

## CHAPTER 8

# The dynamics of river basin cooperation: The Nile and Okavango basins

*Alan Nicol*

### Abstract

This chapter examines the Nile and Okavango basins in a comparative manner. Central issues raised include the aspect of scale, not only in terms of actual numbers, but also in terms of political complexity. The teleology of water scarcity and conflict is refuted, with the discourse of cooperation providing the main backdrop to the chapter. Because cooperation is about changing paradigms from water-sharing to benefit-sharing, the case is made that transboundary rivers challenge sovereignty and independent national development priorities – the main theme of this book. Two significant common aspects in both the Nile and the Okavango are the attempts to ‘enhance’ yield by manipulating wetlands through dredging, and the issues raised by post-conflict reconstruction. Both basins contain wetlands of major proportions, which make them interesting case studies when considering river basins comparatively.

### Introduction

The issue of water and conflict is the focus of frequent media reports, usually written by ill-informed journalists keen to cover column inches. The publication of such reports is often proportional to concerns over water scarcity in various regions of the world, with the Middle East and Southern Africa in the spotlight. Some reports even portray impending ‘water wars’, quoting out-of-context statements made by politicians and technocrats who mostly have vested national interests. The statement made in 1995 by a prominent water sector professional that the next world war would be over water is a case in point (Serageldin 1995). In fact, the history of conflicts or disputes over water is somewhat threadbare—instances of cooperation and agreement far outstrip those of dispute and conflict (for a comprehensive listing of agreements and treaties see <[www.transboundarywaters.orst.edu/](http://www.transboundarywaters.orst.edu/)>).

Nevertheless, at a more local level, there is ‘background noise’ caused by resource conflict in many arid and semi-arid parts of Africa and Asia. This is usually conflict spawned by the daily need to access water for livelihood security within complex and often competing resource-use environments. In some cases, the conflicts have serious local repercussions leading to displacement and loss of livelihoods. It is also at a level

where fewer checks and balances exist to the development of conflict and its proliferation as compared to 'higher' levels (regional, in particular), and certainly at a level where there is less scrutiny from the wider international community.

While this chapter contends that conflict over water – whether violent or not – is a rarity at shared basin level, this should not be an excuse for complacency in the face of complex and often rapidly increasing demands for access to water by co-riparian states. Furthermore, in reaching cooperation and agreement at basin level, benefits can be made available to local users through decisions that address water development for sustainable livelihoods and poverty reduction. At this level of impact, 'water for peace' arrangements can help to catalyse development benefits of key importance to local people, including those who are engaged in local-level conflict over resources.

The two basins examined in this chapter both represent such opportunities. Each is frequently under the media spotlight and has recently been (or continues to be) 'conflict-laden', in the sense that there remain significant areas of violent conflict within the basin, though not necessarily involving water or other natural resources. Although some observers do anticipate wider conflict over competing demands for water in these basins, both basins have provided examples of effective development cooperation – some of which are in their early stages – and not of conflict. Questions remain, however, about the nature of these cooperation and development processes that raise wider issues of development surrounding the distribution of socioeconomic benefits and the means by which to share such benefits at both international and national levels.

## Comparing the two river basins

### *Similarities*

In many ways – including area, population, number of riparian states, volumes of available water – the two basins diverge widely in characteristics (see table 1). In other ways, there are important similarities that make a comparison useful.

Politically speaking, both basins have emerged from prolonged periods of political stasis. In the case of the Nile, the Cold War effectively dictated a pattern of relations between states and, on a broader level, the nature and direction of interstate and intrastate conflict (Makinda 1992). Soviet influence in the region included support to Ethiopia's military, which helped to prolong the internal conflict in this country, and ensured hostility with Egypt as the latter swung towards the United States during the 1970s. These structures and processes of international relations effectively hindered the development of collaborative efforts around the Nile by blocking the thawing of bilateral relations between Ethiopia and Egypt. Regime change in Ethiopia in 1991 and the establishment of a more western-oriented government helped to generate the necessary rapprochement that immediately opened up the 'policy space' necessary to exploit greater Nile basin cooperation.

In the Okavango basin, the end of apartheid in South Africa served a similar purpose (Turton 2003), causing a ripple effect throughout the region and opening up new levels of discourse between states, including those sharing international river basins in Southern Africa. It also added impetus to the Southern African Development Community (SADC), enabling it to evolve a more developmental and inclusive role in Southern Africa, as well as creating opportunities for new agreements and regional treaties.

Although the basin states flanking these two rivers differ significantly, some similarities can be found in the economic sphere. In both cases, widely divergent economies share a common resource, adding great complexity to the apportionment of water in both basins (particularly the legal, social and economic basis on which this is to be achieved), the benefits derived from the use of this water, and the processes and structures necessary to share benefits.

In the case of the Nile, the economic polarity in the basin is clearly evident in the huge difference between Egypt as the major water recipient and Ethiopia as the major supplier. Egypt receives some 55,500 Mm<sup>3</sup> (under the 1959 Nile Waters Treaty with Sudan), while Ethiopia contributes 52,000 Mm<sup>3</sup> from the Blue Nile alone, with other significant tributaries to the Nile system from Ethiopia including the Omo-Gibe (18,000 Mm<sup>3</sup>), Baro-Akobo (12,000 Mm<sup>3</sup>) and the Tekeze (8,000 Mm<sup>3</sup>), yet remaining effectively excluded from any legally agreed apportionment. Whereas Egypt is ranked as a middle-income economy with a gross national product (GNP) per capita of US \$1,530 in 2001, Ethiopia's equivalent was US \$100 in the same year (World Bank 2002). In the Okavango, the difference between Angola (with a GNP per capita of US \$500 in 2001) and Botswana (with US \$3,630 per capita in the same year) (World Bank 2002) is even more noticeable (see table 2). There are therefore serious issues as a result of such differences that have to be dealt with in institutional development, the creation of effective management processes and, ultimately, in the sharing of water and benefits.

The key fact is that, although cooperation is aimed at supranational level, the real issues relating to development have to be examined and understood at national and subnational level. Clear linkages between basin-level cooperation and local-level development have to be a priority in both basins. In the development of cooperative arrangements, the end goal is far too often subsumed by the means necessary to achieve this goal, and the cooperative arrangements themselves are subsequently regarded as the key 'success'.

Finally, both basins have real or latent conflicts involving – though not specific to – issues of resources, nationhood, self-determination and ethnicity. While less complex in the case of the Okavango, there is an interesting parallel between the two basins in the key position taken by upstream states. Although Ethiopia is far more heterogeneous than Angola and its recent conflicts on a larger scale (particularly the border war with Eritrea in the late 1990s), conflict resolution and effective peacebuilding are key priorities in both states. The success of peacebuilding in effect

River	Length (km)	Size (km <sup>2</sup> )	Basin population	Average annual discharge (Mm <sup>3</sup> )	Riparian countries
Nile*	6,671	3,349,000	160,000,000	84,000	10
Okavango**	1,100	429,394	215,000	9,863	3

Sources:  
 \* All data from Nile Basin Initiative materials.  
 \*\* ODI/Arcadis 2001 and Green Cross International at <www.gci.ch/GreenCrossPrograms/waterres/pdf/WFP\_Okavango.pdf>.

Country	Population (million)	Population growth (%)	Gross domestic product (billion US \$)	Gross national product per capita (US \$)	Surface area (million km <sup>2</sup> )
Egypt	65.2	1.9	97.5	1,530	1.0
Sudan	31.7	1.9	12.6	330	2.5
Ethiopia	65.8	2.3	6.4	100	1.1
Angola	13.5	2.8	9.5	500	1.2
Namibia	1.8	2.0	3.2	1,960	0.8
Botswana	1.6	0.8	5.1	3,630	0.6

Source: World Bank 2002.

creates greater downstream challenges as renewed national development opportunities raise questions about future demand for water and patterns of resource use in important upstream tributaries.

### *Differences*

One obvious difference of significance between the two basins is scale – the Nile basin is more than five times the size and length of the Okavango basin. The former comprises ten states spanning three major regions of the continent, while the latter encompasses three states in one region (though Angola arguably has significant links to Central and West Africa). The population of the Nile basin is more than 20 times that of the Okavango, and figures for the total populations of the riparian states widen this difference even further. This ensures, at a minimum, that the financial issues with regard to basin-wide development are of a far greater magnitude in the Nile basin. Complexity caused by scale also has important repercussions for the type and extent of institutional development necessary to address development challenges – put simply, the larger the basin, the greater the probability that higher transaction costs will be involved.

The institutional challenges posed by issues of scale in the Nile basin are also matched by the political complexity of the position of states such as Egypt, with a government tied into wider decision-making systems related to global concerns such as the Israeli-Palestinian conflict. At an even wider scale, it could be argued that, after the Twin Towers attack in September 2001, a state such as Sudan has a changed – perhaps strengthened – regional position because of its involvement in the US response to these events. The issue of oil in southern Sudan is one such a key area. An end to the conflict in southern Sudan will open up oilfield exploitation to US companies, currently barred under anti-terrorist legislation predating the events of September 2001. During 2002, a shift could be perceived in the strategic weight of Sudan at the expense of Egypt's traditional hegemony within the basin – and the region. In short, changing geopolitics has a greater immediate impact on Nile basin states than on states in the Okavango basin.

Economically, the differences are largely related to the economic basis of states. In most of the Nile basin, this is rooted in the agricultural focus of economies. In Egypt, agriculture accounted for just 16.9% of GDP in 2001, against 50% for services and 33.2% for manufacturing. In contrast, Ethiopia's agricultural sector accounted for 52.3% of its economy in the same year, with industry at 11.1% and services 36.5% (World Development Indicators 2002).

In the Okavango basin, economies are far less reliant on agriculture, with Namibia having the highest agricultural contribution at 11.3% in 2001, followed by Angola with 8% and Botswana with 2.4% (World Development Indicators 2002). The demands for water derive mainly from growing industrial activities, population centres outside the basin, as well as from the environment. While this last demand on the resource is of particular importance to the Okavango, environmental flows are far

lower down the list of concerns of Nile states, although environmental degradation in the highlands of Ethiopia remains serious. The implications of economic differences between states and between the two basins are particularly important for understanding how benefits accrue from water usage – to which sectors and to which states – and how the sharing of benefits can best result in complementarities that address future concerns such as environmental degradation. This is a tall order institutionally and suggests the need for the effective facilitation of institutional development, particularly at the early stages of cooperation.

This leads to the final question of ongoing conflict, where both similarities and differences exist between the two basins. While the immediate concerns to build peace in countries recently emerging from protracted civil war are similar, the achievement of peaceful resolutions in the two major parallel conflicts differs significantly. In the case of the Nile, the recent outcome of the Machakos agreement is a higher degree of optimism that a peace agreement can finally be reached in Sudan, but the possible consequence of a referendum on the future of the south raises the possibility of a new Nile basin state. This possibility is of immediate concern to Egypt, not least because of the impact this would have on the existing 1959 Nile Waters Agreement (see Howell & Allan 1994). Continued conflict, on the other hand, hinders the possible development of potential supply-side structures – most notably the Jonglei Canal project, which would augment Egypt's summer flows in future. In Angola, in contrast, the attainment of peace after decades of war would imply a rapidly increasing demand for water in the upstream catchment. This will likely, though not necessarily, lead to greater abstraction and reduced downstream flows. In both these instances, key water management issues accompany wider conflict resolution questions.

Finally, the scale of interstate conflict in the Nile basin in recent years has been far greater than in Southern Africa. This suggests greater political prizes in using the Nile basin process to achieve integration and political convergence between states. At a minimum, the Eritrean-Ethiopian border war cost the lives of well over 100,000 people in two years and had enormous political and economic consequences for the two countries. Bringing the two states closer through joint work on shared tributaries of the Nile, in the context of current initiatives, is one possible step forward.

In conclusion, there are clear parallels in issues and outcomes for cooperative development of both the Nile and Okavango basins. However, the process required – its cost, extent, timescale and requirements for external facilitation – will be noticeably different. Upstream-downstream issues of need, abundance and the means to share benefits from cooperative usage are mediated by hugely variant sets of social, political and geographic factors. How these factors are understood and exemplified in the types of institutional arrangements that accompany and facilitate cooperation will determine, in the end, whether successful outcomes are achievable or not.

The next section examines some of the critical issues facing the two river basins and concludes with a discussion of the principal joint water development concerns of the two basins.

**Box 1****Relationship between major Nile basin states:  
Egypt, Sudan and Ethiopia****Key riparian position (until 1998)*****Egypt***

- Under the 1959 Nile Waters Agreement entitled to 55,500 Mm<sup>3</sup> per annum.
- Until the mid-1990s was 'deaf' to Ethiopia's intentions to develop the Nile waters.
- Publicly has regarded the 1959 Nile Waters Agreement as defining its 'minimum entitlement'.
- Recognises Sudan's entitlement to 18,500 Mm<sup>3</sup>, and has opposed reduction to 'historic' entitlements. No other riparians besides Egypt and Sudan have signed the Nile Waters Agreement.
- Prepared to develop schemes jointly including the Jonglei in Sudan.
- Government agencies concerned with water and land reclamation strongly protect the notion that they have options for substantial increased use of water and propose a 25% increase in area under irrigation. These schemes are far beyond what is possible with known water resources and existing institutions (see Toshka, below), but play to the international legal and relationship imperatives of projecting vigorous water demand.

***Sudan***

- Sudan's position is largely dominated by Egypt. The Nile Waters Agreement included provisions on monitoring by Egyptian engineers of Sudanese usage.
- Developing irrigated agriculture since early 20th century. Had the 1960s and 1970s trends in development been sustained, would be utilising its full entitlement by now. In the 1980s, the pace of agricultural development declined and some land came out of production.
- Sudan watches Egyptian use carefully, including the diversion to Sinai. Many Sudanese were particularly excited when Egypt spoke of transferring water across Sinai to Israel in late 1979, though this was never put into practice.
- The Jonglei scheme (facilitated by the Nile Waters Agreement) was developed in the early 1980s. Its original intention was to reduce evaporation losses from the White Nile as it moved through the Sudd, thus increasing water supply to the north (and Egypt). However, the decision to construct the scheme – made

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in 1974 by the northern government – failed to take into account its impact on southerners and was a partial catalyst for the resurgent civil war. The scheme was abandoned halfway.

### ***Ethiopia***

- Ethiopia has noted with alarm plans by Egypt to move water outside the natural Nile.
- It has not been able to develop its immense hydropower potential nor to address the more difficult water-for-agriculture issues.
- Gradual utilisation through construction of small dams in the highlands is increasing, but these projects are subject to severe problems resulting from environmental degradation.
- Upstream riparians – including Ethiopia – regard the renegotiation of the 1959 agreement as an essential preliminary to any future agreements on the Nile.
- Ethiopia has been attempting to gain recognition of its rights to develop water for power and agriculture. In 1997, for the first time, the Egyptian government stated that the two governments – as the major suppliers and users of the resources – should discuss issues bilaterally. This led to an exchange of diplomatic notes and formed the basis for the emerging Nile Basin Initiative (see below).

Source: Allan & Nicol 1998.

## **What are the critical development issues?**

### ***The Nile***

Given the dimensions of the development challenges facing both basins there are, not surprisingly, major development issues of overlap and trade-offs facing basin planners. This section broadly divides the issues into demand and supply factors, before examining some of the questions around process that impact on the capacity to identify trade-offs (as important as the benefits themselves), and the ways in which negative trade-offs can be turned into ‘win-win’ scenarios. The concept of a ‘trade-off’ is vital in understanding how governments will perceive different development options and sell these to citizens. An appreciation of the hierarchy of trade-offs in social, economic, political and environmental spheres is likely to be an intrinsic part of building consensus between and within basin states.

The first major demand-side issue in the Nile basin is that of agricultural uses of water by all basin states. This varies substantially between states, but is constant in terms of development concerns of riparians – either in Egypt’s case, in its virtual total reliance on the Nile for irrigated agriculture, or in Ethiopia’s case, on its precarious reliance on peasant rainfed farming for most of its economic output. Sudan is somewhere between the two, with both significant economic returns from irrigated agriculture, at the same time as extensive farming through rainfed agriculture in the east and west of the country. The basic issue surrounding agriculture is one of food security, or food self-sufficiency, and the various forms of discourse on this issue that surround the Nile.

A critical analytical distinction must be made between ‘food security’ and ‘food self-sufficiency’. Security is attainable without self-sufficiency if the trade-off of perceived ‘national security’ can be achieved. Reliance on ‘own production’ in the face of rising demand but unreliable rainfall regimes suggests that, in fact, security might be more logically sought in purchasing food from other more reliable production areas through world markets (see Allan 2001). The periodic droughts in the Horn of Africa and in Southern Africa are a case in point and can have enormous impacts on downstream flows. These hold great ‘emblematic’ significance for both the major user and supplier of Nile waters (for more on the notion of ‘emblematic events’, see Allan 2001). For Egypt, although the irrigated agricultural sector is extremely significant in social terms – it employs approximately 40% of its labour force – it is of less significance economically than other sectors, including oil, gas, remittances and tourism.

In contrast, although the potential for greater irrigation development exists, the economic logic behind developing expensive irrigation in Ethiopia has yet to emerge. It is certainly not the answer to most of the country’s food security problems. As Rahmato (1999) notes, much of the land used for irrigation would already have been under rainfed cultivation (or pastoral range land), and significant opportunity costs to irrigation expansion are therefore likely. An optimistic scenario suggests that irrigation would in any case only contribute about 10% to food needs in the next 20 years. Improving the rainfed sector in the Ethiopian highlands is the key issue, with the problem of land-holding size and the capacity of households and communities to grow buffer stocks to help tide them through poor years of rainfall being central to this improvement.

This leads to the second major demand-side use: water for hydropower development and, more generally, power development in the Nile basin. At present, the major generating structure on the Nile is the High Aswan Dam in Egypt. Built in response to Egypt’s perennial water insecurity – at least in terms of variable annual flows – it served to capture an entire year’s flood and thus conserve water that would otherwise have flown directly to the Mediterranean Sea. This has been greatly successful, particularly in the very lean years of the middle to late 1980s when the level of the reservoir fell so low that the turbines themselves were about to be turned off (levels were recorded daily

on the front page of one of Egypt's most popular newspapers, *Al-Ahram*). However, as an electricity-generating structure, the High Aswan Dam increasingly loses its importance as Egypt exploits alternative – particularly thermal – energy options. To the annoyance of some upstream states, the reservoir continues to lose – certainly when it is very full – probably in excess of 10,000 Mm<sup>3</sup> of water a year through evaporation and seepage. While this was anticipated under the apportionment of the 1959 Nile Waters Agreement, it remains an understandable bone of contention upstream.

Losses on this scale are enormous (virtually the equivalent of the annual flow of the Okavango River), considering the lack of entitlement under the agreement of any upstream state to Nile water. Earlier hydrological plans for the river, devised by the British, envisaged storage upstream at higher altitudes where losses due to evaporation would have been far lower (similar to the Lesotho Highlands Water Project), thus resulting in net gains for the system. These plans were echoed in the Blue Nile waters study carried out by the United States Bureau of Reclamation in response to the High Aswan Dam development in the late 1950s and early 1960s (see USBR 1964). However, upstream storage that left water control beyond its borders remained politically impossible for Egypt, at least until the end of the Cold War.

Hydropower development is now inextricably linked to wider debates on dams and development (World Commission on Dams 2000). This has reduced the likelihood of further large dam construction in both basins unless it satisfies a stringent set of criteria. Dams within the Nile basin remain contentious. The Sudanese government is pressing ahead with the construction of the Merowe Dam on the Nile north of Khartoum for hydropower development, rather than raising the height of the existing Roseires Dam on the Blue Nile. There are significant upstream-downstream issues, even between the two treated states, due to Sudan's existing underutilisation of its water share. There is some suggestion that Egypt prefers the Merowe to the Roseires project, because the former would be almost exclusively for hydropower development, while the latter would also allow far greater gravity-fed irrigation of existing irrigation schemes in the country (personal communication with Sudanese opposition member, 2002). This would represent a greater loss from the system and reduce some of the excess flows to Egypt that now serve the Western Desert via the Toshka canal. (The canal is a huge project with construction costs alone for the main canal about US \$1.4 billion. The total scheme is anticipated to cost up to US \$60 billion in the next 20 years. The idea is to lift (by pumping) about 5,500 Mm<sup>3</sup> of water from Lake Nasser into a network of canals into the Western Desert in order to reclaim 540,000 acres of desert. Egypt expects six million people to relocate from the Old Valley. The concept for the agricultural development is high-tech, high-value produce for European markets. There are many claims that the project has not been sufficiently assessed, that it is a huge drain on government resources and that it has contributed to the current economic problems in the country.)

For all three 'eastern' Nile states, there are also significant ecosystem issues at stake. Ecosystem (mis)management has had a great impact on river regulation and

flow, exacerbating the heavy silt load brought down from the Ethiopian highlands by intensive agriculture and poor catchment protection. Some of this siltation, particularly of storage facilities in Sudan, has probably contributed to the recent catastrophic floods in Sudan (the Nile reached some of its highest levels in decades in 1998 and 2001). For the Ethiopians, meanwhile, the rainfall regime, particularly the *keremt* rains from August to October, contributes to the rapid decline in soil fertility and severe soil erosion in many parts of the Blue Nile basin.

The effect on ecosystems of changes in management is significant at many levels. The High Aswan Dam caused significant environmental effects in the Egyptian delta in the decades after construction, increasing saltwater intrusion, coastal degradation and channel scouring, as well as initially reducing the important sardine catch along the coast, all directly or indirectly caused by reduced silt load. In Sudan, the partial completion of the Jonglei canal – while not having major ecological impact thus far – has had a social impact by hampering the movement of humans and cattle. Its completion would have major consequences for the Sudd area, one of the largest and most significant wetland ecosystems in the world (normally about 13,000 km<sup>2</sup> in size, compared to the Okavango Delta's 8,000 km<sup>2</sup>, but capable of expanding to twice its normal size in years of exceptional White Nile flows). The Sudd is a huge area of swamp in southern Sudan through which the White Nile meanders at slow speed and with high evaporation loss. Reducing this loss through speeding up the passage of water through the Sudd via the Jonglei Canal was the key aim of the project. Any savings would be divided equally between Sudan and Egypt. The Sudd covered almost 30,000 km<sup>2</sup> in the early 1960s.

On the supply side, key issues relate to variations in flow and the kinds of efforts undertaken by all riparian states to manage flows and regulate discharge for irrigation and hydropower purposes. The High Aswan Dam is by far the largest structure, although the Toshka diversion and the Al-Salam canal are further examples of major engineering works on the Nile in Egypt. In Sudan, there are key dams at Roseires and Damazin, and now defunct storage facilities at Jebel Aulia built under British Condominium largely to serve the Egyptian need for summer flows (when the Blue Nile flood had reached its lowest point). In Ethiopia, there are dams on some tributaries of the Blue Nile, but the only one of any major significance is at Fincha. Most irrigated development has had to be developed outside of the basin in order to attract investment and is largely found in the Awash Valley (Nicol 2001). The huge silt load in Ethiopia renders many small and medium-sized dams rapidly obsolete, but also affects the maintenance and management of hydropower units.

Storage is also a critical issue in the Nile Equatorial Lakes states, most notably in Kenya and Uganda. The Owens Falls Dam in Uganda produces significant hydropower output, and the country is also developing a further, controversial Bujagali Falls project. The demand for power from rapidly growing urban areas is the main rationale behind the latter. In all cases, the management of these large structures is increasingly viewed in terms of their environmental and social impact.

This raises the critical issue of weighing up trade-offs between different development options and the weights to be attached to the various social and economic outcomes. In the case of the Nile, environmental factors at both national and basin levels are increasingly influencing decision-making. Not only is environmental and biodiversity protection far more globally significant than in the past, but the connections between environmental degradation and development costs are more readily made. In fact, the greater weight being given to environmental factors has catalysed cooperative development along the Nile through providing ‘win-win’ opportunities visible to all major basin states.

Nevertheless, difficult national issues arise about ‘fixing’ the flows of benefits to states against the potential negative trade-offs. While national-level elite may perceive a benefit stream at national level – possibly from the sale of hydropower to neighbouring states or environmental flows helping to secure tourism revenues – civil society may have a different view of and access to such benefits. Fundamentally, the question is how such benefits are to be distributed within riparian states. It is in these regional, national and local linkages – particularly at the lowest level of impact – that the net benefits of greater cooperation will arise and, effectively, where successes will be judged. This raises many of the thornier development issues such as the distribution of wealth, state intervention, subsidisation, compensation and other forms of benefit distribution. These demand that, at a minimum, the arrangement entered into goes far beyond the traditional confines of water management institutions.

The Nile Basin Initiative provides a good example of a successful process of this nature that, thus far, has increased awareness of development needs and sought creative approaches to problem-solving. The initiative is examined in the next section.

### ***The Okavango***

The key development issues in the Okavango basin are somewhat different to those in the Nile basin. On the demand side, the agricultural use of water is far less significant and abstractions correspondingly lower. This could change if Angola begins to develop its irrigation potential on key watershed tributaries. The food security question is addressed through imports, particularly from neighbouring South Africa. Within the basin itself, important communities – predominantly low-income, mixed agriculture and pastoral – are found along the river and depend on its resources.

Industrial and urban domestic use, however, is of far greater significance nationally to each riparian, not least because the flow regime of the Okavango River is more sensitive to such abstractions than the Nile. The growing demands placed on the river by Namibia and Botswana are therefore important and, in the case of the former, originate in parts of the country external to the basin itself. In Botswana, the growth of population centres in and around the delta adds to problems of resource degradation – and demand on resources, including the high abstraction of groundwater.

The issue lies particularly in the key ‘downstream’ land-locked delta, which is an area of globally significant biodiversity. This is perhaps the most sensitive area of the basin in terms of trade-offs between co-riparian development trajectories. Not only is the ecological integrity of the delta a major international issue, but tourism development of the resource is an issue of critical national economic importance for the Botswana government. For Namibia, the need is mainly for industrial and municipal water, particularly in the central part of the country that lies beyond the boundaries of the basin. The different needs clearly have an impact as “disparate levels of dependence upon the basin’s natural resource base in each country create barriers to harmonised development of the basin as a whole” (GEF 2000).

In general, the complexities of national development in the three major riparian countries complicate the demands placed on the resource, while exacerbating the dangers of resource degradation caused by increasing soil loss – in Namibia through overgrazing, and in upstream Angola through unplanned development.

### ***Key concerns: Water and development***

The underlying dynamics of cooperation in shared river basins such as the Nile and Okavango are located in the need to balance trade-offs between the distribution of the resource, demands for it, and the benefits that can accrue from its use. This is the case as governments move towards cooperative development processes. The move from political contestation to realisation of benefits and trade-offs in their apportionment is not easy. Trade-offs are related to a number of variables – including political structure, governance processes, decision-making contexts and social and economic environments – which ensure that national political economies and their different domestic constituencies are important. One of the most difficult challenges in achieving cooperation and development involves the construction of new systems of sharing that can articulate the benefits to be shared in terms of national interest, while addressing ways of maximising the benefits to be shared between states. There is a need to look both outwardly towards neighbouring states and inwardly towards internal interest groups and political constituencies, whether these are economic, ethnic, political or environmental.

One of the key features of this challenge is to understand the capacity to adapt to change (Turton & Ohlsson 1999), both in the distribution of the resource and the surrounding social and economic decision-making environment. There are perhaps two important facets of ‘adaptive capacity’ that need to be emphasised. The first is what may be called ‘static’ adaptive capacity, or the existing capacity to adapt to changes in resource availability. The second is ‘dynamic’ adaptive capacity, or the ability to increase capacity to adapt in response to significant changes in water availability. The latter has more to do with the wider decision-making environments and the ‘reflexiveness’ of social and political structures, which include elements of a ‘smart economy’ such as training, education, awareness, communication, and others.

It is not necessarily short-hand for more ‘open’ economies, though trade liberalisation as an option to help ensure food security can clearly help to enhance the capacity to adapt to changes in water availability by readjusting flows to agriculture.

Both these conceptions of adaptive capacity should be explicitly woven into the benefit-sharing approach. Understanding the dynamics of cooperation in terms of benefits from the basin as a whole and the sharing of these benefits, reduces the emphasis on upstream-downstream issues and, in many ways, reduces the relevance of international legal instruments based on particular water-sharing formulae.

Such an approach also introduces normative social development issues that are harder to define. These focus on equitable and sustainable development at basin level, which challenges traditional norms and processes associated with water-sharing arrangements. Benefit-sharing also raises particular questions about global-local linkages. If protection of an international wetland resource under the Ramsar convention provides a constraint to the utilisation of resources for socioeconomic development, the question arises how the trade-offs are to be understood in terms of opportunity cost to particular national development opportunities, and perhaps even compensated for under particular benefit-sharing approaches.

An important starting point is to distinguish development (mis)perceptions from realities, including those about issues of water for agriculture and water for the environment. Once there is a clearer agreement on the development realities of using water, the politically feasible trade-off options can be identified. This emphasis on process issues is examined in the next section. At its root is the need to build consensus around agreed facts and realities – the major purpose of this book – to achieve national development trajectories that can be accommodated within a water-sharing environment.

## What drives cooperation

The drivers of cooperation are sometimes related to circumstance, as mentioned at the outset, or are the outcomes of external influences. This section analyses some of the dynamics of cooperation in both basins. It is important to point out that the cooperative timeframe in both basins is relatively recent, with the exception of bilateral arrangements such as the Nile Waters Agreement. Approximately a decade has elapsed in each case between early efforts and current institutional structures and process dynamics. Before success can be measured in future socioeconomic benefits, further decades will inevitably come and go. Commitment has to be long-term because immediate benefits are unlikely when the issue is really one of fundamental economic and social change.

### *The Nile*

One of the key contextual drivers remains political feasibility. In the case of the Nile, the post-Cold War development of states helped to facilitate new approaches to

cooperation. In response, the Nile Council of Water Ministers (NileCOM) was inaugurated in the early 1990s. Part of the precursor to these initiatives was the Nile River Basin Action Plan developed in 1995, which recommended the spending of approximately US \$100 million on several preliminary basin studies.

The World Bank’s response was the major impetus behind the Nile Basin Initiative. Instead of sticking to Operational Directive 7.70 that prevents it from lending to one riparian if any other riparian objects to the proposed project, an approach was adopted based on the principle of subsidiarity. This enabled the ‘division’ of the basin into two key areas – the Eastern Nile and the Nile Equatorial Lakes – and subsequently provided the major impetus to continued cooperation through a reduction in transaction costs and increased linkage of benefits to riparian countries.

Future development scenarios based on growing demand for the resource also revealed major problems ahead for Egypt’s use of the water, largely because of the rapid increase in population rates. In effect, therefore, a combination of national development contexts and external political feasibility helped to open up space for joint dialogue. This was reinforced at technical level by the establishment of the Nile 2002 series of conferences in the early 1990s, which brought specialists from all backgrounds, including government, together initially for largely technical, but increasingly also for socioeconomic and legal discussion of the basin context.

Assisting in both processes was another important dynamic – the facilitation of major donor agencies, in particular the World Bank and bilateral agencies such as the Canadian International Development Administration (CIDA). It was out of this initial early facilitation, and the convening of the Nile 2002 series in countries basin-wide, including in Ethiopia in 1997, that the Nile Basin Initiative developed. An important step in the development of cooperation has subsequently been the building of confidence and stakeholder involvement through study tours by parliamentary representatives and others, and through the joint commitment to a broad vision of what the process should look like and seek to achieve. This process of moving from the general to the particular enables barriers to political feasibility to be overcome in a progressive manner. One of the key catalysts in this process is attempts to help riparian states to understand the mutual advantages derived from cooperation.

The positive approach to this form of interstate cooperation is balanced by sceptical views that regard perceived state gain and advantage in the longer term as the main motivation. The more powerful states are happy to achieve short-term (negative) trade-offs in return for longer term advantage – including little real change in the sharing of water. In addition, there are long-term problems of dynamic adaptive capacity. This refers to the greater educational, technical and social capacity of some states to gain from the complexity of benefit-sharing arrangements, not least being an ability to field larger numbers of technical experts to identify the key trade-offs and costs involved in future decisions within the Nile Basin Initiative (NBI).

The Nile Basin Initiative developed in 1998, after it was recognised by all riparians (though Eritrea was to join only later as an observer) that “cooperative



development holds the greatest prospects of bringing mutual benefits to the region” (NBI 2001). The transition mechanisms officially launched in February 1999 comprised the Council of Ministers of Water Affairs of the Nile Basin (Nile-COM), a technical advisory committee (Nile-TAC), and a secretariat (Nile-SEC). At the meeting of Nile-COM in February 1999 the governments adopted a shared vision “[t]o achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin water resources” (NBI 2001). To achieve this vision, a strategic action programme was drawn up combining a shared vision programme and subsidiary action programmes. The action programmes comprised development projects at sub-basin level, which sought to translate visions into “concrete activities and seek to realise transboundary development opportunities” (NBI 2001). The two subsidiary programmes focus on the Eastern Nile (Egypt, Sudan and Ethiopia) and the Nile Equatorial Lakes (NELSAP) including the six countries in the southern portion of the basin – Burundi, the Democratic Republic of Congo, Kenya, Rwanda, Tanzania and Uganda – as well as Sudan and Egypt. The latter’s inclusion is a signal that the strategic interests of Egypt also extend to this portion of the basin.

The initial external partners – the World Bank, the United Nations Development Programme (UNDP) and CIDA – have more recently been complemented by other donors, including the Scandinavian countries and the United Kingdom, through the International Consortium for Cooperation on the Nile (ICCON). The shared vision programme includes sub-programmes on environmental action, power trade, water for agriculture, water resource planning and management, confidence-building, stakeholder involvement, applied training, socioeconomic development and benefit-sharing.

### ***The Okavango***

While the Okavango is one of the least ‘developed’ rivers in Africa, there is increasing pressure to develop the basin’s resources. In partial reaction to the pressure, but also as a reflection of the changing political context in the region, the OKACOM agreement was made in 1994. In 1995, OKACOM declared a commitment to the implementation of an environmental assessment and integrated management plan for the whole basin, supported by the Global Environmental Facility (GEF). Under OKACOM, all transboundary water issues would be discussed through interministerial representation, including issues of prior notification and other matters.

Barriers to transboundary management remain, illustrated in part in the lack of coordination between national policies and institutional arrangements. While the GEF argues that the primacy of national interests results in the imposition of transboundary externalities, the costs of cooperation are high, not least due to enduring communications barriers and poor understanding between the countries. As a recent report clearly showed (ODI/Arcadis 2001), the trade-offs and uncertainties in the basin are acute. The basin represents the only water flowing in Namibia and Botswana as all

other perennial rivers are on the borders of both states (see map 1 on p 10). While conflict in Angola has virtually stopped any development from taking place, the end of hostilities means this will soon change. The two countries with the highest demands on the resource lie downstream but contribute almost nothing to the streamflow – akin to the situation of Sudan and Egypt with respect to Ethiopia. The challenges facing cooperative institutions in the Okavango are therefore significant. Future cooperation will also have to contend with the Ramsar status of the delta ecosystem and the constraints this will place on Botswana’s development of its aquatic resources.

### **Future prospects: Cooperation and development?**

Processes of river basin management take time both to establish and to function, not least because of the challenge to understand the complexities of development. Processes of cooperation are only as effective as the institutions through which they are managed, which are in turn only as effective as the data they have at their disposal and their knowledge, skills and other human capacities to utilise this data. These are all critically important second-order resources that are in short supply across the whole basin (see Turton & Ohlsson 1999). Getting the process ‘right’ in terms of effecting meaningful development of shared water requires a process-oriented view.

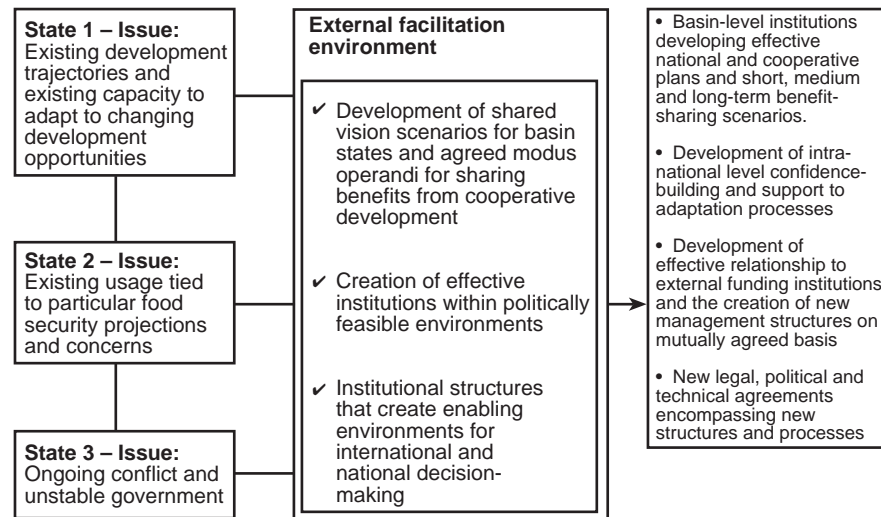
Increasingly, there is an understanding that governments cannot ‘go it alone’ in this process, both in terms of understanding the challenges of basin development and in understanding the impacts on human and natural environments. The inclusion of civil society in a process such as the Nile Basin Initiative recognises this fact, and the importance of including society in decision-making processes. The local impact, mediated through national processes, has to be a key driver of decision-making on benefit-sharing and cooperation (see figure 1).

The challenge is no longer about resource capture, agreed shares of water, supply-led development and apportionment, monitoring, early warning and other factors. In the case of the Okavango, in particular, there is an acute need to shift from an era of supply management to policy responses that focus on addressing future demand scenarios, particularly as Angola comes ‘on-stream’ in its demands on the resource. Not only are the demands on the resource and the impact on the resource base now going to be far greater, but the global institutional development context has changed with the need to bring basin management into wider poverty reduction approaches strongly emerging at present.

The need for facilitated shared water development is therefore great and it is apparent that an internationally coordinated approach is required that would exchange experiences, demonstrate best practice and assist in technical and financial development, as well as helping (crucially) to achieve what is politically feasible. A recent study conducted by the Overseas Development Institute (ODI) and Arcadis Euroconsult (2001) on behalf of the Swedish Foreign Ministry, recommended that an International Shared Waters Facility should be established based on a ‘partnership

Figure 1

## Building linkages between cooperation and development processes



model'. It should draw on the established roles of actors such as the World Bank, the UNDP and GEF, while maintaining close liaison with related international initiatives such as the Global Water Partnership. Its charter would highlight the importance of transboundary water management as an international public good and would promote the principle of subsidiarity in the provisioning of such a good. As well as serving as an international source of arbitration for riparians, the facility could help to develop modalities between financing institutions in order to facilitate funding arrangements for new and existing initiatives, and would support institutional development in water resources management within regional multilateral organisations.

In this regard, the mainstreaming of poverty reduction targets within basin development processes is an opportunity that cannot be missed. In the Nile basin countries alone, there are an estimated 300 million people, a large percentage of the continent's overall population. Bringing the approaches of cooperative river basin development in line with national poverty reduction strategy development and broader programming and planning in areas such as health, education, employment and the environment is therefore a development imperative.

Addressing the institutional challenges within a basin such as the Nile is only just beginning to be realised. But without the connection between basin management and wider development goals, cooperation may proceed apace, but it will exist in a development vacuum. Currently, the Nile Basin Initiative is setting up a benefit-sharing programme that will assist in linking all the other programmes and provide the key process by which to achieve social development objectives. Important lessons are likely to emerge for other basins, including the Okavango.

## References

- Allan, J A. 2001. *The Middle East water question: Hydropolitics and the global economy*. London: I B Tauris.
- Allan, J A & Nicol, A. 1998. *Report on the EU cooperation and natural resources conflict in the Horn of Africa*. London: Saferworld.
- GEF. 2000. *Environmental protection and sustainable management of the Okavango River basin*. Unpublished project brief. Global Environment Facility. At [www.gefweb.org/documents/work\\_programs](http://www.gefweb.org/documents/work_programs)>.
- Howell, P & Allan, J A. 1994. *The Nile: Sharing a scarce resource – An historical and technical review of water management and of economic and legal issues*. Cambridge: Cambridge University Press.
- Makinda, S. 1992. *Security in the Horn of Africa*. Adelphi Paper 269, International Institute for Strategic Studies. London: Brassey's.
- Nicol, A. 2001. *Contested margins: Decentralisation, the state and water management in the Awash Valley Ethiopia, 1985-1998*. Unpublished PhD thesis, University of London.
- NBI. 2001. *Strategic action plan: Overview*. International Consortium for Cooperation on the Nile (ICCON), May. Nile Basin Initiative Secretariat and the World Bank.
- ODI/Arcadis Euroconsult. 2001. *Transboundary water management as an international public good*. Study 1, Development Financing 2000 project. Stockholm: Ministry for Foreign Affairs.
- Rahmato, D. 1999. *Water resources development in Ethiopia: Issues of sustainability and participation*. Addis Ababa: Forum for Social Studies.
- Serageldin, I. 1995. *Strategic water resources management: Themes for a new millennium*. Address at the Fifth Stockholm Water Symposium, Sweden, 13-18 August. Washington DC: World Bank.
- Sudanese opposition leader (name withheld). Personal communication. Cairo. June 2002.
- Turton, A R. 2003. The evolution of water management institutions in select Southern African international river basins. In Tortajada, C, Unver, O & Biswas, A K (eds). *Water and regional development*. London: Oxford University Press.
- Turton, A R & Ohlsson, L. 1999. *Water scarcity and social adaptive capacity: Towards an understanding of the social dynamics of managing water scarcity in developing countries*. Paper presented at the 9th Stockholm water symposium on urban stability through integrated water-related management, Stockholm International Water Institute (SIWI), Sweden, 9-12 August. Available as MEWREW Occasional Paper no 18 at <[www.soas.ac.uk/Geography/WaterIssues/OccasionalPapers/home.html](http://www.soas.ac.uk/Geography/WaterIssues/OccasionalPapers/home.html)> and <[www.up.ac.za/academic/libarts/polsci/awiru](http://www.up.ac.za/academic/libarts/polsci/awiru)>.

USBR. 1964. *Blue Nile water study: Summary*. Washington DC.

World Commission on Dams. 2000. *Dams and development*. London: Earthscan.

World Development Indicators. 2002. Washington DC: World Bank Country Data Service. At [devdata.worldbank.org/external/CPProfile.asp](http://devdata.worldbank.org/external/CPProfile.asp).

The Nile Basin Cooperative Framework Agreement Negotiations and the Adoption of a "Water Security" Paradigm 423. international water law, and its perpetuation would only be a negation of the Shared Vision. the Nile Basin Initiative Process, available at: [www.nilebasin.org/nbihistory.htm](http://www.nilebasin.org/nbihistory.htm) (accessed on 15 July 2009). 46 Excerpted in Mohammed, "The Nile River Cooperative Framework Agreement: Contentious Legal Issues and Future Strategies for Ethiopia", Paper Presented at the National Consultative Workshop on Nile Cooperation, 12-13 Feb. In the Nile basin, the transboundary cooperation has gone through different phases of cooperation. Generally, it can be grouped into three phases of cooperation: Pre-NBI, NBI and Post-NBI cooperation. 1.1.1. Pre-NBI cooperation The first attempt to form a basin-wide organization was made in 1967 by establishing the Hydromet, hydrometeorological survey of the Equatorial Lakes. It was formed in response to flood disaster with the support of United Nations Development Program (UNDP). The major achievements of the TECCONILE is the development of the Nile River Basin Action Plan (NRBAP) which led to Policy Guidelines of the NBI and the formation of a "Cooperative Framework Agreement, (CFA)" to discuss equitable water sharing. The Nile Basin covers around 10% of Africa's land mass, and the Nile river "the world's longest" underpins livelihoods for over 200 million people. The Nile is shared by 10 countries, each with different needs and priorities, but also with common challenges "increasing demand for water, environmental degradation, recurrent flooding, droughts, and energy insecurity." Solving the lack of cooperation seemed an intractable problem. While the Nile basin countries shared similar challenges in growing water demand, environmental degradation, recurrent flooding, droughts, and energy insecurity, distrust and unilateral perspectives was ingrained. In addition, the countries had inadequate information, institutions and capacity, which crippled the ability of countries to cooperate. states represented. "1995 Nile River Basin Action Plan". develop a co-operative framework for. management of the Nile "endorsed by. all. Nile Basin Initiative. "Goal: To achieve sustainable. socioeconomic development through the. equitable utilization of, and benefit from the. common resources. "Objectives: "—Develop water resources in a sustainable and equitable way. to ensure prosperity, security and peace for all its people. "—To ensure efficient water management and optimal use. "—To ensure cooperation and joint action between states.