CHAPTER 16

Hydropolitical drivers and policy challenges in the Okavango River basin

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Introduction

This book has attempted to capture a range of ideas from different specialist disciplines, the data appropriate to these disciplines, and current knowledge of the Okavango River basin. These may all be used to develop a baseline on which future institutional and policy-related developments can be structured. It can thus be considered as an audit of the current state-of-the-art multidisciplinary knowledge on management issues confronting the Permanent Okavango River Basin Water Commission (OKACOM). The book started off by proposing three hypotheses. These hypotheses were discussed in some detail, and it was suggested that they could help to interpret the contents of the book. It was also suggested that the hypotheses could be tested to a certain extent, and refined where relevant, by means of the empirical nature of the case study material provided in chapters 2 to 15. What remains to be done is to assess the three hypotheses against the information provided by the case studies, as a first attempt to develop a model that can identify the underlying hydropolitical drivers, and possibly explain (or even predict) the probable future outcome. This output will then be offered to the next phase of the process, which is to commence with a more detailed hydropolitical assessment of the Okavango River basin in order to inform the process of policy formulation by the three riparian states concerned.

An assessment of the three hypotheses

The logic of this book is based on three hypotheses that were developed because of the lack of adequate hydropolitical theory. The primary purpose of the three hypotheses is to introduce more scientific rigour into the evaluation of case studies, with a view to refining the hypotheses for future use in Southern Africa and elsewhere.

First hypothesis: Southern African hydropolitical complex

This book has shown that a wide variety of factors are brought to bear on riparian states in managing transboundary river basins such as the Okavango. This is particularly relevant where some of the riparian states rely heavily on a given river

system. In the case of the Okavango River, it has been shown that all three riparian states have a high degree of reliance on the system and few viable alternatives are available.

In the case of Angola, the upper reaches of the Okavango basin are needed to support the resettlement of internally displaced persons and former combatants. Angola is relatively water rich, but economically impoverished, a condition that has been described as 'structurally induced relative water scarcity' (Turton & Ohlsson 1999; Turton 2000a; 2000b; 2002a; Turton & Warner 2002). In effect, this means that limited institutional capacity exists and, consequently, a limited range of viable policy options can be generated. The prognosis for this debilitating condition is not good, and if interpreted against the third hypothesis, suggests that there is a possibility of acute conflict at local level if the situation remains unmanaged. If such conflict occurs, it could spill over into the neighbouring states, possibly in the form of armed rebels or insurgents, who would then pose a security risk to the more peaceful Namibia and Botswana.

In the case of Namibia, the only perennial rivers flowing on its national soil consist of short reaches of the Kavango and Cuando-Linyanti rivers that flow across the Caprivi Strip. Namibia is exceptionally arid, and water scarcity poses a fundamental limitation to its future economic growth potential. If the proposed Okavango pipeline could be developed, it would increase the security of supply for Namibia in a dramatic fashion, thereby enabling existing water sources to be used more efficiently, secure in the knowledge that if these sources failed, the Okavango River would provide a reliable backup. Namibia has also been described as an example of structurally induced relative water scarcity (Turton 2002a; Turton & Warner 2002), but it does have a greater range of available second-order resources than Angola. The conflict from the Angolan civil war has spilt over in the past into the Caprivi Strip (Meissner 2000), strengthening the case for the existence of a Southern African hydropolitical complex. In terms of international law, Namibia has the sovereign right to develop economically, and if it has no viable alternative source of water assured for future economic growth and national prosperity, it is difficult to foresee a situation where water from the Okavango River would not be needed.

In the case of Botswana, the Okavango is the only perennial river flowing on its national territory. Botswana is also more economically diversified than Namibia, and has been described as an example of 'structurally induced relative water abundance' (Turton 2002a; Turton & Warner 2002), because of its greater availability of second-order resources. This means that most of the available water is already earmarked to support rural livelihoods and ecotourism. The former is politically important for the government of Botswana, and the latter is strategically important because it provides a growing source of foreign revenue, creates jobs for rural dwellers, and is an example of extremely efficient and sustainable use of water.

From this brief overview, it is clear that the fundamental hydropolitical driver in the Okavango River basin is the high degree of reliance on the river by all three

riparian states, with no real viable alternatives. This fact alone becomes the independent variable in the overall hydropolitical equation and is presented graphically in figure 1. Herein lies the problem but, if seen through the conceptual lens of a hydropolitical complex, it can also contain an element of a possible solution to unintended ecological disturbances in the Okavango Delta. If the three riparian states choose to cooperate, it is in their mutual advantage for several reasons. For Angola, the presence of a basin-wide agreement would help the country to raise the necessary funding to pay for essential infrastructure development in the upper reaches of the Okavango basin. The notion of a hydropolitical complex embraces the linkages between shared river basins, but also enables a broader range of possible solutions to be considered and developed. As such, it is more than an analytical tool to be used by water resource managers to develop sustainable solutions to complex problems in semi-arid areas. Instead, it is considered to be a useful conceptual framework for analysing the hydropolitical dynamics of the Okavango River basin, because there are a number of linkages with other river basins: by virtue of dual riparian status of one or more of the riparians (Zambezi, Cunene, Orange and Limpopo); by virtue of proposed future interbasin transfer schemes (Heyns 2002); and because every country shares several crosscutting issues such as the need to grow economies in a sustainable manner using the limited water that is available.

Significantly, and in keeping with the hypothesised Southern African hydropolitical complex, potential future solutions can be developed in a peaceful and equitable manner, by seeking possible solutions that could include options located outside of the Okavango basin. It is hoped that this concept will be expanded and applied in future hydropolitical studies within the Southern African Development Community (SADC).

Second hypothesis: Expanded definition of hydropolitics

The broadened definition of hydropolitics as being the study of the authoritative allocation of values in society with respect to water (Turton 2002a) is capable of dealing with the complex range and multiple scales of issues that are evident in the Okavango River basin. Significant to this case study as a whole is the distinct difference in conflict potential when it is viewed as a function of scale. For example, conflict potential appears higher at the level of the individual in Angolan society than, for example, a similar individual in Botswana. This is caused in part because of the collapse of the Angolan economy, the fact that most men have been soldiers virtually their entire lives and know nothing else, and the fact that high levels of poverty can become drivers of future low-intensity conflicts around certain hotspots. The need to deal effectively with this situation is self-evident. But the expanded definition of hydropolitics also allows a broader range of issues to be included in the analysis. Central to this is the identification and examination of three interceding variables as shown in figure 1. It is instructive to dwell for a few moments on these variables.

The primary interceding variable is important because, in essence, there is little that can be done to influence outcomes, other than to develop policy that recognises these issues as a key factor. In figure 1, this is presented as one variable, but it consists of four individual and clearly discernible factors that interact in unison:

- The first is the natural pattern of climatic oscillation that occurs in a cyclical fashion between relatively wet and relatively dry years. In reality, it seems that several different oscillation patterns are superimposed on one another (Ashton 2000a; 2000b; Gumbricht et al 2002), but for purposes of simplicity, it is assumed that these all result in natural climatic variability, which has become one of the primary stimuli driving almost all ecological functioning in the Okavango River basin. In terms of periodicity, McCarthy and others (2000) refer to this as having at least an 18-year oscillation in the case of the Okavango basin, while records from the Zambezi basin suggest that there may also be a longer 80-year cycle of periodic climatic change.
- The second is related to what is known as the 'flood pulse concept', which is the result of climatic variability where periods of high flow appear to become the fundamental or most important ecological driver in the functioning of downstream wetlands (Junk et al 1989; Davies et al 1993; Puckeridge et al 1993; Davies & Day 1998; Turton 1999; McCarthy at al 2000; Gumbricht et al 2002). If the flood pulses are interfered with, for example, by the construction of a dam or the abstraction of water before the flood peak has passed, then this almost always results in the alteration or destruction of wetland habitat, particularly those habitats that are located in seasonal wetlands around the fringe of permanent wetlands such as the Okavango Delta. Clearly, such an event could lead to the loss of livelihoods of people who may be located in places where they depend on such systems.
- The third factor is related to the natural tectonic activities that occur within the Okavango basin and, in particular, around the rift trough occupied by the Okavango Delta (Hutchins et al 1976; McCarthy & Ellery 1993; Scudder et al 1993; Ellery & McCarthy 1994; Turton 1999; Gumbricht et al 2002). In recorded memory, flows entering the Okavango Delta have shifted slowly north-east as a direct result of this tectonic activity combined with plant-induced blockages of the western-most channels (e.g. Thaoge), away from the Lake Ngami region in the south-west, towards the Jao and Maunachira channels north of Chief's Island (Ellery & McCarthy 1994; Ashton 2002b). A field trip to various villages on both sides of the Okavango Delta in September 2002 (Turton and a BBC camera crew) revealed that different villagers in Gumare Village on the west of the Okavango Delta blame this shift on a variety of factors including the government (village chief), the 'Germans' (alluding to the time when Namibia was a German colony known as German South-West Africa) and the 'Herero people' (two village elders).
- The fourth factor is related to the long-term impact of global climate change of which the probable impacts in the context of the Okavango River basin are largely unknown at this stage (see chapter 2).

Plate 1

A view of the (western) Thaoge channel, October 2002

Note: The Thaoge channel is close to the village of Gumare. The water has shifted to the opposite (eastern) side of the Okavango Delta as a result of tectonic activity and channel blockages. However, village elders blame a variety of people for this condition. This provides an illustration of how natural forces can become hydropolitical drivers if left unmanaged.

While these factors are entirely natural occurrences over which humans have no direct control, they do have potential political consequences because they combine to cause a highly dynamic and variable set of parameters that determine water availability over time. It is human nature to remember things as they were in the past via oral histories, and change is seldom ascribed accurately to natural causes. In most cases, change is ascribed to human actions, often linking known rivals or past enemies to the perceptions that it is the actions of these people that have caused the river to dry up or change its course. The case of the Kasikili/Sedudu Island dispute illustrates this

tendency well (Ashton 2000a). As such, this has political ramifications because it can provide the genesis for future disputes as more people rely on the same resource for their livelihood, and as increasing numbers of developments impact on the already dynamic nature of the Okavango River system.

There are two secondary interceding variables, which have been selected because of their impact on the hydropolitical dynamics of the Okavango River basin. They are neither fundamental drivers in their own right, nor are they of such a nature as to be considered a primary interceding variable:

- This first *secondary interceding variable* relates in broad terms to the fact that the Okavango has become an 'internationalised' river, largely because the Okavango Delta was declared a central part of a Ramsar wetland by the government of Botswana, which allegedly hoped "to increase international pressure on Namibia" about the proposed pipeline, as suggested by Ramberg (1997). This process of internationalisation started after the planned dredging of the Boro River (UNDP/FAO 1976) as part of the Southern Okavango Integrated Water Development Project, which was shelved in 1991 due to massive public pressure (Scudder et al 1993). Linked to this is the unique biodiversity found in parts of the Okavango Delta system, making this region one in which the international community has a keen interest, to the extent that the sovereign aspirations of the three riparian states have been challenged by powerful foreign special interest groups. Typically, funding institutions are targeted in this process in an attempt to cut off the supply of money for proposed developments and hence prevent an 'undesirable' project (as defined by the special interest group) from being developed. Clearly, these individuals seldom take note of the specific needs and interests of the residents in the riparian states, but follow their own perceptions of the importance or value of their 'conservation' agendas (Ashton 2002).
- The second *secondary interceding variable* relates in broad terms to the existing normative value systems that are associated with the management of the Okavango River basin. The most important of these is arguably the high level of goodwill that exists between the so-called 'hydropolitical elite' from all three riparian states, particularly among OKACOM commissioners. Despite media rhetoric to the contrary (Weekly Mail & Guardian 1996; Ramberg 1997; Swatuk 2000), there is considerable goodwill within OKACOM, and this acts as a strong stabilising force in the face of potential (external) accelerators or promoters of conflict. The need for a basin-wide agreement as a prerequisite to secure international funding for specific development projects is also a potentially powerful mediating factor.

If these are fundamental drivers and mediating influences on the overall hydropolitical dynamics in the Okavango River basin, then the dependent variable must be related to the different national development priorities that currently exist.

For Angola, the most pressing need is that of post-war reconstruction. This includes the urgent repatriation of large numbers of internally displaced persons who

cannot be fed, clothed or housed in existing camps, and who need to plant their crops before the next rain cycle commences if a serious famine is to be averted. On top of this already complex problem, is the need to demobilise former combatants and provide them with sustainable livelihoods to prevent them from resorting to banditry for a living. If this happened, it could destabilise the whole region and possibly spill over into neighbouring Zambia, Namibia and Botswana if left unmanaged. Namibia, in turn, has a pressing need to develop a strategic water reserve if it is to sustain economic growth and development, particularly around the Windhoek area where existing industrial activity is clustered. Given the unusual geography of the country, the Okavango basin is the only readily exploitable source of water, with the Zambezi River far more difficult to develop for reasons noted above. Botswana is diversifying its economy away from its heavy reliance on mining activities by encouraging the lucrative ecotourism market, which generates much needed foreign currency.

Central to each of these national development priorities is the issue of territorial sovereignty, in which each state has the right to develop as it sees fit. The reason why these have been classified as dependent variables is because each government has several choices that it can make. One choice would be to retain the right to prioritise development as they see fit, thereby exercising their sovereign control over water within their territorial boundaries as an absolute right. Another alternative choice would be for each of the riparian states to negotiate and agree on a position where each riparian government is sensitive to the development goals and aspirations of its neighbouring states and acts accordingly. In the case of the former option, sovereignty becomes the core problem, whereas in the case of the latter, sovereignty becomes a key element of the solution. Given the fact that the so-called 'hydropolitical elite' can influence the outcome of such issues, these have been categorised as the dependent variables (as opposed to the primary interceding variable over which human control is impossible).

If viewed in this way, the results of the dynamic interaction of the fundamental hydropolitical driver in the basin (independent variable), mediated directly by the primary interceding variable, and indirectly by the two secondary interceding variables, finally being 'filtered' through the processes inherent in the dependent variable, two broad outcomes are theoretically possible. These are shown in figure 1. The conflict potential scenario is based on sovereign rights interpreted as an absolute, resulting in demands to claim a given volume of water. Demands for water could become excessive in this scenario, because a policy of national self-sufficiency in food tends to drive the development of irrigation projects, which are usually unsustainable and use huge volumes of water with return flows polluted by agrochemicals. In this scenario, conflict would seem to be inevitable, environmental damage to the Okavango Delta highly probable, and the sovereignty aspirations or demands of each state are seen to be a problem. The cooperation potential scenario, on the other hand, is based on needs rather than rights, with an emphasis on equity in the form of benefit and water-sharing rather than water-sharing alone. Irrigation

demand is reduced to a minimum through the implementation of a regional food security policy that includes trade in virtual water, based on the foreign currency revenues generated by high-value water-related activities such as ecotourism. Local economies in Angola can even be stimulated in this scenario by allowing naturally well-watered parts of the upper basin to grow and provide the food for downstream arid countries. In this scenario, territorial sovereignty is part of the solution because the respective governments agree to cooperate and develop the necessary reciprocal institutional arrangements to support this policy, while also providing the necessary sanction for non-compliance.

The expanded definition of hydropolitics inherent in the second hypothesis has meant that the dynamics of water for peace can be better analysed. If peace is to be the prevailing future condition in the Okavango basin, then it is imperative that OKACOM must be supported in its task of developing viable and sustainable solutions. The urgent need for the development of a comprehensive basin-wide dataset is a prerequisite for the development of appropriate policy.

Third hypothesis: Conflict potential and policy option relationship

OKACOM commissioners consciously refrain from using the word 'conflict' in their deliberations. Partly, this is due to the perception that the word implies at least a physical (if not military) interplay between participants. Instead, the word 'dispute' is used to express more clearly the differences of opinion and perceptions that have occurred between individuals and organisations based in the three riparian states. If the many sensationalist media reports are to be believed, there is a relatively high conflict potential within the Okavango River basin, particularly at the local level. Invariably, these media reports provide little information of any accuracy or utility to the participants concerned. At best, they are inaccurate and, at worst, they consist of little more than frivolous and unsubstantiated speculation or personal opinions. As a result, they merely aggravate any dispute or disagreement by serving up incomplete, inaccurate and biased opinions that help to perpetuate ignorance of the bigger picture (see Mail & Guardian 1996; Weekly Mail & Guardian 1996a; 1996b; Electronic Mail & Guardian 1997; Jenvey 1997; Mkone 1997; Rake 1997; Ramberg 1997). If conflict (rather than a 'dispute') is indeed a potential reality as suggested in figure 1, it is clear that the dynamics of conflict prevention and mitigation must be better understood. This is where the third hypothesis has particular relevance.

The multidisciplinary case studies presented in this book clearly show that policy development (and implementation) is a key issue if lasting peace and cooperation are to be assured. When analysed through the conceptual lens of the third hypothesis, two distinct loci of potential conflict become evident. At the subnational level, conflict potential is seen to be highest and, given the context of the case studies, is most likely to occur in Angola. It is therefore imperative that the Angolan government should be

Figure 1

Interactions between known variables in the hydropolitical equation of the Okavango basin

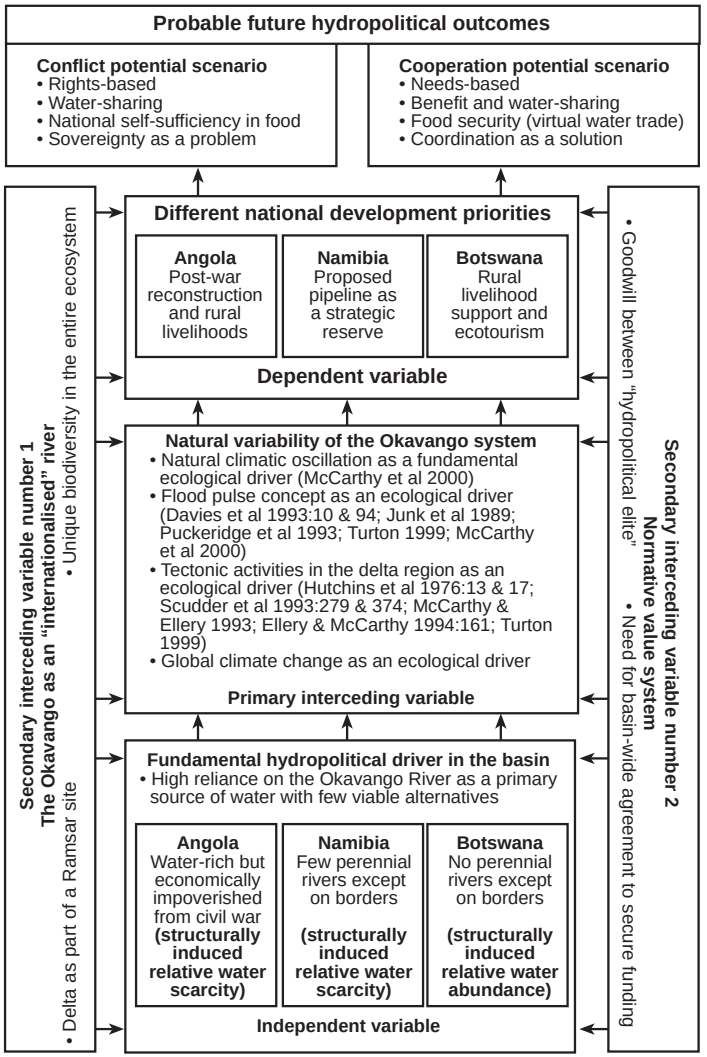
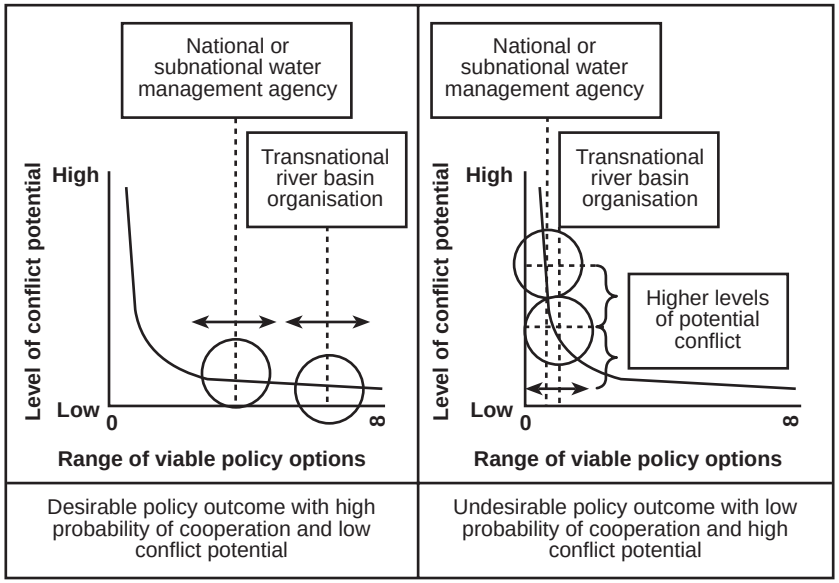


Figure 2

Variations of the third hypothesis showing theoretically possible policy outcomes



assisted to develop and implement viable national policy. If this is not done, and assuming that OKACOM is unable to develop the necessary policy options at the international level, then the situation shown schematically in the right-hand element of figure 2 has a higher probability of occurring. Under such conditions, the positions of the critical conflict or cooperation threshold points are controlled by the limited range of viable policy options available, with a high likelihood of acute conflict occurring. This likelihood would increase in times of environmental stress such as drought or famine. The converse situation also holds true, however, where OKACOM is able to negotiate and implement effective agreements. Importantly, these should be based on the different needs of each riparian state, centred on the notion of benefit-sharing rather than an insistence on a rights-based approach. This would shift and separate the critical conflict or cooperation threshold points to a position where conflict is no longer a real likelihood. This condition is shown schematically in the left-hand element of figure 2.

Seen in this light, policy-making and its subsequent implementation are critically important processes if the inherent conflict potential is to be averted, and the cooperation potential is to be fully harnessed in the Okavango River basin. The mere presence of appropriate policy is insufficient to achieve this goal. Policy must always be translated into effective implementation programmes where all stakeholders are able to participate equitably.

Towards effective policy development in the Okavango River basin

Having used the three hypotheses to develop a conceptual map of the existing hydropolitical dynamics in the Okavango River basin (figure 1), it now becomes instructive to compare the key elements of this map with the five strategic issue groups that were isolated in figure 3 of chapter 2:

- The independent variable (fundamental hydropolitical driver in the basin) shown in figure 1 consists of elements from two strategic issue groups. The external geographic characteristics of the basin, particularly with respect to current and looming water shortages, and the non-availability of alternative water sources in the basin are relevant components of this variable. The socioeconomic drivers and impacts, particularly with respect to existing social and economic development priorities, along with the proposed water abstraction and hydropower generation projects, are also relevant components of this variable.
- The primary interceding variable (natural variability of the Okavango system) shown in figure 1 consists of two distinct strategic issue groups. The first is related to an element of the external geographic characteristics of the basin in the form of global climate change. The second is related to system characteristics, in particular, to patterns of water inflow, sediment inflows and ecosystem structure, function and integrity. The first secondary interceding variable (Okavango as an 'internationalised' river) shown in figure 1 consists of an element of only one strategic issue group, that of external groups.
- The second secondary interceding variable (normative value systems) shown in figure 1 consists of elements of three strategic issue groups. From external groups there are two elements – international water law and international conventions and treaties. From socioeconomic drivers and impacts there is one element – traditional and customary laws and practices – while from basin states, there are two elements, that of regional political interactions and economic interdependence, and bilateral treaties between the basin states.
- The dependent variable (different national development priorities) shown in figure 1 consists of elements from two strategic issue groups. From the basin states issue group there is the element of territorial sovereignty, which can either be seen as being absolute (water as a right and water-sharing based on a negotiated formula), or seen as being cooperative (water as a need and benefit-sharing based on a

negotiated formula). From the system characteristics issue group, there is the element of planned catchment management activities.

Seen in this way, it seems evident that the approach used in developing the three hypotheses is somewhat consistent with the identification of the five strategic issue groups by Ashton and Neal (chapter 2), with the added advantage that these groups have been further divided into specific categories of variable. As such, they can form part of the policy-making process in the form of draft policy briefs for discussion by stakeholders and for consideration by OKACOM.

Transboundary rivers, sovereignty and development: Problem or solution?

This book has shown that there are really three broad factors that are relevant in the Okavango River basin. The first of these is the transboundary river system that has been sculpted over millions of years by natural physical and hydrological processes. The second factor is the relatively 'new' (when expressed in the timescales by which river morphology is measured) superimposition of political boundaries over the naturally occurring hydrological boundaries of the Okavango basin. Linked with this is the notion of sovereignty and, in particular, the belief that all states have the right to control the natural resources on their territory. Water challenges this assumption, however, because it is a fugitive resource, here today and gone tomorrow, moving through the landscape while obeying the forces of nature. The third factor is linked to sovereignty, and relates to the desire by legitimate governments to develop the economy of their countries in such a way as to benefit the citizens (and therefore voters) of their respective countries.

Herein lies the dilemma. Which of these three factors has (or should have) the highest priority? The answer to this depends largely on issues of scale. If it is accepted that the earth is constantly being sculpted by basic forces of nature, including continent-building and erosion where water plays a fundamental role, then hydrological borders are the logical unit for management. In this approach, timescales are measured in millions of years. On the other hand, if it is accepted that political power is more important, and that the earth consists of a number of states, each of which has sovereign control over its tiny piece of the globe, then another perspective emerges. In this approach, timescales are measured in considerably shorter periods, often no longer than the next election cycle. Hydropolitics deals with the clash between these two major perspectives and seeks to provide a balance between opposing viewpoints.

Is sovereignty therefore a problem and, if so, for whom is it a problem? The answer to this rhetorical question also depends on the specific perspective being taken by whoever poses the question. Most water resource managers have been schooled in the engineering and management (rather than natural) sciences, and would typically

not see the rationale behind any attempt to remove or eliminate national boundaries and their attendant governments. After all, most water resource managers are public officials employed by governments or government-controlled agencies. To consider doing away with government would not make any sense. The position taken here on this issue is that sovereignty is important, but it need not necessarily be a major problem or impediment to effective water resource management of a shared river basin. The work by Wolf (2002) lists a range of options that can be considered by policy developers. One of these options relates to the choice between coordination and integration. Turton (2002b) deals with this issue in more detail, where the parallel national action approach is presented as it could apply to the Zambezi River basin. The significance of this option is that the thorny issue of sovereignty is bypassed by emphasising coordination of activities rather than their integration, and no conscious effort is made within such an approach ultimately to lead to integration and unification. This approach can be considered in the Okavango River basin, where it has the possible advantage of adequately dealing with the dual issue of subnational and international policy that is inherent in the third hypothesis. Seen from this conceptual viewpoint, state sovereignty becomes part of the solution (because it is recognised as existing with no attempts at its erosion) rather than a problem, allowing the different development aspirations to be met by all riparians in a transboundary river system. In other words, negotiated agreements to coordinate national policy between three sovereign states, each recognising the sovereignty of the other, rather than unilateral development plans, bypasses the sovereignty 'problem', and allows it to be viewed as being part of the solution instead. After all, in international relations theory, the international system is regarded as being one of structural anarchy with the absence of a supreme authority over states, but as Wendt (in Bayliss & Smith 1997:118) says, "anarchy is what states make of it." Negotiated agreements are therefore one way of structuring this anarchy in a manner that reduces uncertainty in an otherwise very uncertain world.

Conclusion

As noted in the introduction to this book, the material presented should be seen as a departure point rather than a final destination. To assist in this process, three hypotheses were developed to provide a framework for subsequent analysis of the various specialist inputs. In keeping with this analogy, the concluding chapter has attempted to integrate some of the loose ends by providing a preliminary 'map' of the underlying hydropolitical processes that are evident in the Okavango River basin at this time. By isolating key elements of these dynamics and segmenting them into specific categories, a start has been made to the process that will need to reveal even finer levels of detail in future.

Importantly, the independent variable in the overall hydropolitical equation cannot easily be changed because it consists of the network or pattern of crosscutting issues

as they interact at this moment in time. The primary interceding variable contains elements that drive basic hydropolitical processes beyond the control of individual riparian states. In other words, these elements happen on their own, with humans being impacted without having a realistic chance of changing the outcome.

Two distinct sets of secondary interceding variables have been isolated. The first set consists of the Okavango as an 'internationalised' river. This affects hydropolitical processes, is driven in part by historic factors relating to past and current development plans, and challenges the sovereign independence of action that each riparian state may choose to develop. The second set relates to normative value systems that exist at different places within the Okavango system, and which tend to mediate outcomes by reducing the inherent conflict potential.

Finally, the dependent variable consists of the different national development priorities that are controlled by each national government. As such, two broad sets of future outcomes are seen to be possible in this analysis. The conflict potential scenario is based on riparian rights where states seek to share water as a commodity, and where the desire for national self-sufficiency in food drives the development of irrigated agriculture. In this scenario, sovereignty is a problem. In contrast, the cooperation potential scenario is based on needs rather than perceived or legally defined rights, with an envisioned equitable sharing of benefits, with national policies of food security based on a trade in virtual water. Given the fact that this is a cooperative model, sovereignty becomes part of the solution because it is based on negotiations, agreements and goodwill between participating states. Central to the latter is a set of basin-wide data that is uncontested and shared equally by all riparian states, with the resort to self-help being reduced by the institutionalisation of a set of rules and procedures that are designed to build confidence and minimise potential conflict when it arises. This assessment is offered to the policy development phase that will need to commence in the near future.

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