emerging from various phases of regime development, located in a broader setting of positive peace.

Conclusion

It is apparent that riparian states are locked into relations with their co-riparian neighbours, which means that political instability in one state impacts negatively on adjacent states in the context of international river basins. This is particularly true where strong states are in the same river basin as weak states, with their relative strength/weakness being defined as the degree of sociopolitical cohesion in a Buzanian sense. The conceptual distinction between ‘negative peace’ and ‘positive peace’ is thus highly relevant to Southern Africa. Countries that are engaged in aggressive economic development projects need to have a secure source of water supply, if that economic development is to be sustainable. The ‘hydraulic mission’ of developing countries, particularly in water-scarce regions, establishes a direct causal linkage between ‘security of supply’ and ‘national security’. Given the fact that the management of international river basins is usually the domain of specialists, mostly engineers by training, this means that water resource management in transboundary river basins is actually more about international relations than about water resource management. In order to foster the transition from ‘negative peace’ to ‘positive peace’, institutions need to be developed. These are facilitated by means of regimes, which are a form of institution, but which lack the capacity to sanction non-compliance. Institutional failure can result in the securitisation of water resource management and the classification of national data, an undesirable state of affairs if enduring peace is to be achieved.

Central to the sustained development of river basin organisations in international river basins such as the Okavango is the need to develop an uncontested set of hydrological data. In this regard, there are two aspects of importance – the capacity to generate data, and the capacity to render this data uncontested – which have been linked to the existence of two distinct forms of second-order resource – ‘technical ingenuity’ (needed to generate the data in the first place), and ‘social ingenuity’ (needed to generate consensus on the accuracy and consequent acceptability of such data by all riparians). Seen in this light, RBOs need to be adaptable over time, with institutional learning being driven by the fundamental process of data generation and data legitimisation. There is no such thing as universally true data in hydropolitics, only data that is acceptable to all the riparian states involved. As such, second-order resources seem to be the key variable in determining the long-term outcome of RBOs such as OKACOM. It is in this regard that third-party actors can play a major role in regional peace and the generation of economic development by supporting efforts to generate data. Given the importance that has been attached to these issues by NEPAD and the AU, the role of RBOs as a functional arrangement in deepening the democratic tradition that is emerging in post-Cold War Africa, along with their role in redistributing wealth and prosperity between neighbouring countries, point to such institutions becoming major focal points in Southern Africa in the near future.

Figure 4
Linkage between the securitisation and desecuritisation discourse in water resource management



Source: Turton 2002a. Note the central role played by second-order resources in moving from negative peace to positive peace.

References

- Africa Research Bulletin. 1996. Botswana-Namibia island dispute. *Africa Research Bulletin*.
- Ashton, P. 2000. Southern African water conflicts: Are they inevitable or preventable? In Solomon, H & Turton, A R (eds). *Water wars: Enduring myth or impending reality?* African Dialogue Monograph Series 2. Durban: ACCORD.
- Buzan, B. 1991. *People, states and fear: An agenda for international security studies in the post-Cold War era*. London: Harvester Wheatsheaf.
- Buzan, B, Waever, O & De Wilde, J. 1998. *Security: A new framework for analysis*. London: Lynne Rienner.
- Buzan, B & Waever, O. 2001 (forthcoming). *Regions and powers: The structure of international security*. London: Oxford University Press.
- Economist Intelligence Unit. 1996. *Country profile: Botswana*. Economist Intelligence Unit: London.
- Electronic Mail & Guardian. 1997. Namibia relations get frostier with Botswana over Okavango. *Electronic Mail & Guardian*. 28 January.
- Europa. 1995. *The Europa world year book*. Europa: London.
- Furubotn, E G & Richter, R. 2000. *Institutions and economic theory: The contribution of the new institutional economics*. Lansing: University of Michigan Press.
- Haas, E. 1980. Why collaborate? Issue-linkage and international relations. *World Politics* 32(3): 367-68.
- Hartland-Thunberg, P. 1982. National economic security: Interdependence and vulnerability. In Alting von Grensau, F A M & Pelkmans, J (eds). *National economic security*. Tilburg: John F Kennedy Institute.
- Henwood, R & Funke, N. 2002. Managing shared watercourse systems in Southern Africa: International relations or foreign policy? In Turton, A R & Henwood, R (eds). *Hydropolitics in the developing world: A Southern African perspective*. Pretoria: African Water Issues Research Unit (AWIRU).
- Homer-Dixon, T F. 1994. Environmental scarcities and violent conflict: Evidence from cases. *International Security* 19(1): 5-40.
- Homer-Dixon, T. 1995. The ingenuity gap: Can poor countries adapt to resource scarcity? *Population and Development* 21(3): 587-612.
- Homer-Dixon, T F. 1996. Environmental scarcity, mass violence and the limits to ingenuity. *Current History* 95: 359-365.
- Homer-Dixon, T F. 2000. *The ingenuity gap*. London: Jonathan Cape.
- Jervis, R. 1982. Security regimes. *International Organization* 36(2): 357-78.
- Jervis, R. 1983. Security regimes. In Krasner, S D (ed). *International regimes*. London: Cornell University Press.
- Keohane, R O. 1983. The demand for international regimes. In Krasner, S D (ed). *International regimes*. London: Cornell University Press.
- Kissinger, H A. 1961. *The necessity for choice*. New York: Harper Row.
- Krasner, S D. 1982. Structural causes and regime consequences: Regimes as intervening variables. *International Organization* 36(2), Spring.
- Krasner, S D. 1983. Structural causes and regime consequences: Regimes as intervening variables. In Krasner, S D (ed). *International regimes*. London: Cornell University Press.

- Le Marquand, D G. 1977. *International rivers: The politics of cooperation*. Vancouver: University of British Columbia.
- Meissner, R. 2000. Hydropolitical hotspots in Southern Africa: Will there be a water war? The case of the Cunene River. In Solomon, H & Turton, A R (eds). *Water wars: An enduring myth or impending reality?* African Dialogue Monograph Series 2. Durban: ACCORD.
- News Digest. 1995. Border dispute with Botswana. *Keesing's Record of World Events*.
- Ohlsson, L. 1995. *Water and security in Southern Africa*. Stockholm: Department for Natural Resources and the Environment, SIDA.
- Ohlsson, L. 1999. *Environment, scarcity and conflict: A study of Malthusian concerns*. Goteborg: Department of Peace and Development Research, University of Goteborg.
- Platt, R. 1999. Presentation. 4th meeting of METRON project partners, Oxford School of Geography, Oxford University. 7-8 June.
- Pretoria News. 1996. Strained relations over island, river. *Pretoria News*. 1 October.
- Radio Botswana. 1996. President says Botswana will not discuss arms purchases with Namibia. *Radio Botswana*. 23 July.
- Rakabane, M. 1997. Bizarre arms race. *New African*, January. At <www.globalxs.nl/home/a/amj/na/rakabane.htm>.
- Ramberg, L. 1997. A pipeline from the Okavango River? *Ambio* 26(2): 129.
- Reisner, M. 1993. *Cadillac desert: The American west and its disappearing water*. New York: Penguin.
- Republikein. Regering lê aan teen media: Botswana hier oor Kasikili. *Republikein*. 24 November.
- SAPA. 1996. German veto of tank purchase overshadows foreign minister's visit to Botswana. *SAPA*. 22 July.
- Schmoller, G von. 1900. *Grundriss der Allgemeinen Volkswirtschaftslehre*. Munich & Leipzig: Duncker & Humblot.
- Schulz, M. 1995. Turkey, Syria and Iraq: A hydropolitical security complex. In Ohlsson, L (ed). *Hydropolitics: Conflicts over water as a development constraint*. London: Zed Books.
- Southscan. No date. *Troops deployed near island disputed with Namibia*. London: Southscan.
- Swatuk, L A. 2000. Environmental cooperation for regional peace and security in Southern Africa. *Environmental change & security project report* 6. Washington DC: Woodrow Wilson Center.
- Swyngedouw, E. 1999a. Modernity and hybridity: The production of nature – Water and modernization in Spain. Paper presented to the Water Issues Study Group, School of Oriental and African Studies, University of London. 25 January.
- Swyngedouw, E. 1999b. Hybrid waters: On water, nature and society. *Proceedings of the conference on sustainability, risk and nature: The political ecology of water in advanced societies*. Oxford University. 15-17 April.
- Treaty. 1986a. Treaty on the Lesotho Highlands Water Project between the government of the Republic of South Africa and the government of the Kingdom of Lesotho.
- Treaty. 1986b. Exchange of notes regarding the privileges and immunities accorded to the members of the Joint Permanent Technical Commission.
- Treaty. 1987. Samewerkingsooreenkoms tussen die regering van die Republiek van Suid-Afrika en die oorgangsregering van Nasionale Eenheid van Suid-Wes Afrika/Namibië betreffende die beheer, ontwikkeling en benutting van die water van die Oranjerivier (Cooperation agreement between the government of the Republic of South Africa and the Transitional

- Government of National Unity of South-West Africa/Namibia regarding the control, development and utilisation of the water from the Orange River).
- Treaty. 1990. Agreement between the Republic of Botswana and the government of the Republic of Namibia on the establishment of a Joint Permanent Water Commission.
- Treaty. 1992a. Agreement between the government of the Republic of South Africa and the government of the Republic of Namibia on the establishment of a Permanent Water Commission.
- Treaty. 1992b. Agreement on the Vioolsdrift and Noordoewer Joint Irrigation Scheme between the government of the Republic of South Africa and the government of the Republic of Namibia.
- Treaty. 1994. Agreement between the governments of the Republic of Angola, the Republic of Botswana and the Republic of Namibia on the establishment of a Permanent Okavango River Basin Water Commission (OKACOM). Signatory document, signed by representatives of the three governments. Windhoek. 15 September.
- Treaty. 1999a. Protocol VI to the Treaty on the Lesotho Highlands Water Project. Supplementary arrangements regarding the system of governance for the project.
- Treaty. 1999b. Implementation of new governance model: Joint Permanent Technical Commission of the Lesotho Highlands Water Project.
- Treaty. 2000. Agreement between the governments of the Republic of Botswana, the Kingdom of Lesotho, the Republic of Namibia, and the Republic of South Africa on the establishment of the Orange-Senqu River Commission.
- Turton, A R. 1998. The hydropolitics of Southern Africa: The case of the Zambezi River basin as an area of potential co-operation based on Allan's concept of 'virtual water'. Unpublished MA dissertation. Department of International Politics, University of South Africa, Pretoria, South Africa.
- Turton, A R. 2001. Hydropolitics and security complex theory: An African perspective. Paper presented at the 4th Pan-European International Relations Conference, University of Kent, Canterbury. 8-10 September.
- Turton, A R. 2002a. The political aspects of institutional development in the water sector: South Africa and its international river basins. Draft D.Phil. thesis. Department of Political Science, University of Pretoria, South Africa.
- Turton, A R. 2002b. Water and state sovereignty: The hydropolitical challenge for states in arid regions. In Wolf, A (ed). *Conflict prevention and resolution in water systems*. Cheltenham: Edward Elgar.
- Turton, A R. 2002c. 'Water demand management' (WDM), 'natural resource reconstruction' and 'adaptive capacity': *Establishing the linkage between variables*. Final report. WARFSA Research Project PJ02/99. Pretoria/Harare: AWIRU/WARFSA.
- Turton, A R. 2003 (forthcoming). The evolution of water management institutions in select Southern African international river basins. In Gopalakrishnan, C, Tortajada, C & Biswas, A K (eds). *Water institutions*. London: Oxford University Press.
- Ullman, R H. 1983. Redefining security. *International Security* 8(1): 129-153.
- Vines, A. 1996. Of arms and islands: The Botswana Namibia cold war. *Southern Africa Report*. November.
- Waever, O. 1995. Securitization and desecuritization. In Lipschutz, R D (ed). *On security*. New York: Columbia University Press.
- Waterbury, J. 1979. *Hydropolitics of the Nile valley*. New York: Syracuse University Press.

- Weekly Mail & Guardian. 1996a. Plan could turn Okavango to dust. *Weekly Mail & Guardian*. 29 November.
- Weekly Mail & Guardian. 1996b. Namibia almost certain to drain Okavango. *Weekly Mail & Guardian*. 6 December.
- Wolf, A T, Natharius, J A, Danielson, J J, Ward, B S & Pender, J K. 1999. International river basins of the world. *Water Resources Development* 15(4): 387-427.
- Wolfers, A. 1962. *Discord and collaboration: Essays on international politics*. Baltimore: Johns Hopkins University Press.
- World Rivers Review. 1997. Namibian pipeline project heats up. *World Rivers Review*. February.