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**Water,
Development and
Cooperation—
Comparative
Perspective:
Euphrates-Tigris
and Southern
Africa**

Water, Development and Cooperation—Comparative Perspective: Euphrates-Tigris and Southern Africa

by Lars Wirkus (ed.)

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Water, Development and Cooperation— Comparative Perspective: Euphrates-Tigris and Southern Africa

An introduction to the workshop proceedings

Lars Wirkus

Integrated transboundary water management is increasingly gaining interest. Around fifty percent of the world's population lives near and off the worldwide 261 transboundary river systems that are used and claimed by two or more states. Until today, there has been no legally binding international law regulating the distribution and use of these water resources. Additionally, approximately forty percent of the world's population suffer from water scarcity, with the Middle East and parts of Southern Africa being particularly affected.

From 1–2 March 2004, the Center for Development Research (ZEF) and the Bonn International Center for Conversion (BICC) hosted an International Expert Workshop on “**Water, Development and Cooperation – Comparative Perspective: Euphrates-Tigris and Southern Africa**” in Bonn, Germany. Experts from the Euphrates-Tigris region (Turkey, Syria), Southern Africa (Namibia, Zimbabwe, Republic of South Africa, Botswana) as well as from European countries and the United States discussed issues of cooperation and development in transboundary river basins.

The focus lay on the rivers of Euphrates and Tigris as well as on various international river basins in Southern Africa, even though both regions face a somewhat different situation and go back to a different history in transboundary water management and water stress. The workshop compared and contrasted the situation of the Euphrates-Tigris basin to that of the Southern African region to learn from their respective experiences with regard to the various economic, socio-political and strategic factors which do or may affect cooperation. At the same time, participants tried to identify strategies for cooperative water management in the interest of all riparian countries. An analysis of the conditions conducive to cooperation, confidence building and dispute resolution was the main issue of the workshop

An Overview of Transboundary Water Issues in Southern Africa and the Euphrates-Tigris region

Starting with an overview of different international river systems, the participants in the workshop discussed the opportunities and challenges in transboundary resource water management, water supply and demand, data management as well as the organizational infrastructure necessary to create bases for cooperation.

(Geo)Politics of Water Management

Further on, they turned to the issue of politics and, specifically, to the strategic and political decisions which affect transboundary water policies.

The workshop focussed on the impact of national development plans upon regional cooperation as well as on water management as a (non-traditional) issue of “security”. Since dominant national discourses and interests, as well as security considerations on the regional and international level, may reduce the options of a cooperative water management policy, an analysis of these topics is of vital interest to identify strategies for and conditions conducive to cooperative water management.

(Hydro) Politics of Water Cooperation

A third block considered the interface and interaction of various levels of action with the aim to enhance cooperative schemes. Participants looked at the process of convergence of values to support cooperative regimes, highlighting the role of international standards and regional strategic conditions. The political challenges of intra-basin transfers was also addressed.

Stakeholders' Role in Water Cooperation

Finally, the last session of the workshop explored the role and impact of different stakeholders in water cooperation. A critical analysis of the role of donors and their policies examined the various repercussions they might have on cooperative water management. As public participation is vital to the sustainability of water cooperative regimes, the role of non-governmental actors was presented from a practical, participatory approach which highlighted their involvement in water cooperation schemes.

As the importance of integrated transboundary water management keeps increasing in an ever more interdependent

world, we hope our work will meet the attention of a wide audience, and be of interest not only to the scientific, but also to the decision-making public.

To us the exchange of Lessons Learned between the affected basins seems to constitute a main ingredient necessary to address the challenge represented by these basins. We hope that the workshop, by bringing together experts working on two such different and yet so closely connected regions in terms of their natural conditions as the Middle East and Southern Africa, highlighted the many advantages that lie in such an exchange.

The proceedings now released are a collection of those papers presented at the workshop that were handed in to the editors. We would like to thank the Center for Development Research (ZEF) for its close cooperation during the preparation and realization of the workshop. Looking forward to similarly inspiring events, we hope that you will enjoy this paper.

Transboundary Water Resource Management in Southern Africa: Opportunities, Challenges and Lessons Learned.

Peter Ashton and Anthony Turton

1. Introduction

Water is widely acknowledged as the most indispensable of all natural resources, underpinning and sustaining biological diversity as well as social and economic development (e.g. Gleick, 1998). Almost every country faces the challenge of providing sufficient water to meet the escalating needs of expanding populations whilst ensuring that the available resources are used equitably, efficiently and sustainably (Biswas, 1993; Gleick, 1998; Ashton and Haasbroek, 2002). Water supplies continue to dwindle because of resource depletion and pollution, whilst demands for water continue to rise rapidly because population growth is coupled with increasing industrialization, mechanization and urbanization (Falkenmark, 1999; Gleick, 1998; Ashton, 2002). This unfortunate situation is particularly acute in arid regions where water scarcity impedes social and economic development and is linked to the prevalence of poverty, hunger and disease (Falkenmark, 1989; Gleick, 2000; Ashton, 2002).

Southern Africa's water resources are unevenly distributed in both geographical extent and time; large areas of the region regularly experience prolonged and extreme droughts, and water resource availability is naturally variable and often unpredictable (Conley, 1995). An additional complicating factor arises because a significant proportion of the region's water resources consist of large river basins and underground aquifers that are shared by several countries (Ashton, 2002). Most of the countries sharing these water resources experienced a variety of social and political circumstances that were imposed by previous colonial and Apartheid administrations, and further compounded by localized military conflicts or civil wars during the last three decades (Turton, 2003a, b; Turton and Earle, 2005). Overall, this resulted in markedly different levels of social, economic and political development, and has complicated the search for equitable and sustainable solutions to water supply problems across the entire region (Ashton, 2000, 2002; Ashton and Seetal, 2002). Early estimates (e.g. Falkenmark, 1989) noted that several southern African countries were approaching the point indicating severe

Shared water

water stress or water deficit that would hinder further development in these countries. More recent estimates imply that several southern African countries will exceed the limits of their internally renewable and economically usable, land-based water resources before the year 2025 (Ashton, 2002).

These prospects have fuelled a growing realization that southern African countries need to harmonize their approaches to water management and utilization at national and regional scales if they are to achieve equitable access to water to sustain basic human needs and derive the maximum long-term benefits for all (Pallett, 1997; Ashton, 2002). This is particularly important in shared river basins where each country's water resource that offer potentially useful prospects for sustainable water management strategies should be aligned with those of its neighbours if peace and prosperity are to be maintained and disputes avoided (Pallett, 1997; Ashton, 2000, 2002; Heyns, 2002).

This paper reviews recent trends and developments in transboundary water resource management in southern Africa, highlighting key regional challenges and opportunities. Against this background, attention is drawn to several important lessons resource management in the region. The validity and practicality of these concepts, as well as their potential to relieve some of the sustainability issues linked to the transboundary water resource problems faced by the region, will determine whether or not these options are accepted as being socially, economically and technically feasible.

2. The geographical realities: climatic controls and looming water shortages

Large areas of the Southern African Development Community (SADC) region receive less than 500 mm of precipitation each year, and some 80 percent of the total mean annual runoff (MAR) of the entire southern African region arises from approximately 45 percent of the land surface area, located mainly in the central and northern sectors of the region (Pallett, 1997). Variable patterns of seasonal rainfall, combined with high average temperatures and rates of evaporation, result in a very uneven distribution of surface water resources and provide little recharge to ground water aquifers in the drier sectors of the sub-continent. The general pattern of climatic characteristics across southern Africa has resulted in a striking absence of perennial rivers and lakes in the southwestern and northeastern portions of this region (Ashton, 2002). These features are also reflected in the average quantities of annually renewable surface and ground water

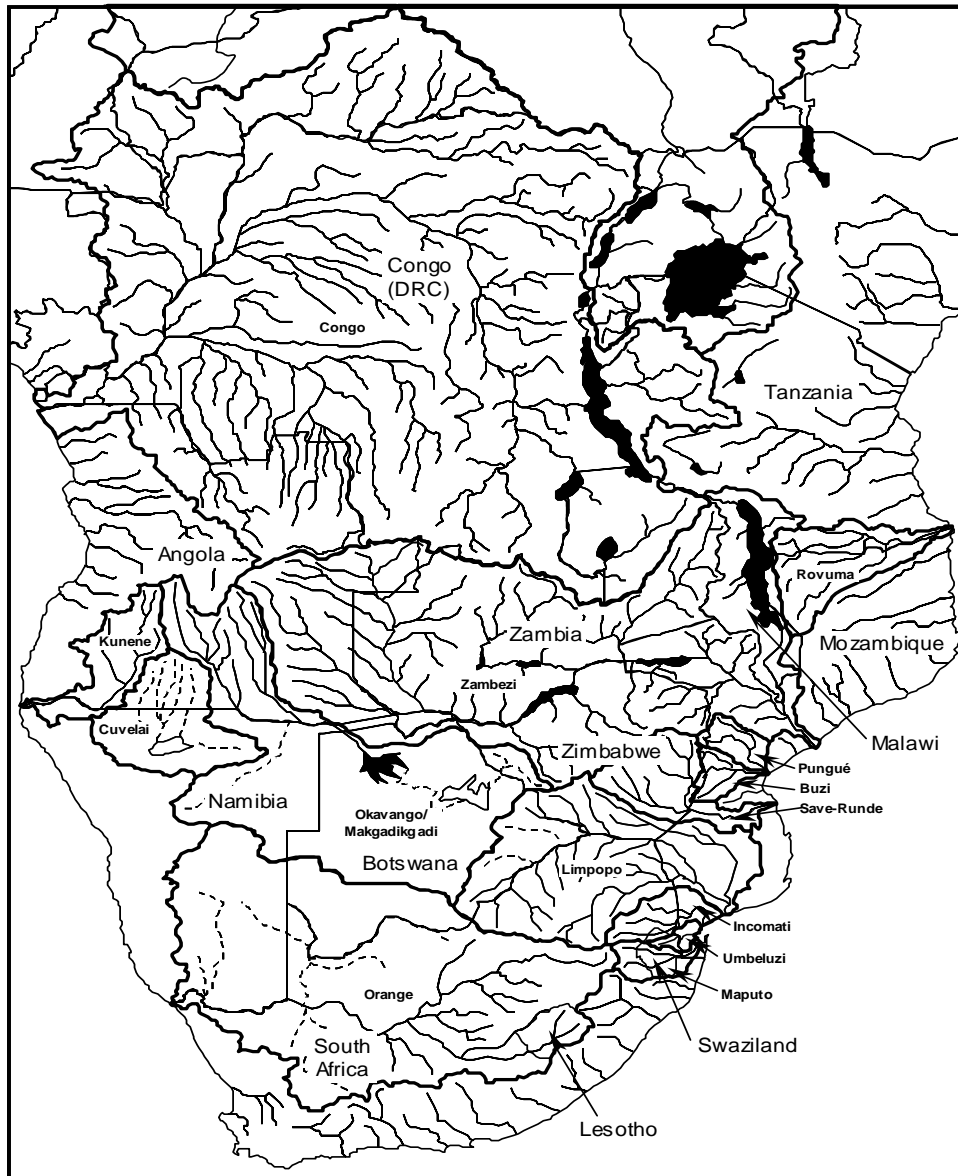
Regional challenges,
regional opportunities

resources that are available to each country (Ashton, 2002). Many communities living in the drier regions of southern Africa depend on ground water sources that are often unreliable and of dubious quality, or have to be supplied with water via inter-catchment water transfer schemes.

In recent years, there has been a growing awareness that increased population numbers, combined with an improved quality of life (i.e. 'development' in its widest sense), contribute to a continual increase in the quantity of water needed to meet society's needs (Ashton, 2002). This translates into an inevitable reduction in the quantity or fraction of a country's internally exploitable water resources that remain available for use per person (Gleick, 1998; Falkenmark, 1999; Ashton, 2000). The projected reduction in *per capita* availability of water is accompanied by an escalating trend in the degradation of its quality, and represents a serious threat to the development prospects of many African countries (Falkenmark, 1999; FAO 2000; Ashton, 2002). In southern Africa, much of the water destined for use by agriculture, industry and domestic users is located within international river basins or transboundary ground water aquifers that are shared by more than one country (see Figure 1). This fact has heightened awareness of the need for countries to collaborate closely with each other in their efforts to utilize these shared river systems, so that each has equitable access to the resources available and disputes can be avoided (Pallett, 1997; Ashton, 2000, 2002).

Increasing water
needs

Figure 1: Mainland countries of the Southern African Development Community (SADC), showing the extent of their transboundary river basins (shaded). Ephemeral transboundary rivers are shown as dashed lines.



Map drawn from data obtained from FAO 2004; NOAA 2004.

3. The southern African hydropolitical complex

Buzan (1991) noted the existence of a regional security complex in southern Africa, comprising ten of the mainland Southern African Development Community (SADC) states of Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe. In this context, the term “security complex” was used to emphasize the interdependence of both shared and competing interests, and reflects the shifting patterns of cooperation and competition over time (Buzan, 1991). Based on the security complex theory outlined by Buzan (1991), Schulz (1995) developed the concept of a “hydropolitical security complex”, which he defined as “...including those states that are geographically part ‘owners’ and technically ‘users’ of the [shared] rivers and, as a consequence, consider rivers as a major national security issue”. An important consequence of Schulz’s work is that it indicates what can happen in the field of hydropolitics when water resource management is linked to national security concerns, or to other issues of high politics (Turton and Ashton, 2004).

National security

Given that national security is typically a relational issue that is mitigated by geographic proximity, the role played by international river basins poses an interesting, and largely unexplored, analytical variable. In the context of the twelve mainland SADC countries, a total of 15 river systems are shared by two or more states in the region, with some of these rivers (the Nile and Congo river systems) also being shared with other states further to the north (Table 1). As a result, sovereign control over these river basins has to be shared when seen from the perspective of a given basin that is managed as a hydrological entity.

Potential threats to economic security are often seen as a national security issue because relative economic growth is a major determinant of the power of states within a given system (Buzan, 1991). This is particularly pertinent to international river basins that are reaching the point of closure, where the available supplies of water have largely been exploited. When a shared river approaches closure, competition for water intensifies, with a concomitant increase in the potential for conflict between riparian states. This can become an issue of high politics when looming water scarcity is perceived to pose the threat of reduced economic growth potential (Turton, 2003a, d).

Because the availability of assured water supplies is a fundamental determinant of the economic growth potential of all states, reliable access to sustainable water supplies has become a

strategic issue for developing countries that are situated in arid and semi-arid regions of the world. The significant role played by water in southern Africa is illustrated by the fact that the first co-operation protocol that was signed within the SADC region was the Protocol on Shared Watercourse Systems (Ramoeli, 2002). Heyns (2002) notes that one of the major development challenges facing the SADC region in the near future is the need to implement large, regional water transfer schemes in order to meet the economic limitations imposed by looming water scarcity in some countries.

SADC's Water Protocol

Table 1: Countries comprising the international river basins found in the SADC region (Figure 1). The Nile and Congo river systems are also shared with countries to the north of the SADC region.

River Basin	Riparian States
Buzi	Mozambique, Zimbabwe.
Congo	Angola, Burundi, Cameroon, Central African Republic, Congo, Democratic Republic of Congo (formerly Zaire), Rwanda, Tanzania, Zambia
Cuvelai	Angola, Namibia
Incomati	Mozambique, South Africa, Swaziland
Kunene	Angola, Namibia
Limpopo	Botswana, Mozambique, South Africa, Zimbabwe
Maputo	Mozambique, South Africa, Swaziland
Nile	Burundi, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, Uganda,
Okavango / Makgadikgadi	Angola, Botswana, Namibia (Zimbabwe, shares the Nata River sub-basin and is a riparian state of the Makgadikgadi basin, though not the Okavango sub-basin)
Orange	Botswana, Lesotho, Namibia, South Africa
Pungué	Mozambique, Zimbabwe
Rovuma	Malawi, Mozambique, Tanzania
Save-Runde	Mozambique, Zimbabwe
Umbeluzi	Mozambique, Swaziland
Zambezi	Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe

Whilst the SADC region contains a large number of international river basins, four of the economically most developed states in the region—Botswana, Namibia, South Africa and Zimbabwe—are water scarce. These four states are approaching the limits of their readily available water resources and looming water scarcity

is likely to impose limitations to their economic growth potential in the near future. Significantly, these four states are also linked by virtue of their co-riparian status in the Orange and Limpopo basins.

Using the work of Buzan (1991; 1994), Buzan et al. (1998) and Schulz (1995), Turton (2003a, b, c, d) developed a conceptual model that factors in the hydropolitical dimension of international relations within the SADC region. The rationale for this is based on the fact that many international rivers (Table 1) provide permanent linkages between different states within the southern African security complex as originally defined by Buzan (1991). The typology proposed by Turton (2003d) distinguishes two distinct types of riparian state (pivotal state and impacted state), and two categories of international river basin (pivotal basin and impacted basin), defining these concepts as follows:

- **Pivotal States** are riparian states with a high level of economic development that also have a high degree of reliance on shared river basins for strategic sources of water supply. In southern Africa, four states fall into this category: Botswana, Namibia, South Africa and Zimbabwe.
- **Impacted States** are riparian states that have a critical need for access to water from international river basins that are shared with a pivotal state, but appear to be unable to negotiate what they consider to be an equitable allocation of water. In southern Africa, seven states are seen to be in this category: Angola, Lesotho, Malawi, Mozambique, Swaziland, Tanzania and Zambia.
- **Pivotal Basins** are basins that face closure, and which are also strategically important to any one (or all) of the pivotal states by virtue of the range and magnitude of economic activity that they support. In southern Africa, two basins fall into this category: Orange and Limpopo.
- **Impacted Basins** are those where at least one of the pivotal states is a co-riparian, and where there appears to be less freedom of choice for an Impacted State to develop its water resources in a manner that is deemed to be fair and equitable. In southern Africa, seven basins are in the category: Cunene, Incomati, Maputo, Okavango, Pungué, Save-Runde and Zambezi.

Based on these concepts, Turton's conceptual model (Figure 2; Turton, 2003a, b, c, d) displays the inherent patterns of co-operation and competition within international river basins as a critical component of the Southern African Security Complex as

Pivotal and
impacted states

defined by Buzan (1991). Within the SADC region, water has a long history of politicization, having played a prominent but subtle role during the conflict years of the last three decades (Turton, 2003a). The overt nature of southern African water politics has changed somewhat in the post-Apartheid era, but the underlying drivers remain largely unchanged. The four economically most developed states in the region are also those facing the greatest scarcity of water; they all share international river basins with other states, and they all face significant limitations to their future economic growth prospects as a result of looming water shortages.

Orange and
Limpopo River

Clearly not all international river basins are equal in strategic importance or in terms of their inherent conflict potential. The Orange and Limpopo basins in the SADC region have been classified as pivotal basins, based on three critical criteria: a significant portion of the basin falls within pivotal states; those pivotal states have a high reliance on the water from these basins; and each basin is approaching the point of closure. A deeper analysis of these two pivotal basins raises a number of subtle but important facts that are not immediately visible. For example, the Orange River is larger of the two basins in terms of its volume of flow (Basson et al., 1997) and it is extremely important for South Africa; arguably being the strategically most important river it has access to. Whilst Botswana is a co-riparian state, the portion of the basin that lies within the boundaries of Botswana is located within the Kalahari Desert, and contains ephemeral watercourses that contribute no stream flow to the main stem of the river. Botswana is therefore listed as being a special case, because it occupies its position as co-riparian in all deliberations over the Orange River, but currently makes no use of the surface water in the basin.

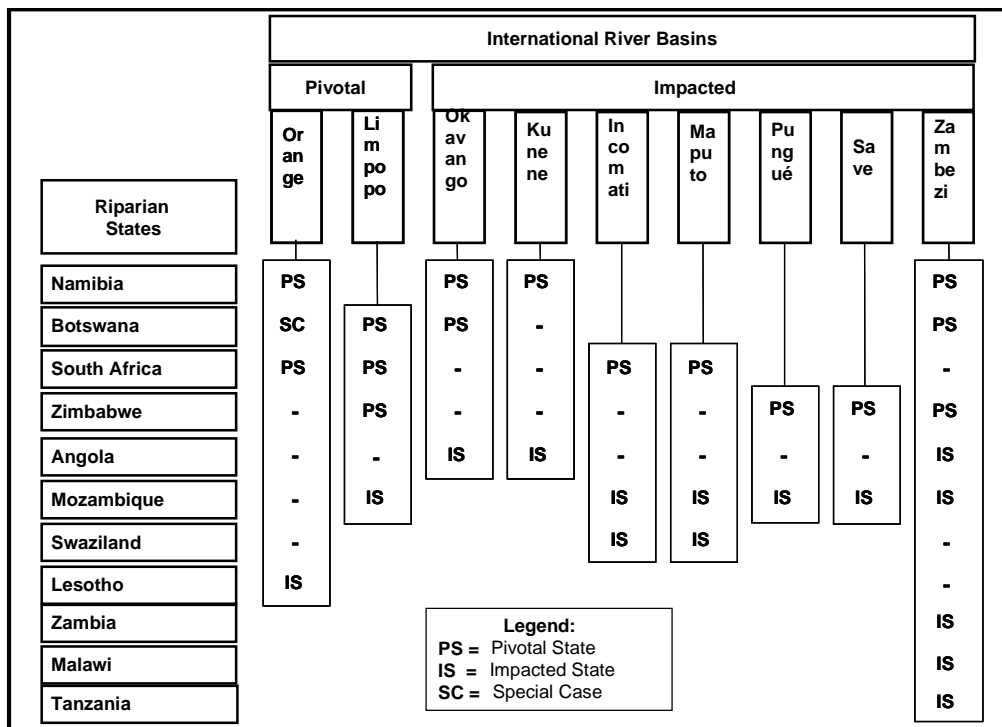
Using the concepts of an impacted basin and an impacted state, a more nuanced understanding of the international relations within the SADC region can be developed. Figure 2 indicates the existence of no less than seven impacted basins and seven impacted states. This immediately poses the question as to the possible significance of this in terms of the international relations of the region. Two examples can be used to illustrate the situation.

Okavango River
basin

The first example is found in the Okavango River basin, which is strategically important for the two downstream pivotal states, Namibia and Botswana. The Okavango basin has several unique features including the fact that it is endorheic and does not discharge into the sea. The two downstream riparians (Botswana and Namibia) are pivotal states with a high resource

need, but they are largely dependent on flows that originate in the upstream riparian state (Angola). In turn, Angola is cautious with regard to agreements over water sharing options that may ultimately limit its own future economic development; this is likely to increase in importance as post-war reconstruction progresses in Angola after cessation of the Angolan Civil War (Porto and Clover, 2003).

Figure 2: Schematic diagram illustrating the relationships between the river basins and countries comprising the southern African hydrological complex; pivotal basins and pivotal states are shaded.



Redrawn from Turton 2003d

When they are viewed strictly in terms of the water in the Okavango basin, both Namibia and Botswana can be considered as rivals with different development agendas and resource needs, despite a long history of technical co-operation between them on the Okavango and other shared rivers (Taylor and Bethune, 1999). Botswana and Namibia are also co-riparians (with Angola) on the Zambezi River, but the terrain within the Botswana and Namibian portions of that basin are unfavorable for development of this resource. The prospects for future co-operation between Angola, Botswana and Namibia to draw on the water resources of

Mozambique
shares several
basins

the Zambezi could also influence their negotiations regarding the Okavango River (Turton and Ashton, 2004).

The second example relates to the impacted state of Mozambique, which shares several international river basins with its neighbors and, on paper, ought to be relatively water abundant. However, in each of the six basins listed in Figure 2, Mozambique is the downstream riparian state and occupies a traditionally weak strategic position. In the case of the Limpopo as a pivotal basin, Mozambique is located downstream of three of the four regional pivotal states; in most years, negligible quantities of water are left in the river once the strategic needs of the upstream pivotal states have been taken care of (Christie and Hanlon, 2001). Furthermore, any attempt by Mozambique to develop dams on the Limpopo would likely raise concerns amongst the upstream riparian states because this would require them to relinquish some degree of control over the water that they already utilize. In the other five impacted basins, Mozambique is downstream of South Africa (a pivotal state) in two cases (Incomati and Maputo), downstream of Zimbabwe (also a pivotal state) in two cases (Pungué and Save), and downstream of seven riparian states (three of them pivotal states) in the case of the Zambezi. This means that in the overall context of the hydropolitics of southern Africa, Mozambique is always in a weaker strategic position than its upstream neighbors. This feature is reflected in the limited number of bilateral or multilateral agreements involving Mozambique, and could also account for the cautious approach that Mozambican officials have adopted when negotiating the SADC Protocol on Shared Watercourse Systems and the various Zambezi River agreements that have been attempted in the past (Ramoeli, 2002).

One of the most important strategic issues facing the SADC region is the implication that water is already (or may soon become) a limiting factor to the long-term economic growth potential of the four pivotal states in particular, along with the implications of this for the seven impacted states. In this regard, Turton (2003b) suggests that it is the relative availability of so-called 'second-order resources' that plays a crucial role. This has been defined by Ohlsson (1999) as the ability of societies, administrative organizations and managers responsible for dealing with natural resource scarcities, to find and deploy the appropriate tools for dealing with the consequences of those natural resource scarcities. This is similar to the logic underpinning the case for ingenuity as a resource that states can mobilize to develop their economies (Homer-Dixon, 2000). If this is indeed true, then southern Africa's pivotal states will need

to mobilize significant quantities of 'second-order resources' (Ohlsson, 1999) or 'ingenuity' (Homer-Dixon, 2000), if they are to avoid the consequences of water scarcity as a limiting factor to their future economic development (Ashton and Haasbroek, 2002).

Another strategic issue that needs to be evaluated is the potential for the trade of "virtual water" to act as a possible mitigator of the conflict potential inherent in water scarcity. The term "virtual water" has been coined to reflect the volume of water used to produce a commodity such as wheat, where it is theoretically easier to meet national water deficits via the importation of water-rich cereals (Allan, 1997). However, this option raises a series of political issues that are not yet fully understood. For example, there is little clarity on the level of economic activity that would be needed in a given pivotal state before it could rely on the importation of virtual water as a strategic solution to the problem of water scarcity. In the same way, there is little understanding as to the possible new dependencies that could arise from this situation, particularly in terms of a global economy that is driven largely by the industrialized nations of the world. Whilst the answers to these questions are not immediately available, the hydropolitical complex concept provides an analytical tool that will allow us to obtain deeper insights from evaluations of the possible options available to the countries of the SADC region (Turton and Ashton, 2004).

Resource
scarcity

4. The changing socio-political climate

A unique aspect of southern African countries relates to the way in which their recent political history has shaped their national and regional approaches to water resource management. Originally, the political geography and demarcation of states within the region was a product of colonialism, where state borders were set with little regard to the social, cultural and ethnic make-up of the states being created. The anticipated dramatic change in the region's political dynamics during the decolonization process failed to surface, because the suppressive 'overlay' (Buzan, 1991) of colonialism and Apartheid was merely replaced by an equally dominant form of overlay from the Cold War, with further debilitating social and economic impacts on the region (Buzan, 1991; Turton, 2003a, b). The end of the Cold War and the eventual attainment of political independence by all southern African countries has seen the rapid emergence of regional political dynamics coupled with social and economic

reforms that have coincided, perhaps by chance, with global water sector reforms (Asmal, 1998). This paved the way for individual countries to develop their own water policies and water laws to suit their specific needs, and also laid the foundation for greater regional co-operation over water and other strategic issues (Ashton, 2002; Heyns, 2002; Ramoeli, 2002; Turton, 2002, 2003a, d).

Many southern African governments share similar visions and face comparable development problems, whilst also sharing several geographic, historical, cultural and linguistic ties that supersede political boundaries (Ashton, 2002). This has prompted the formation of regional- and continental-scale coalitions or associations such as SADC and the New Partnership for Africa's Development (NEPAD) that seek jointly to address mutual aspirations and problems (Ashton and Chonguica, 2003). These regional linkages and agreements are particularly important in the context of joint resources such as transboundary river systems (FAO, 2000), and highlight the rapidly expanding political agenda for regional integration that presses African countries to open their borders to transboundary economic development. The long-term success of these initiatives depends on the ability of individual parties to reach agreement on issues of equity and responsibility, and the degree to which each party is accountable for its actions to other members (Lundqvist, 2000). Simultaneously, these initiatives have reinforced the need for countries to evaluate the extent to which their existing systems of governance can accommodate and comply with decision-making processes and management structures that must now extend beyond national boundaries (Ashton, 2002; MacKay and Ashton, 2004).

A central factor in all regional or transboundary agreements between countries is the degree to which the policies, legislation, resources and management practices of each country can be aligned and implemented in harmony with those of its neighbors. Successful implementation of such agreements will be difficult to achieve where there is little or no alignment, or where one party is unable to deploy adequate human, economic and technical resources to meet its commitments (Ashton, 2002).

5. Water resource management approaches

Historically, southern African water resource management approaches consisted of supply-side options to meet the growing demands for water in specific areas, and little effort was directed towards demand-side options to reduce society's demands for

water (Ashton and Haasbroek, 2002). Large storage reservoirs and inter-catchment water transfer schemes were built to cope with the region's variable and unpredictable river flows and limited supplies of ground water, and provide water to demand centers that were frequently located in areas situated relatively far from suitable water sources (Basson et al., 1997). In this process, several countries built water supply reservoirs within river basins that they shared with neighboring states, diverting water for their own strategic uses and altering the patterns of flow available to other riparian states. In South Africa, for example, the combined capacity of the large and small water supply reservoirs amounts to some 74% of the country's annual average runoff and represents an unusually high level of 'resource capture' by world standards (Midgley et al., 1995). A similar situation exists in neighboring Zimbabwe, where many impoundments were built to provide assured supplies of water for industry, agriculture and domestic use (Hirji et al., 2001). Significantly, South Africa and Zimbabwe are listed amongst the top twenty countries that have constructed the largest number of dams for irrigation, water supply, flood control and hydropower (WCD, 2000).

Supply-side
options

Modern approaches to water resource management now acknowledge that water resources can only be managed effectively and efficiently when the entire river basin or catchment forms the basic management unit. Furthermore, because surface water and ground water are inextricably interlinked, they must be considered and managed together as a single resource. These principles form the foundation for integrated water resource management (IWRM), and are rapidly gaining acceptance throughout the world. Several southern African countries recognize the need for IWRM approaches and have already drawn up policies, implemented the required legislation, and initiated actions designed to achieve these objectives within their territories (Asmal, 1998). More recently, these efforts have been extended to the development of a coherent regional water resource management policy for the entire SADC region (Turton and Ashton, 2004).

IWRM

In their ideal form, IWRM approaches to catchment (or river basin) management provide both the guiding philosophy and a practical framework for actions that promote cooperative decision-making and responsible management of water resources. A basic tenet of effective catchment management is the principle that all water users within a catchment must share responsibility for determining the short-, medium- and long-term objectives of water resource management, whilst ensuring that water allocation is both equitable and fair (Asmal, 1998). Clearly, effective governance systems are essential for these approaches to succeed (MacKay and

Ashton, 2004), whilst the effective implementation of IWRM policies in an international (shared) river basin requires a high degree of mutual trust, support and interaction between the relevant water resource management agencies, as well as clear agreements on the extent to which each country may exploit the available resource (Ashton, 2002). Importantly, adoption and implementation of these agreements will have strategic consequences for those countries whose historical approaches to water resource management have already resulted in the 'capture' of significant quantities of the water resources that they share with neighboring states (ibid). Ultimately, the success or failure of these international water-sharing arrangements depends largely on the degree of political will exerted by each country and their awareness of the potential benefits that could accrue to the participating countries.

Southern Africa's current reality of expanding populations (albeit tempered by the HIV/Aids pandemic: Ashton and Ramasar, 2002; Ramasar and Erskine, 2002), is accompanied by escalating urbanization and industrialization, as well as rising demands for water to redress past social, economic and political iniquities (Ashton and Haasbroek, 2002). National water resource management strategies now recognize water as a "common good" and not as "private property", and the principles of sustainable resource utilization underpin national water resource management policies to ensure that all aspects of the water cycle are considered within the geographical bounds of a river basin or catchment area (SARDC, 1996; Basson et al., 1997; Ramoeli, 2002).

6. Challenges and opportunities presented

The geographical climatic and characteristics of southern African countries have delineated the patterns of water resource availability across the region and, until recently, also determined the suites of political, economic and technological strategies that were deployed to meet the demands for reliable water supplies within each country. Clearly, the countries with plentiful water resources do not face the imminent prospect of economic constraints created by water shortages. Similarly, those countries with strong and vibrant economies can mobilize their economic resources and deploy innovative technological solutions to exploit unconventional water sources such as fog, seawater and icebergs and thereby postpone the inevitability of water shortages and the resulting economic restrictions that this would incur (Smakhtin et al., 2001). Ultimately, however, strictly inward-looking, national strategies offer few dependable prospects of long-term water

security for individual countries, whilst many parts of the region would suffer considerable hardship. Therefore, the region's greatest challenge is the need to look beyond purely national priorities and harness the region's collective social, economic and technological resources to attain a common goal: that of ensuring long-term water security. In strategic terms, this challenge also presents southern African countries with the unique opportunity to secure more shared benefits than national and regional water security. In particular, the joint development and deployment of a consistent regional set of water resource management strategies would also promote and enhance political and economic stability across the sub-continent, helping to strengthen the region as a whole (Ashton, 2002).

A common goal

The effective, efficient and integrated management of water resources that are shared by several countries requires a high degree of trust between the countries, as well as a firm commitment to inter-state collaboration and co-operation (Lundqvist, 2000). However, these responsibilities are seldom easy to incorporate into the existing institutional structures within each country and many of the policies, strategies, decisions and actions that are needed extend beyond the line-function boundaries of conventional government departments (Ashton, 2002). Experience elsewhere in the World suggests that the establishment of a river basin organization (RBO) with responsibility for managing every component of the hydrological cycle, and representing the interests of every country within the river basin, offers the greatest likelihood of success (Lundqvist, 2000; Van der Zaag et al., 2000).

The creation of such an RBO requires each state comprising the basin to acknowledge and accept the roles and responsibilities of its partners, whilst committing itself to maintaining a spirit of harmony and goodwill amongst its partners (Pallett, 1997; Lundqvist, 2000; van der Zaag et al., 2000). Importantly, effective and efficient water management institutions depend on good governance processes to ensure that all stakeholders are engaged effectively in decision-making processes. An additional and critically important element of any such partnership is the need to acknowledge that the rights and obligations of each party are mutual and reciprocal, rather than unilateral. Any agreement that may be reached on the quantities of water needed by participating countries will also require each participant to demonstrate its capability to manage the water resources available in an equitable and sustainable manner (Ashton, 2002).

International
cooperation,
local conflict

There is clear empirical evidence (e.g. Wolf, 1999) to support earlier assertions (e.g. Ohlsson, 1999) that the likelihood of disputes between states over access to water is low. The many different policy options that are available to prevent or resolve disputes at inter-state level also improve the likelihood of peaceful coexistence (Turton et al., 2003). In contrast, fewer policy options and coping strategies are available to an individual water user and there is a higher potential for dispute and conflict to occur at local scales over access to scarce water resources (Lind, 2002). This element of geographic or spatial scale appears to be a critically important factor in determining whether or not a dispute or conflict will occur over shared water resources (Ashton, 2002). Another important consideration is the realization that improved international co-operation over transboundary river systems offers a suite of additional benefits that extend well beyond those linked solely to effective water resource management. Immediate and highly visible benefits, such as improved systems of trade, transport and communication, are supplemented by more pervasive, long-term strategic benefits that include increased political and economic stability in the participating countries (Ashton, 2002), and the entrenchment of a culture of co-operation rather than conflict (Turton et al., 2003). This provides strong support for approaches that move from the local level to a whole river basin level when formulating the dimensions of a water shortage problem. This reinforces the fact that concepts such as the Southern African Hydropolitical Complex offer decision-makers the opportunity to consider a wider range of potential opportunities and benefits (Turton and Ashton, 2004).

7. Lessons learned

Several key lessons have emerged from the different processes that southern African countries have deployed in their individual and collective efforts to manage the region's water resources. Whilst these lessons vary in their level of strategic emphasis and share many similarities with lessons that have been learned elsewhere in the world, they build upon "African" insights that help to ensure they are accepted and used in southern Africa. The most important of these lessons can be grouped into a few key categories, and are described briefly as follows:

7.1 Creating a shared vision for the future

The recent launch of the African Union and the NEPAD strategy follows on from the earlier formation of SADC, providing clear

evidence that Africa's leaders can create and share a broad vision for the future development of the continent (Ashton and Chonguica, 2003). These regional and continental-scale agreements represent a firm commitment by African Heads of State to work together to reduce poverty, ensure social and economic improvement in the lives of Africans, and simultaneously make sure that the continent's natural resources continue to meet the needs of society in perpetuity. These guiding principles are founded on a shared realization that regional integration is an essential requirement for sustainable development (Pallett, 1997; Asmal, 1998; Ramoeli, 2002).

This strong emphasis on regional integration and the principles of sustainability is essential if African countries are to achieve meaningful levels of national and regional self-reliance. Relief from the pervasive problems associated with poor or inadequate governance, a weak infrastructure base, and insufficient scientific, technical and educational capacity, pose enormous challenges to meeting the objectives of sustainable development. Notwithstanding these problems, the shared vision that underpins both the SADC and NEPAD strategies is proof that African countries can bridge their social, economic and political differences to develop a shared vision. In the region's water sector, this will be reflected in the imminent release of a unified water resource management vision, mission and policy that reflects the aspirations of all SADC countries (Ramoeli, 2002).

7.2 Aligning and harmonizing national and regional policies and legislative frameworks

The water resource management policies and legislative frameworks in many African countries that share transboundary water resources exhibit several differences in the ways that they are implemented, rather than the ways in which they are structured (Heyns, 2002; Ramoeli, 2002; Ashton and Chonguica, 2003). These disparities arise because the countries concerned often have slightly differing priorities and this makes it difficult for the respective authorities or agencies to achieve the same levels of management efficiency and control over the resources available. However, it is important to note that in almost every case, the central components of the policy and legislative frameworks in each country are very similar, and are based on very similar principles (Ramoeli, 2002). Where differences do exist, these are associated mainly with the specific ways in which decisions are taken and management options are deployed. The

A shared
understanding

high level of existing alignment in the structures and objectives of the policies and legislation indicates that SADC countries already share several analogous values and development objectives.

Clearly, this statement does not take into account the necessity for each country to reach agreement with its neighbors on the precise mechanisms whereby alignment of policies and legislative requirements could be achieved (Ashton, 2002; Heyns, 2002; Ramoeli, 2002). Nevertheless, with a shared understanding of the specific changes that would be needed, and the ensuing benefits that countries would accrue in terms of achieving regional and national development objectives, each country could be motivated to mobilize the technical and legal resources required to accomplish this objective.

7.3 Creating the necessary professional capacity to undertake these initiatives

Every effort that is directed towards a clearer understanding of the specific differences in water resource management policies and legislation between different southern African states, or towards improved alignment and harmonization of these instruments, represents an important step forward. However, these efforts will be futile if they are not supported by adequate numbers of suitably trained and experienced technical, scientific and management personnel (Heyns, 2002; Ashton and Chonguica, 2003). This capacity is needed at all levels of water resource management, and includes all levels of government, the private sector, NGOs and local communities (Ramoeli, 2002).

The chronic shortage of trained technical and scientific personnel is a perennial problem for resource management institutions throughout southern Africa (Kakonge, 2002). However, the situation is aggravated by the devastating effects of the HIV/Aids pandemic; the consequences are particularly visible in southern Africa where up to 35 percent of adults may be HIV-positive in some countries (Ashton and Ramasar, 2002). This has enormous implications for all capacity building efforts and represents a serious constraint to the development and expansion of national and regional efforts designed to address transboundary water resource management issues. Nevertheless, the need for trained and experienced personnel remains acute and this issue must be addressed urgently.

7.4 Developing appropriate institutions of governance

The effective, efficient and integrated management of shared water resources requires a high degree of trust between the

countries, as well as a firm commitment to concerted inter-state collaboration and co-operation (Lundqvist, 2000; Ashton, 2002). Because many of the responsibilities that are derived from the policy and strategy instruments required to achieve these objectives extend well beyond the normal line function boundaries of conventional government departments, they are not easily incorporated into existing institutional structures within participating countries (Wolf, 1999). This emphasizes the need to create appropriate institutional structures and partnerships such as river basin organizations, which can manage transboundary resources on behalf of the states concerned and ensure that each riparian state is treated equitably (Pallett, 1997; Heyns, 2002). In turn, this would help to demonstrate good corporate and public governance practices, promote genuine transboundary and regional co-operation amongst the states concerned, and help to enhance the social and economic development of the region as a whole.

A high degree of trust and a firm commitment to cooperation

7.5 Designing suitable processes for conflict prevention and mitigation

At local levels within a country, many stakeholders perceive that national and inter-state approaches to the management of a shared water resource results in local stakeholders having to bear the real 'costs' because their access to this resource is now controlled in terms of an inter-state agreement. Part of this problem appears to be related to the fact that the natural resource base of a country is usually regarded as a 'public good', for which the government must act as custodian, whilst many individuals consider themselves to be the "owners" of locally available resources (Christie and Hanlon, 2001). This situation is particularly true of scarce natural resources such as water or arable land, where some countries have replaced private ownership of the resource with a limited right to the equitable use of the resource (Asmal, 1998).

Nevertheless, wherever public perceptions persist that national or regional water resource management initiatives often lead to the 'loss of ownership' or 'prevention of access' to local natural resources, these perceptions need to be addressed very carefully if disputes and conflicts are to be avoided. In situations where there is a real risk that stakeholders will indeed suffer losses, there are good grounds on which to consider some form of intervention. Typically, the processes of identifying and eliciting these concerns, and helping to prevent possible conflict, require the inputs of skilled facilitators, mediators and arbitrators.

8. Prospects for the future

Many southern African countries are approaching the point where their internally renewable water resources will be unable to meet the demands for water supplies, and the available evidence indicates that each country must continually adapt its approaches to water resource management as demands for water increase over time in tandem with population growth and social development (Ashton, 2002). Typically, the ability of a country to respond successfully to this situation is defined by its social, economic, technological and institutional capability (Hirji et al., 2002; Turton, 2003b). Attempts by single countries to achieve national self-sufficiency in terms of access to water resources have offered few prospects for long-term success, and states are increasingly dependent on shared river systems (Pallett, 1997). The looming water scarcity in southern Africa helps shape the region's political dynamics and direct attention towards collaborative, regional-scale approaches that could provide alternative options for consideration.

In favor of
cooperation

The theoretical concept of an emerging southern African hydropolitical complex, with riparian states clustered around key international river basins, with each state driven by differing interests in these basins, offers several new insights into the strategic issues that govern interactions between states. In essence, it is clear that southern African states have chosen to address water scarcity issues by cooperating with each and negotiating access to water, and that these efforts are increasingly seen as enabling mechanisms that allow states to realize a suite of additional benefits. This has also highlighted the fact that every southern African state regards water resource management as a vehicle for co-operation between countries, rather than a driver for disputes or conflict over water. Therefore, when attention is focussed on the behavior of individual states that share a specific river basin, there is a clear tendency for these states to de-emphasize (rationalize) their national interests in favor of regional, basin-wide interests. This assertion is supported by the fact that riparian states have drawn up many bilateral and multilateral agreements over shared water resources, whilst regional-scale agreements over water have also helped to promote and enhance co-operation and collaboration between southern African countries.

The importance of scale is highlighted by the increasing potential for conflict to occur as the spatial or geographic scale of an issue decreases from regional through national to local scales. Where local-scale disputes over access to water have occasionally

resulted in bloodshed and loss of life, the growing ethos of inter-state co-operation and collaboration supports the assertion that is highly improbable that southern African states would ever engage each other in true, “water wars”. Importantly, this realization is no reason for complacency on the part of southern African states and every institutional structure shares the responsibility of ensuring that water-based conflicts never occur in the region.

Effective management of southern Africa’s shared water resources is high on the priority lists of national and regional political agendas. Indeed, the prominence given to water resource issues reflects the realization by each country that water is crucial to all forms of social and economic development. Each state seeks to decrease the uncertainty (and thereby increase predictability) around the responses of individual states to water resource availability, by institutionalizing the processes of collaboration and co-operation. The southern African region now has one of the highest levels of institutional development in international river basins on the African continent. Whilst this represents a remarkable achievement in the relatively short period of time since cessation of the Cold War, further developments can be anticipated as formal river basin organizations are constituted for each of the shared river basins, and these replace the existing systems of treaties, protocols and accords between individual states. Additional in-country institutions are also being created as each state develops its own series of catchment management agencies to oversee the protection and allocation of water resources within its sovereign sphere of influence.

Decrease the
uncertainty

Every southern African country faces equally daunting pressures to stimulate national and regional development so as to alleviate poverty and improve the living standards of their populations. In each country, every economic sector needs to expand and provide new job opportunities, whilst more food needs to be grown to feed growing populations. Inevitably, these activities place a continually increasing burden on the available water supplies and further complicate the management of these scarce resources. The development constraints posed by inadequate water supplies in specific countries can only be dealt with successfully if a wider, regional perspective is taken, in combination with concerted national (in-country) management actions. The critical importance of good governance and the need for effective and efficient water management institutions will oblige each country to foster closer partnerships with its neighbors. Importantly, the SADC accords and the New Partnership for Africa’s Development (NEPAD) offer southern African countries a real opportunity to consolidate and expand

their achievements to date. Ultimately, however, the success or failure of these initiatives will depend on the political will of the participants and the degree of legitimacy each state can achieve.

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Emerging Trends in Water Resources Conflict Prevention: Public Participation and the Role of Civil Society

*Fiona Curtin*¹

Participation and Capacity Building. The right of stakeholders to take decisions regarding water resources should be respected in transboundary watercourses. All stakeholders should be helped to obtain the capacity to fully participate in the process of development of basin and aquifer strategies, agreements and institutions, through transparency and information Awareness raising and education strategies, including training of mediators, should be implemented to ensure that all people, including government leaders, learn how to best take up the challenges of sharing water. Stakeholders can include people “beyond the basin”.

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1. Introduction

In the past 50 years, both the Southern African and Tigris-Euphrates regions have suffered the consequences of wars, conflicts and ethnic strife, and hydropower, irrigation and water transfer projects have altered the flow of rivers forever. In both regions, future peace and sustainable development will depend largely on the successful management of water resources at all levels, on building partnerships between water users and riparian states, and respecting ecological systems. Meeting these challenges requires the participation of the public, and fostering synergy and solidarity across both political borders and economic sectors.

Participation
and solidarity

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Half the population of the world depends on the water and land resources of transboundary river basins, like the Tigris-Euphrates and the Okavango rivers, making inter-state cooperation over the sustainable and equitable management of these rivers a key component in addressing the world's water and overall development needs. Lack of cooperation over the use and protection of these rivers, from source to mouth, is currently condemning millions of people, particularly women and children, to the nightmare of insufficient and contaminated water supplies. This situation can only be remedied if all aspects of river management are taken into account, and the human rights of all the peoples and cultures living in a river basin are protected.

Crucial to making these links between human rights, protection of the environment and managing the transboundary rivers which sustain us, will be the strong involvement of people on the ground and the civil society organizations which represent them. There is a growing tendency to speak of "sharing the benefits" of cooperation over water management: this is a complex political process, depending on perceptions and building trust and shared visions, impossible without the full engagement of citizens.

Sharing the
benefits

However, within the high politics of international water negotiations, the concerns of local people and the need to involve the public in the process of arriving at basin management strategies and agreements are often overlooked. The achievement of cooperation and resolution of conflicts over the world's international basins would bring major benefits to stability and security, the strengthening of democracy and human rights, reversal of environmental degradation and the achievement of the Millennium and Johannesburg development goals for access to drinking water and sanitation and IWRM. But, without the participation of citizens and the involvement of civil society partners at all levels, none of these benefits will be secured on the ground. Achieving these water, security and peace goals requires dialogue and action to penetrate right down to the most local level, and for water management to become more participative and equitable both within and across state borders. It is increasingly clear, and demonstrated in the examples presented in this paper, that unless stakeholders are involved and feel a sense of ownership in a political process it is difficult to implement the recommendations or achieve any tangible results at the community level where the changes ultimately need to be made.

Thus, while there is an increasingly wide consensus that public participation must be one of the central tenets of IWRM and river basin management at all levels, there is still much to be

learnt as to how, when and through which mechanisms to engage citizens in the process. All too often stakeholder participation is “tacked on” as an after thought to a decision making process or design of a project, with citizens as detached observers to a process already in motion. This tendency needs to be reversed.

Conflicts related to water resources tend to be at their most intense at the local level, between different sectors and stakeholders in direct competition over inadequate water supplies. Actions are already being taken across the world to bring water decisions closer to the stakeholder, to link water issues with other fundamental human and environmental needs, and to resolve conflicts which prevent efficient and sustainable and equitable use of water and provision of water and sanitation services. All these efforts to make water management more cooperative and participative at the local level strengthen peace, stability, governance and the rule of law, and make people more aware of their position within a wider regional water system.

In many cases, the public first needs to be made aware that they live not just in a town or village, but also in a river basin—which for billions of people will mean a river basin which crosses national borders. At the same time, river basin and state water managers need to be aware of the very real effects their water management decisions have on ordinary people, many living thousands of kilometers from the state capitals where decisions are reached. Civil society groups can fulfil both these functions, raising awareness and building capacity on the ground, and bringing the voices of the people, and of the natural environment, to the attention of decision makers. This exchange must take place at all levels, with NGOs and other groups bringing the concerns of local people to the table at every forum from the UN and international trade negotiations, to national parliaments and ministries, to village and regional councils. Whether the decisions in question concern international development strategies, potential for privatization, dam and other infrastructure construction, or where to position a standpipe—affected communities should be active participants in the process, and environmental and social considerations always taken into account. Water issues are naturally linked to many of the central concerns of civil society groups—including poverty, environment, disease, gender and peace—and the all encompassing nature of water also lends itself to partnerships between sectors of society.

Raising
people's
awareness

2. Global trends: The growing role of civil society

Reaching the
grass-roots
level

The role of civil society in water management, as in all matters of environmental and social affairs, has changed dramatically in the last few decades. Previously completely closed governmental and inter-governmental processes have slowly, and to various extents, opened up to a wider range of stakeholders. In many areas of the world, notably Eastern Europe, the former USSR and Latin America, decision-making has become more transparent and accountable to the public and civil society organizations have been permitted far more freedom to engage in the political process. The end of the Cold War and the spread of democracy resulted in the desecuritization—for a time—and general opening up of global politics, creating opportunities for the increased influence of the civil society and NGO groups generated by the growth of the environment and anti-nuclear movements since the 1960s. The growing acceptance of the logic of public participation in environmental decision making², the benefits of decentralized management and the subsidiary principle³ and the resurgent interest in traditional and indigenous management practices, has led to governments and intergovernmental organizations looking to NGOs to help reach the grass-roots level (Morley, 2000). Penetrating down to the smallest units of water management, to the citizen and local councils, is essential to achieving the efficiency and equality necessary for water security.

At the same time, NGOs have gained in experience, knowledge, insight, professionalism and credibility, and have established stronger relations with the stakeholders they seek to represent. The strengthening of inter-NGO cooperation through networking bodies, joint campaigns and projects, and the use of internet communication has also helped make civil society a stronger force in international relations, and in specific regions and states. This strengthening of civil society institutions has occurred simultaneously, and been mutually supported by, the increased awareness and interest of local people across the world

² This notion is enshrined in the *Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters*, which entered into force November 2001, whereby governments of the ECE region committed themselves to ensuring active public involvement in decisions related to the environment and recourse to justice for victims of poor management.

³ The subsidiary principle is a recognised principle in international sustainable development law, and states that decisions and actions should be taken at the lowest level capable of carrying them out, as close as possible to the citizen. It has recently been accepted, for example, as one of the underlying principles of the European Water Framework Directive.

in the natural resources issues which affect their lives. Increased literacy rates, wider access to information, awareness of global interdependencies generated through globalization, urbanization and the empowerment of women, have all supported this process: as have the increasingly visible effects of mismanagement, environmental degradation and climate change, and disillusionment with governmental and international failures to meet development targets.

Although the rise in public participation and influence of civil society is very much still an emerging rather than established trend, which has yet to take hold at all in some regions of the world and still faces many obstacles and restrictions, it is already possible to identify certain fields of activity where the contribution to water management is strongest. Generally, NGOs aim at empowering local communities rather than the implementation of large-scale projects or works. In the water sector, NGOs are involved in mobilizing communities to improve their own water supply and management, by strengthening local capacities, providing technical training and expertise and promoting local democracy and sustainable livelihoods. Part of this task often involves the resolution of conflicts between sectors of society, or between stakeholders and government authorities. In transboundary basins, as some of the below examples indicate, this conflict resolution can extend to addressing cross-border and inter-ethnic tensions.

NGOs act as catalytic agencies for local initiatives; as facilitators in forging alliances and exchanging information; as mediators among the state, local communities, and external support agencies to encourage public participation and promote the interests of disenfranchised populations; and as the educators and stimulators of civil society toward the sustainable and equitable use of water (Ong'wen, 1996). Activities include everything from action-oriented projects focused on small water supply and sanitation operations close to target populations, to international campaigns on issues of global relevance such as large dams and privatization.

Catalytic
agencies

This paper gives a brief overview of the different types of civil society groups, from large international NGOs and networks to indigenous community groups, active in the field of cooperative water management, and provides a representative, but by no means definitive or exhaustive, cross-section of examples of civil society activities and interventions related to water, security and peace. As the goal of all activities should be integrated water management, civil society organizations must always work in partnership with other key actors, notably

governments and local authorities as well as river basin authorities, scientific institutes, intergovernmental organizations, regional banks, trade unions and relevant private enterprises.

The focus of the examples and issues addressed is designed to examine factors of relevance to the two regions, Southern Africa and the Tigris-Euphrates basin, such as post-conflict situations, protection of unique ecosystems, the need to build-up civil society capacity and awareness from the ground level and close links between human development and basic needs and basin level water resources management.

3. Examples of stakeholder and civil society involvement in water security—international NGOs and networks promoting sustainable, cooperative water management

Internationally active environmental NGOs and networks are increasingly focussing their work on the promotion of dialogue, partnerships and cooperation processes, rather than individual short-term projects. This reflects the realization that reaching the goal of integrated water resources management is a highly complex political process, requiring that the long-term social, economic and ecological benefits of healthy freshwater ecosystems and sustainable patterns of water use are given priority over short-term financial or political gain. Initiatives aimed at promoting IWRM must engage decision-makers and stakeholders across a basin; this frequently entails transboundary co-operation between countries, sometimes spanning vast geographic, cultural, political and economic divides, and calls for conflict prevention, mediation and resolution strategies to be incorporated into project plans. NGOs are also drawing attention to the effects of long-term changes in rainfall, river flow and underground water supplies due to climate change, and the benefits which new technologies and decision-support tools can have in pre-empting conflicts which could result from these changes if they are not properly understood. In this way, global NGOs with the capacity to reach both the highest levels of government and the representatives of communities and grass roots initiatives, are playing an important role in many basins towards bringing all sides together to generate better understanding and cooperation. The neutral, non-threatening negotiation space which an NGO can provide can be an impetus to states moving their levels of cooperation forward, and can help stimulate and break through deadlocks in the painstaking diplomatic process of reaching basin agreements, which can take decades.

Bringing all
sides together

Green Cross International's *Water for Peace* project, carried out in partnership with the UNESCO-IHP "From Potential Conflict to Cooperation Potential" project, has as its principal objective the prevention and resolution of water related conflicts. Green Cross is the only international NGO which specifically works to address conflicts caused by environmental degradation, mismanagement and injustice, with a strong focus on international waters. Concentrating on six international river basins (the Okavango, Jordan, Volga, Volta, La Plata and Danube), the Water for Peace project focuses on addressing the following questions: What is preventing the political will, active public participation, empowered institutions and investments needed to avoid conflicts and achieve co-operative basin management? How can these obstacles and conflicts be overcome? Each basin project is managed by regional partners and shaped to suit the particular problems and political situation of the basin, with an overall focus on building partnerships and enhancing the role of civil society and local authorities in conflict resolution and the process towards cooperation.

In the Okavango basin, the Green Cross project⁴ is lending support to the river basin organization, aiming to enhance the existing cooperation process by linking OKACOM with scientific, expert and civil society communities to help develop the integrated basin plan. This project also hopes contribute to the social integration of a previously marginalized state such as Angola, as well as allowing civil-society to engage with the respective governments, through the commission. Empowering OKACOM to integrate the potentially conflicting needs and goals of the three riparians is vital to the peaceful and sustainable development of the basin. A workshop held in Maun, Botswana, in September 2002 brought OKACOM together for the first time outside of an official OKACOM meeting. This increased the level of trust between the representatives from the riparian states, laying the foundation for greater long-term integration. A hydropolitical model has been developed that maps out the fundamental drivers of potential conflict. This was then discussed with OKACOM and other stakeholders at the second Water for Peace workshop, held in Namibia in February 2003. The purpose of this hydropolitical model is to start the process of consensus building between the governments of the three riparian states in

⁴ The Project is under the Direction of Mr. Anthony Turton, and Project Manager Mr Anton Earle, of the Africa Water Issues Research Unit at the University of Pretoria.

No more
business as
usual!

order that a negotiating climate can be created where trade-offs can be developed.

A genuine breakthrough came during the second workshop, when riparian state representatives declared their commitment to an alternative development vision for the basin in which they called **for no more business as usual!** Instead, they declared that the Basin should become an “inspirational model of innovative multi-level development” drawing on the talents and resources of everyone, from people living in villages along the river to global bureaucrats and players. In effect, it was suggested that the Basin should be an experimental space for the invention of an entirely new social, economic and environmental system in which both humankind and the environment support and improve each other.

This vision recognizes the fact that the basin is still in a pre-industrial state and that the low population densities in the upper reaches after the Angolan civil war provide a unique opportunity for alternative development. Some time was spent in the final afternoon discussing this vision with an attempt to form scenarios about how the vision could be reached. While the exercise was incomplete and lacked detail, what was evident is that such an alternative development path is desired by stakeholders in the basin and that although it may be difficult to reach such a goal it is by no means impossible. While not yet amounting to a structured shared or common vision for the basin adopted by OKACOM, the identification by stakeholders of what is not wanted is the first step towards building a shared understanding of how to proceed with the sustainable development of the basin benefiting the entire ecosystem - including human beings. The GCI Okavango Project has laid the foundation for long-term empowerment projects, building on the trust and respect generated with OKACOM and other stakeholders in the basin.

The IUCN⁵ Water & Nature Initiative is a five year partnership for action, aimed at maintaining healthy ecosystems through improved management, thereby helping to alleviate poverty and contribute to solving the looming water crisis. The Initiative will be active in 40 countries, creating partnerships between organizations from the global to the local level, governments, stakeholders and the private sector in order to

⁵ International Union for the Conservation of Nature, a union of governments, NGOs and private enterprise; not strictly speaking “civil society” but active in promoting public participation and partnerships.

demonstrate the benefits of ecosystem approaches, good governance and public participation.⁶

Within the framework of the Water and Nature Initiative, in September 2002, during the World Summit on Sustainable Development, agreements were signed between IUCN and the Governments of Botswana, El Salvador and Vietnam to work together on the management of (respectively) the Okavango Delta, the Perfume River and the Barra de Santiago-El Imposible Basin, to identify water management strategies that ensure healthy ecosystems while improving livelihoods for the poor. In the Barra de Santiago-El Imposible basin in El Salvador, the project partners provide direct support for the stakeholders of the basin, such as women's associations, governmental organizations and the private sector, through a 'round table' approach. According to Hon. Minister Walter Jokisch, Minister of Environment and Natural Resources for El Salvador,

Johannesburg
Summit

“The IUCN Water and Nature initiative will provide tools for conflict resolution within local communities for the integrated use of water resources, will create the required incentives for its maintenance and sustainability, will reinforce the local capabilities and research possible sources for financing of innovative technologies and finally, will support and enhance government and private sector initiatives as well as NGOs for a successful water management programme for the Barra de Santiago-El Imposible basin project.”

The World Wide Fund for Nature's Living Waters Programme states that: “Positive change is possible if we recognize that sustainable water management begins with conserving and restoring the springs, rivers, lakes and marshes that are natural regulators of water quality and quantity”, and also fully realizes the importance of cooperation between stakeholders and government authorities. The Programme is active in raising awareness of the need to implement sustainable and participative alternatives to the destructive “quick fix” development projects of the past, especially the construction of large dams and channeling of riverbeds, in many important international river basins, such as the Danube, the Mekong and the Niger. The message is that the

⁶ *The Okavango Delta Management Plan and Environmental Partnerships in the Okavango Basin*, Masago Madzwamuse and Ruud Jansen, IUCN, presented at Green Cross Water for Peace Okavango Pilot Project workshop, Maun, Botswana, September 2002; and IUCN Press Release, 1 September 2002, Johannesburg. More information at www.iucn.org

value of a river thousands of kilometers long is reflected in the daily sustenance its tributaries provide to diverse communities and species. WWF champions the protection and management of freshwater wetlands, promotes activities to restore river basins crucial to both wildlife and people, and seeks to influence private sector practices and government policies to safeguard freshwater resources.⁷

One example of WWF's activities is carried out as part of the WWF Partners for Wetlands Programme, for example in the Kafue Flats region of southern Zambia, a floodplain containing river channels, permanent lagoons and seasonally flooded grasslands, which is home to several endangered species. This region is threatened by habitat and biodiversity loss due to proposed hydropower development, invasion by alien species, poaching and over-fishing, and pollution, presenting an apparent conflict between the preservation of the ecosystem and traditional livelihoods, and broader national development goals—a dilemma which can be compared with that facing the Okavango delta. The WWF initiative brings together government, community and private sectors in a collaborative management scheme with the objective of ensuring the survival of the Kafue ecosystem for the benefit of local communities and wildlife (WWF, 2000).⁸

3.1 NGOs linking water to other security and development issues

Just as the nature of water has led to NGOs which focus on water and the environment becoming involved in conflict prevention, groups active in other areas of development and security are more and more concerned and vocal about the links between water quality and access and issues of peace, human rights and all aspects of development. The recognition of the potential for humanitarian and environmental disasters caused by the military targeting of pumping stations, sewage treatment plants, dams, electricity infrastructure and heavy industries alongside watercourses, is increasing, and can now also be associated with terrorism as well as conventional military attacks. A recent example is a letter sent to the British Government in September 2002 by Save the Children and other charity groups, which drew attention to the links between war and water, specifically warning of the humanitarian crisis that would be caused by damage to

Environmental
disasters

⁷ WWF *Living Waters fact sheet*, January 2002; private conversations with Jamie Pittock, Director of WWF Living Waters Programme, and Athanase Karayenga, WWF Africa Water Programme.

⁸ Meeting the Challenge: WWF's Work in Africa and Madagascar, WWF 2000

water supply and sanitation infrastructure in the event of war in Iraq.⁹ In 1999, Green Cross similarly alerted international attention to the risks of contamination which the bombings in Kosovo posed to transboundary water resources in the region, notably to tributaries of the Danube river.

Civil society organizations more associated with development have been taking up the “Water for Peace” mantle. In Sudan, a country divided by a twenty-year civil war, an Oxfam project¹⁰ designed to meet the water needs of neighboring communities torn apart by conflict has generated new trust and communication, opening the way to peace. As in many post-war situations, while there is overall progress towards stability and security, in this region of Sudan some factions have not yet exhausted their willingness to fight. The civil war has drawn strength from, and exacerbated, longstanding local conflicts between tribes, and many of these conflicts are about sharing resources. In 2000, a project was designed in the Kaltok district, North of Juba, that met two of the communities’ most urgent needs—access to clean water, and assistance in managing conflict. In order to be successful the project had to be negotiated with the community, and also with the local and regional government and the local army garrison. Critically, community trust also had to be gained.

Water for Peace

This has enabled Oxfam to build trust with communities around the issue of water, and start the process of dialogue on conflict resolution. Community leaders have welcomed this approach as their first opportunity to talk freely with government officials about the issues behind community conflicts. Water is now regarded as a resource that can be shared. Oxfam’s Kaltok water project has led to the reduction of local conflict, the broader situation across the whole front line has improved.

It is possible to imagine projects of this nature, adapted to specific cultures and conditions, being successful in Iraq and Angola, with water used as a tool to build peace and make cooperation possible on other important issues, such as de-mining or repairing irrigation and other water and health infrastructure destroyed by war.

Also at the grass roots level, there are many examples of water issues becoming entangled in conflicts and struggles over other resources shared between different communities and sectors. One case is the conflict between the Maasai community

⁹ *Joint NGO Statement on Iraq*, 26 Sep 2002, signed by: Save the Children UK, CARE International UK, Christian Aid, CAFOD, Tearfund, Help Age International, Islamic Relief and 4Rs.

¹⁰ More information at http://www.oxfam.org/eng/story_Sudan_water.htm

living close to Tanzania's Tarangire National Park and miners and prospectors in the region¹¹. The lives of the Maasai people, numbering over 200,000 in this region, have been severely disrupted in the last few decades by mining activities which leave vast areas of their land unsuitable for human settlement or grazing cattle. The Maasai argue that their basic rights to water access, use of community-owned pastoral land, and cultural heritage and practices, have been consistently violated by the miners. The drought of recent years has greatly exacerbated the effects of this conflict, taking its toll on both people and cattle, and has caused the embittered and politically disenfranchised Maasai to take up the matter with the national government, which is responsible for issuing mining permits. The conflict has encouraged the establishment of the 'Olkenerei Pastoralists Survival Programme' which promotes sensitization on land and water rights and lobbies for changes in government policies that violate indigenous human rights. The creation of civil society fora to represent the voices of traditionally disempowered communities and take their concerns to national governments and the international community is an important development, and one which is often stimulated by the need to resolve conflicts over natural resources such as freshwater.

3.2 National and Local NGOs as Mediators

The role of international NGOs as potential conflict mediators and facilitators of cooperation has already been mentioned, but there are also cases of local level civil society groups being active in water conflict resolution. These "insider-facilitator" initiatives can either emerge as a result of civil society impatience with the lack of government action to resolve lingering conflicts which hinder development, or come about through government invitations to NGOs to use their neutral status to act as mediators between different stakeholders and authorities.

In 2000, Green Cross Argentina was invited to contribute to the resolution of the long-standing environmental and social conflict created by the construction of the Yacyreta dam between Argentina and Paraguay, by acting as a mediator between the different parties, and in particular to earn back the trust of the affected communities through genuine efforts to understand and meet their most pressing needs. The construction of the Yacyreta Dam between Argentina and Paraguay began in the 1970s, and

¹¹ *Maasai Pay the Price of the Gem Rush*, Mercy Wambui, Programme Officer with the Nairobi-based NGO Econews

has seriously damaged the environment and disrupted the lives of some 80,000 people. For decades the project was fraught with corruption, delays and lack of consideration for the people and ecosystems affected by the dam. Total lack of trust and serious conflicts between the governments, dam contractors, investors and affected persons resulted in a virtual stand-off, and failure to compensate for losses caused by the dam.

The Green Cross project has seen the resettlement into more suitable housing of thousands of people, development of sources of employment and recreation, and the establishment of consultation centers where problems can be aired and resolved in a spirit of true partnership. Largely as a result of the mediation work of Green Cross, the affected people have opportunities to re-build their lives, find jobs and begin new enterprises; the people have responded enthusiastically to this civil society involvement, and the good will of the Bi-National Dam authority and two governments, and put their energies behind forging future opportunities for all the affected communities.

Re-build their
lives

3.3 National and Regional Civil Society Networks and Capacity Building

Examples of civil society groups acting as leading mediators remain relatively rare, but the role of NGOs in water management in general is growing consistently stronger, even in regions where civil society is not encouraged to engage in decision-making. This trend has been helped by the emergence of networks and coalitions of small, local NGOs and citizen groups working together towards common goals, as well as through the assistance of organizations specifically aimed at civil society capacity building. By bringing partners together, and enabling stakeholders to engage in the management process, these initiatives are furthering democracy and regional security through participative water management.

Community participation in water and sanitation in Nepal has become much more widespread in the last decade, partly as a result of Nepal Water for Health (NEWAH)¹², an NGO which works all across the rural areas of the country to provide safe drinking water, sanitation and health education. Since its establishment in 1992, NEWAH has helped to improve the standard of living of the rural poor by supporting and encouraging community development initiatives, particularly in the water and sanitation sector, and has assisted hundreds of NGOs, small farmers' associations and women's groups to

Enabling the
rural poor

¹² www.newah.org.np

implement thousands of community water supply and sanitation projects. It also provides training to its project partners and community representatives in hygiene, project management and in how to maintain the new facilities. This is a good example of capacity building aimed at creating community level partnerships to improve water access and encourage people to learn the necessary skills and take ownership of their water facilities in order to ensure self-sufficiency of projects. Enabling the rural poor to realize the potential for improving their lives is arguably the only way that development goals will be reached; such initiatives may be aimed specifically at water and sanitation, but they encourage other poverty-alleviation and sustainable development grassroots action to be taken.

Another civil society capacity building initiative aimed at facilitating active and effective participation of stakeholders, but this time on a transboundary river basin scale, is the 'Every River has its People' project in the Okavango Basin¹³. The project, currently active in Namibia and Botswana, has as its overall goal the promotion of sustainable management of natural resources for the benefit of all basin residents and states, which is only possible through the involvement of stakeholders in decision-making and management related to essential resources such as water. There are two main fields of activity, which are mutually supportive. The first is to increase the capacity of communities and all local stakeholders to participate effectively in decision making related to water resources, at local, national and regional (Okavango Basin) levels. The second is to develop mechanisms to promote and facilitate this stakeholder participation on the ground. Actions taken so far have included: information dissemination, surveys to determine project priorities and gain insight into indigenous knowledge and management practices, identification of traditional local institutions, and trust building exercises. Future phases of the project will concentrate further on consensus building, resolving tensions between sectors (notably tourism and local communities), and ensuring that the inter-state river basin authority, OKACOM, takes stakeholder concerns into account. The goal is to contribute to long-term sustainable co-management of the basin by developing a common vision amongst communities and stakeholders on how to address the shared set of issues identified in the surveys, and agree on roles and responsibilities of different organizations and communities in achieving this vision.

¹³ www.everyriver.org

In Sri Lanka, which has suffered decades of horrific ethnic conflict, there are civil society activities emerging to reinstate water as a symbol of peace in peoples' minds, in order for it to become an element in preserving the recently achieved state of peace on the island. A project aimed at "Hydrosolidarity and Ethnic Solidarity through Youth Water Awareness in the Pinga Oya Watershed" is being implemented by NetWwater and other partners, which promotes inter-ethnic cooperation in activities to address the serious pollution and degradation of a watershed (Athukorala, 2002).¹⁴ The environmental degradation can be largely traced to the negative attitude of the community towards the stream, once respected as the source of life it is now treated as a waste depository by the people and neglected by the regulatory authorities.

In response to re-emergence of ethnic tensions between Muslim and Sinhala communities in 2001, NetWwater and partners agreed that efforts should be taken immediately to reduce the potential for conflicts between peoples. Although the Pinga Oya area has not been directly affected by the recent flare up of tensions, there was a discernable disruption of the fragile harmony between the two groups, and this has the potential to be further exacerbated by the environmental crisis, which at its worst has caused deadly outbreaks of typhoid and dengue fever. The project is primarily aimed at the active mobilization of high school students of the Pinga Oya catchment, who are seen as catalysts in changing attitudes and behavior of the Sinhala and Muslim communities in Pinga Oya watershed towards river abuse and water conservation. By involving 55 Muslim and Sinhala schools, as well as local authorities, Mosques and community leaders, and addressing the role of women in water management and environmental education, this project also contributes to inter-community cooperation and the realization of the need for common solutions to shared problems. The schools are the focal point of the project, known locally as "*Mey Mage Pinga Oya*" (This is My Pinga Oya), and it is intended that each school will monitor a section of the river and the upstream-downstream effects of human activity. Once activities in the Pinga Oya catchment demonstrate conclusively that inter-ethnic community action can prevent river abuse, the program will be extended to other rivers which flow through inter-ethnic communities.

High school
students and
women

¹⁴ NetWwater is the Network of Women Water Professionals, a group of professionals who are dedicated to the promotion of the Dublin-Rio principles and creating an awareness of the relevance of gender in water resources management

3.4 Community empowerment in response to conflicts

The existence of conflicts and problems related to water management can themselves lead to the strengthening of civil society involvement. This can arise purely as a result of stakeholders organizing and mobilizing themselves to take action to resolve conflicts and ensure fair distribution of resources, or be deliberately nurtured as a means of enhancing stability in a region.

Israel, Jordan,
Palestine

Friends of the Earth Middle East (FoEME)¹⁵ is a regional environmental organization that brings together Israeli, Jordanian and Palestinian environmentalists with the primary objective of promoting cooperative efforts to protect the region's shared environmental heritage, and in so doing to advance both sustainable regional development and the creation of necessary conditions for lasting peace in the region. In 2002 FoEME launched the "Good Water Makes Good Neighbours" project in Palestine, Israel and Jordan, to try to create an impetus for cooperation in a period of intense conflict, when official cooperation by government officials had become impossible. Five sets of partnering communities across national boundaries that shared common groundwater or a river were identified and people were made aware of common issues that they could lobby for together for mutual benefit, such as water contamination by sewage. Campaigns and petitions involving thousands of people, the creation of "water trustees" on different sides of the political borders, and exchanges by school children and other members of the community, have all helped to generate solidarity and build trust.

Another example of FoEME's work was the launching of a regional call to save the Dead Sea. Partly as a result of this public campaign, for the first time ever, government officials were brought together to talk about the future of this shared ecosystem. Israel, Jordan and Palestine have since openly declared that the Dead Sea needs to be saved, and have made several joint declarations proposing building a canal to it from the Red Sea.

State control
and local
resistance

In other cases, no institutional encouragement or support is needed in order for communities to take action to assert their rights to water. In the Andean region of Peru, clashes between local, often ritualized systems of water distribution and the centralized, monetary model adopted by the state, led to cases of direct "peasant resistance" by indigenous communities in the highlands which disputed the state's control over their water and refused to alter traditional irrigation practices. One case occurred

¹⁵ www.foeme.org

in response to the construction of the Majes Canal, a major internationally-financed development project built in the late 1970s, which channels water from the highlands to the desert and coastal areas, and which was constructed on land inhabited by thousands of people. The community of Cabanaconde originally tolerated the disruption caused by the project because they had been promised an off-take of water from the canal and subsequently an increase in irrigated land; when these promises repeatedly failed to materialize despite consistent imploring from the local authorities, and the need for more water to grow food became intense, the community took matters into their own hands.

Having exhausted and gained nothing through official channels, and faced with starvation due to drought, the community drilled an unauthorized hole in the canal, collectively stood their ground and in the end were officially granted an off-take from the canal. After this, other affected communities which had been excluded from the process and denied benefits used the case as a precedent and were also granted water. This example clearly demonstrates the advantage of involving, and compensating, all affected stakeholders in the development of water projects, and shows both that the vital nature of water can both lead to communities taking extreme measures to secure it, and dictates that solutions to conflicts must eventually be found. The engagement of civil society from the beginning of an initiative, whether an infrastructure project or the development of a management strategy, greatly reduces the risk of disruptive conflicts developing later on (Gelles, 2000).

3.5 Awareness raising initiatives

There is an awareness raising element to most of the work done by civil society groups, whether at the global or local level, as without information it is impossible for stakeholders to identify their needs and concerns and promote themselves as full partners in decision-making. However, some organizations and initiatives consider awareness raising as their main objective, and specifically concentrate on informing the public about either the potential for conflicts over water or about the action being taken to avert them in a particular basin.

The Green Cross Water for Peace project has a strong awareness raising and communication focus. At the international level, Green Cross is one of the very few organizations which consistently draws attention in the media and other fora to the risks of conflicts developing over shared watercourses, and

1997 UN
Convention

promotes international agreements to cooperate over their management. The failure of states to ratify the 1997 UN Convention on the Non-Navigational Uses of International Watercourses and the lack of political will to address the challenge of transboundary basins, so crucial to achieving sustainable development goals, clearly indicates the need to keep lobbying this issue within the international community and at the highest political levels. The Water for Peace project in the Jordan basin has carried out a survey comparing levels of public awareness of the potential for conflicts over water between rural and urban areas, which is crucial in developing a strategy to increase this awareness and mobilize civil society groups to push governments to cooperate over shared water. Water for Peace in the Jordan is also establishing a joint water data-base amongst universities and experts in all riparian states, and implementing pilot educational projects. In the Volta basin, the Water for Peace team has engaged stakeholders from Burkina Faso, Ghana, Togo and Benin in developing a “Basin Declaration” and a capacity building strategy for information, communication and sensitization of the public in the basin states on the need for water conflicts prevention.

The objective is not only to generate understanding amongst people within the basins of the risks of conflicts over shared water, but also to encourage people to see their water from a new and wider perspective—as vehicle for peace and development across their entire region. For many people the concept of a basin is not clear, and there is limited understanding of the fact that water is a shared resource. By targeting both the highest political levels, and reaching and responding to local people and local authorities, the Water for Peace initiative is facilitating the process towards cooperative basin management and resolution of conflicts.

4. Recommendations and conclusions

Many obstacles
remain

The cases highlighted in this overview are just a small selection of the thousands of initiatives being carried out across the world, but already they indicate the wide range of methods of civil society involvement, as well as the different positive and negative developments which can spark public engagement in water management in a region. Although the role of stakeholders is increasingly recognized, there remain many obstacles to the arrival at truly participative, equitable and sustainable water management. Some of these obstacles are specific to regions or states, the primary problem being political and cultural systems

which do not permit or welcome the involvement of civil actors, others are fairly universal, such as the need for transparency and the constant struggle to finance civil society initiatives and make them self-sufficient in the long term.

The diversity of types of NGOs, and the wide variety of methods and approaches to encouraging cooperation and participation over water, reflects the equally rich diversity between different regions and situations. The growth of civil society institutions around the world is a major positive development in international relations during the past few decades. While this diversity is necessary and inspiring, it also makes it more difficult for civil society to coordinate its efforts. Although increasing, civil society action is far from fully systematized, and also can in certain cases be found wanting in transparency, expertise, representation and willingness to cooperate with other partners. Not surprisingly, there are wide divisions between civil society actors, which make it difficult to present a united position in international negotiations. Differences of opinion are inevitable when dealing with such critical and complex issues as privatization and dams. What is more important, and increasingly the case, is for there to be consensus on the method of implementing water projects and reforms—in terms of public participation and avoidance of permanent damage to the environment. Civil society groups were heavily involved in the work of the World Commission on Dams, which came to precisely this conclusion.

Another problem is the lack of unity and communication between groups active at local, national and global levels. There is still a long way to go before NGO participation in the negotiation and implementation of water-related elements of global or even regional environmental conventions and agreements is systematised. More consistent exchanges of information and experience sharing between NGOs of the North, South, and East on water and civil-society are needed to enhance progress on common problems.

At the grass-roots level, the extent of public participation can vary greatly from one village to the next, depending on the character of local authorities and community leaders, the fortune or misfortune to be in the vicinity of a large project, and many random factors. Lack of conformity can then result in only the most active communities being further encouraged and offered external support, creating even wider development gaps between neighboring communities which can themselves be causes of conflict. It is important to integrate water-supply projects with other local development issues such as agricultural productivity,

Integrate water
with development

health education or sanitation. Stakeholders should not be left out of the design phases of projects, but themselves determine the direction of activities by identifying priorities and participating in the planning, implementing, operating, maintaining and monitoring of water projects which affect them. Special efforts should be directed at the strengthening of women's participation as a key factor in conflict prevention and sustainability.

Two essential elements are required, as identified by the Water and Peace sessions at the 3rd World Water Forum:

- Measures to ensure respect for the right of stakeholders to take decisions regarding water resources in transboundary basins. All stakeholders should be helped to obtain the capacity to fully participate in the process of development of basin and aquifer strategies, agreements and institutions, through transparency and information.
- Community responsibility and ownership of cooperation processes, backed by international solidarity and commitment to an alternative form of development, which respects cultural diversity and environmental sustainability.
- Strengthening of international watercourses law to provide stability and a common framework to discussions and activities regarding international watercourses. States should ratify the 1997 UN Convention on the Non-Navigational Uses of International Watercourses.

At the same time, civil society groups should themselves work towards greater consistency in intervention between local, national, regional, and global levels in the promotion of water equity, stakeholder participation, local sustainability and regional cooperation. Just as strong institutions and legal instruments at the national and basin level can encourage good management at the local level, wide-spread active participation of and cooperation between stakeholders at the local level can have a "trickle-up" effect in enhancing security throughout a river basin.

This could potentially be the case in both the Tigris-Euphrates and Okavango basins. While negotiations involving all basin states of the Tigris-Euphrates continue to be fraught with difficulties, awareness raising, dialogue and information sharing between civil society groups and scientists from the different states and regions could pave the way for higher level discussions when political climates permit. In this way, bridges of trust and understanding could already be forged amongst non-governmental partners, thus removing the causes of those conflicts that are based on misinterpretations and suspicions. The reconstruction of Iraq's water infrastructure and rehabilitation of

Long-term
solutions

its ecosystems, such as the Mesopotamian Marshlands, cannot be carried out efficiently without full involvement of stakeholders, and integration in the wider context of the Tigris-Euphrates basin. As populations in the basin are growing almost as fast as the environment is deteriorating, it is a matter of utmost urgency that long-term solutions are found before the water crisis causes further breakdowns in community and regional security. This is the only way to ensure there is clean water for children now, and to preserve the river system for future generations.

The rehabilitation of Iraq's natural water resources must be considered within the framework of regional water security and cooperation. Green Cross strongly recommends, in accordance with the 2003 UNEP studies on the post-war environment and long-term project mapping the disappearance of the marshlands in Iraq, that coordination between the states of the Tigris-Euphrates river basin be strengthened in relation to their shared water, to start the process towards developing a mutually-agreed regional water plan for the basin. This will help remove a major threat to long-term peace and security in the region.

As with the end of the war in Angola, the changes in Iraq, and eventual movement towards good governance and security, will provide an opportunity to implement the principles of IWRM and river basin management, which the international community as well as regional bodies such as SADC have committed to.

Civil society can play a vital role in achieving these goals, to make shared water a tool for economic development, food security, environmental protection and peace.

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Strategic and Technical Considerations in the Assessment of Transboundary Water Management with Reference to Southern Africa

Piet Heyns

Abbreviations

BWF	Basin Wide Forum
ENWC	Eastern National Water Carrier
GEF	Global Environmental Facility
ILA	International Law Association
ILC	International Law Commission
IWRM	Integrated Water Resource Management
JIA	Joint Irrigation Authority
JPTC	Joint Permanent Technical Commission
JTC	Joint Technical Committee
LHWP	Lesotho Highlands Water Project
MDG's	Millennium Development Goals
NGO's	Non-governmental Organizations
OBSC	Okavango Basin Steering Committee
OKACOM	Permanent Okavango River Basin Water Commission
ORASECOM	Orange-Senqu River Commission
PJTC	Permanent Joint Technical Commission
PWC	Permanent Water Commission
RBO's	River Basin Organisations
SADC	Southern African Development Community
SADCC	Southern African Development Coordinating Conference
TDA	Transboundary Diagnostic Analysis
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Development Programme
WSCU	Water Sector Coordinating Unit
WSSD	World Summit on Sustainable Development
ZACPLAN	Zambezi Action Plan
ZACPRO	Zambezi Action Plan Project

1. Introduction

Rainfall is often considered by many people as a gift from their God for the universal benefit of mankind because no living organism can survive without water. It is clear that water is by nature a resource that must not only be shared between humans, but also with the environment that sustains the human quality of life. However, these noble concepts are compromised by many issues that has little to do with the precipitation of water on land.

The flow of water, whether visible as surface runoff or hidden as groundwater, is determined by the hydraulic gradient across the landscape and this gradient more or less follows the topography of a natural basin from its watershed boundaries to a common terminus. Artificial boundaries that define the area of political jurisdiction of a sovereign State, or the individual ownership of land in a specific country, cannot contain the flow of water, but affect the access of people to the water and the overall management of those resources in the common interest of those living in the whole basin.

Poor access to an adequate quantity of water with acceptable quality is a major constraint to sustainable development and the resulting improvement of the existing socio-economic conditions in each country located in a shared river basin. In most cases the available water resources are relatively scarce and finite, but the demand is increasing all the time. The apportionment of water from common resources should therefore be equitable and reasonable, but at the same time the water must be used in such a way that the water is conserved, the benefits are maximized and the integrity of the environment is maintained.

Sovereign States that share common water sources must find a balance between meeting their national, strategic objectives and their international obligations that may reach well beyond the confines of a river basin. An upstream country cannot just utilize all the water to meet its own needs without due consideration for the needs of the other basin States because that will bring it in conflict with the downstream users and this may have a detrimental effect on its foreign affairs in the international context.

The purpose of this paper is to provide an overview of the cooperation on transboundary water management between the member States in the Southern African Development Community (SADC).

Artificial
boundaries

2. Instruments of cooperation

2.1 The SADC Treaty

The Lusaka Declaration that was adopted by the Heads of State of the participating countries in Southern Africa at a Summit in Lusaka, Zambia on 1 April 1980, gave rise to the establishment of the Southern African Development Coordinating Conference (SADCC). The member States of the SADCC committed themselves to pursue policies aimed at economic liberation (a frontline against South Africa) and the integrated development of the economies of the Region. Further institutional developments took place and today the Southern African Development Community, established by the SADC Treaty on the 17 August 1992 in Windhoek, Namibia is a regional grouping of fourteen sovereign member States.

Institutional
development

The goal of SADC is “the attainment of an integrated regional economy on the basis of balance, equity and mutual benefit of all States”. Within this goal, the key objectives are identified as poverty alleviation, food security and industrial development. These objectives cannot be achieved unless water resources, one of the driving forces of any economy, are readily available.

In November 1995 South Africa hosted a conference of SADC Ministers responsible for water resources management and the theme related to the future vision for water resources management in Southern Africa. The Namibian delegation was requested to present a paper on existing and planned water development projects on the international rivers in the SADC. In that paper the notion to establish a dedicated Water Sector and a Water Sector Coordinating Unit (WSCU) in the SADC was supported and encouraged as part of the vision to facilitate future activities in joint cooperation on dealing with infrastructure development and the management of water issues on the internationally shared rivers in the Region. The WSCU was instituted in 1996, and after restructuring in the SADC, a Water Division was created at the Headquarters of the SADC Secretariat in Gaborone, Botswana in recognition of the importance of water in the SADC.

2.2 International water law

The evolution of transboundary water management has its roots in customary law, but the preparation and adoption of the Helsinki Rules by the International Law Association (ILA) in

Helsinki Rules

August 1966 provided some codification of international law that could be applied to the use of the waters of an international drainage basin. International law lacks the features characteristic to domestic legal systems such as jurisdiction and enforcement. It therefore relies on an acceptance by the basin States and the opinion of the international community. The rules of international law are based upon the principles of fairness and consideration for others. Most nations generally observe these principles since violations can be politically and economically detrimental.

The central principle of the Helsinki Rules is that each Basin State is entitled, within its own territory, to a reasonable and equitable share in the beneficial use of the waters of an international drainage basin. In view of anything else or better at that time, the Helsinki Rules have been accepted as a basis for negotiations and recognized in the preamble to many agreements about managing international rivers shared between States in Southern Africa.

Awareness of the functioning of a river basin as a hydrologic unit has grown over time and changed the view that an international river is just a channel for the conveyance of water. The need for attention to the management of shared watercourse systems led to a declaration, emanating from the United Nations (UN) General Assembly in 1974, that in the exploitation of shared natural resources, States must cooperate on the basis of prior consultation and sharing of information to achieve optimum use of such resources, without causing damage to the legitimate interests of other States.

In 1991 the International Law Commission (ILC) provisionally adopted a set of Draft Articles on the law of the non-navigational uses of international watercourses. An interesting improvement on the Helsinki Rules was that the obligation not to cause harm to another State prevails over the concept of equitable use, i.e. the use of water of an international river is not equitable if such use causes harm to other States.

In 1994 the Draft Articles were adopted by the ILC and it was recommended to the General Assembly of the UN that the matter must be finalized at an international convention. The General Assembly subsequently adopted the UN Convention on the Non-navigational Uses of International Watercourses (The Convention) in May 1997 and the Convention is now in the process of ratification.

Nine of the SADC States voted in favor of the adoption of the Convention in May 1977. (Four were not present at the meeting and one abstained.) Two SADC States (Namibia and

South Africa) are signatories, and have ratified the Convention already, while the process of accession is at various stages within the other SADC States.

This Convention do not yet constitute binding rules of international water law, but can become binding on those States that adopt them and enter into an agreement to such effect between themselves.

2.3 The SADC Protocol on Water

All twelve of the SADC member States located on the Southern African Sub-continent, share international watercourses between themselves or with States outside the SADC. This is the legacy of the boundaries drawn by the colonial powers and the resolution the Organization of African Unity on border disputes in July 1964, namely that the colonial boundaries will be respected by newly independent States.

Although the presence of huge river systems like the Congo and the Zambezi may create the impression that water resources are abundant in Southern Africa, the reality is that the available water resources are unevenly distributed across the region and that some countries are extremely arid.

In this situation where water resources are shared, and is more abundant in some areas than others, there is a need to cooperate in an amicable way to ensure that access to water is improved to support development in the economic community of States. It is therefore a prerequisite that each State should have access to a mutually agreed, equitable and reasonable share in the available water resources.

The institutional arrangements to achieve these objectives are not only based upon instruments of international law, but the political will to cooperate within a regional framework that provide for socio-economic development. The global trend to move towards regional integration also influenced political thinking in Southern Africa, as reflected in the agreement about the SADC Treaty. This facilitates cooperation and making joint decisions about development, without unduly sacrificing sovereignty.

Article 22(1) of the SADC Treaty provides that member States should conclude a series of protocols with clearly stipulated objectives and scope, as well as the institutional mechanisms to address the specific issues that support cooperation and integration. One of these issues are shared water resources and the need to find ways of cooperating on the use of these

The need to cooperate

resources without causing conflict that may be detrimental to the SADC objectives.

The SADC Protocol on Shared Watercourse Systems (The Protocol) is therefore a further refinement of the SADC Treaty and was developed over a long period of discussions between SADC member States since 1991. The Protocol was adopted by the Heads of State on 28 August 1995 in Johannesburg, South Africa and became an instrument of international water law for the SADC in September 1998 after it had been ratified in terms of the provisions of the SADC Treaty.

The
Revised
Protocol

However, the Protocol was subsequently revised to bring it more in line with the UN Convention on International Watercourses and the principles of Integrated Water Resource Management (IWRM). The Revised Protocol on Shared Watercourses (The Revised Protocol) was signed by the Heads of State of the SADC member States on 7 August 2000 in Windhoek, Namibia, and entered into force on 22 September 2003. The overall objective of the Revised Protocol is to foster closer cooperation for judicious, sustainable and coordinated management, the protection and utilization of shared watercourses and to advance the SADC agenda of regional integration and poverty alleviation. It can also be inferred here that those SADC States that have abstained or were not present when the vote was taken on the UN Convention are now bound by those concepts included in the Protocol.

2.4 National water law

It is generally accepted in the SADC that the national water policies, water legislation and water regulations of the different member States should be harmonized to enable the different States that are sharing a common resource to conform to the requirements for coordinated, joint management of transboundary water resources.

South Africa straddles five major internationally shared river basins in Southern Africa, namely the Incomati, Limpopo, Maputo, Orange and Umbeluzi. In 1998 the South African National Water Act (Act 36 of 1998) was enacted by Parliament. An encouraging aspect of the Water Act is that provision is made in Article 2(i) for taking into account the “international obligations’ of South Africa as far as the use, development, conservation, management and control of the water resources of international water courses are concerned. The same applies to the protection and maintenance of water quality as reflected in Article 27(j) of the said Act. The new water legislation is a clear

demonstration that South Africa will consider the needs of a downstream riparian. The Act has further innovations such as the creation of a 'reserve' for basic human needs and ecological sustainability, the authorization of the establishment of bodies to implement any international agreement and the introduction of a licensing system for widely defined water use, including the abstraction of water and waste water discharge.

In 1998 Zimbabwe legislated a comprehensive revision of its water act. This was preceded with a new water policy that promotes an integrated water resource management approach, the sustainable use of water resources and stakeholders participation. The policy also states that the utilization of the water resources of internationally shared watercourses must be "fair and sustainable."

In June 2003, Swaziland passed a new Water Act (Act No 7 of 2003) and this alludes to international agreements and bodies.

The various acts monitored above, have features that are in conformity with the Revised Protocol, although the Protocol is not specifically referred to in those Acts.

As far as water policy is concerned, Namibia adopted a National Water Policy in August 2000. This document records Namibia's general commitment to the SADC Protocol and calls for good co-operation with riparian neighbors in the areas of water quality and quantity, domestic and ecological requirements, as well as others. Moreover, the Government undertakes to strive to promote the equitable and beneficial use of international water courses, based on generally accepted principles and practices of international law.

Lesotho has policy documents that recognize the Protocol and the obligations it creates at national level. Both Namibia and Lesotho are in the process of revising their water legislation and since the Protocol is recognized at policy level, it seems certain that it will find its way into the law as well. It is also clear that policy statements and national laws are of a general nature and compliance must still be tested in the context of transboundary water management.

Although several studies have been done on the regional implications of existing water policies and legislation, the river basin institutions are seen as the most important role players in advising the Governments of the different basin States about the adjustment of national policies and legislation to ensure legal consistency and improved coordination in managing shared resources. It is for example, unacceptable if one basin State allows the disposal of effluent into a shared watercourse while others

Commitment

have strict measures in place to treat the water to acceptable standards before discharging the water.

3. The emerging consensus on water management

The Global discussion about water management issues started in March 1977 at the first International Conference on Water in Mar del Plata, Argentina. The need to take an integrated approach to the development and management of water resources was identified, as well as the fact that water is vulnerable and finite in nature. The global action plan outlined at the conference led to the International Water Supply and Sanitation Decade (1980–1990) that brought about a major extension of basic services to the poor.

A number of subsequent events provided further building blocks that informed transboundary water management as it stands today. Most notable of these are the Dublin International Conference on Water and Environment early in 1992 in Ireland and United Nations Conference on Environment and Development (UNCED) in June 1992 in Rio de Janeiro, Brazil. In Dublin it was agreed that actions to reverse trends of over consumption, pollution, drought and floods should be based on four guiding principles, namely:

- Water is essential to sustain life and development, but is a vulnerable resource;
- Water development should follow a participatory approach;
- Women play a central role in the provision, protection and management of water;
- Water has an economic value in all its uses and is an economic (and a social) good.

The consensus reached at the Dublin Conference did not have governmental backing because the delegates comprised professionals rather than government negotiators, but this situation was rectified at the UNCED Earth Summit. The main outcome was Agenda 21. This Agenda for the 21st Century contains four sections. The section dealing with the conservation and management of natural resources contains several chapters of interest to water managers. The broad aspects of freshwater management are contained in Chapter 18 and provide links to relevant environmental matters as well. The programme areas of Chapter 18 provide the basic framework for the activities that should be attended to at the drainage basin level and therefore relates strongly to the objectives that fall in the ambit of transboundary water management. This could be used as a means

to assess and evaluate to what extent a river basin institution is performing efficiently and the main areas of intervention are:

- Integrated water resource development and management;
- Water resource assessment;
- Protection of water resources, water quality and aquatic ecosystems;
- Drinking water supply and sanitation;
- Sustainable urban development;
- Sustainable food production and rural development;
- Impacts of climate change on water resources (drought and floods).

Both the Dublin and UNCED conferences placed water at the centre of development and heralded the beginning of an evolution in integrated water management practice, but it is still a very slow process as far as implementation is concerned.

Three World Water Forums also made a contribution to improve the understanding of transboundary water management. At the First World Water Forum in Marrakech, Morocco in 1997 it was agreed to develop a long-term vision for water, life and the environment in the 21st Century, simply referred to as the World Water Vision. The SADC also developed a regional vision, based on inputs related to the national vision of the individual member States. At the Second World Water Forum in The Hague in 2000, a framework for action was developed and in this regard the Vision for Action of the SADC serves as a regional guideline for transboundary river management. The progress with the water action was reported at the Third World Water Forum in 2003 in Kyoto, Japan.

World Water
Forum

Although the world water forums and the International Conference on Freshwater in Bonn, Germany in 2002 set various targets for the improvement of water management, only a few objectives have been met. However, the most influential target setting events in recent years were the UN World Summit on Sustainable Development (WSSD) in 2000 in Johannesburg, South Africa where the seven Millennium Development Goals (MDGs) for 2015 were formulated. The extent to which these objectives that focus on poverty reduction, education and health will be realized, will depend on equitable access to adequate resources such as water and energy, as well as having due regard for the environment. All these objectives seem barely achievable, but cannot receive constructive attention in Southern Africa

unless effective transboundary water management is at the order of the day.

The SADC States have also embraced the concept of integrated water resource management (IWRM). This is, by definition, a process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of the environment. In conclusion it can be stated that the SADC member States that have ratified the SADC Water Protocol have agreed to:

- The principles of international water law as it has developed through the Helsinki Rules and the United Nations Convention;
- Accept the principles of integrated water resource management as underpinned by the Dublin Principles and Chapter 18 of Agenda 21 of the UNCED;
- View the river basin as the natural unit for water management;
- Regard water as a finite and vulnerable resource that is essential to sustain life, economic development and environmental quality.
- Recognize that water has an economic value in all its competing uses and is an economic good
- Base water policy and legislation on a comprehensive approach, addressing physical, economic, social and environmental quality;
- Include stakeholder participation at all levels of decision making about water issues;
- Make decisions at the lowest possible level.

4. The assessment of best practices

4.1 Background

When an assessment is made of the performance in transboundary water management, it is clear that both developed and developing countries are struggling to comply with the principles and vision of integrated water resource management. In many cases sterling work has been done to improve the situation, but there are still major constraints. These may be weak national and regional legal frameworks or there may be institutional shortcomings or a lack of innovative means to resolve conflicts

and develop consensus. On top of these constraints, the challenge of increasing populations and urbanization, as well as water quality and environmental degradation, remains to be addressed. The greatest impediments to achieving integrated transboundary water management may also be the absence of strong political will, poor cooperation, mistrust, inadequate information, misguided fears and unreasonable expectations by the basin States. There is no quick fix to these issues, but it is often useful to draw on the experience of others. In this regard the general trends in transboundary water management in Southern Africa can be categorized as:

- A move from infrastructure development to integrated basin management,
- More participation and greater decentralization,
- Greater emphasis on financial viability and
- Recognition of the importance of environmental sustainability.

4.2 Creating an enabling environment

High level political commitment, technical expertise, community commitment and stakeholder accountability are the human elements that create an enabling environment for the establishment of river basin institutions, but it is extremely useful when there is an accepted regional framework of treaties, protocols and agreements for cooperation. This framework exists in the SADC and paved the way for the creation of river basin organizations (RBOs).

Effective watercourse institutions create more opportunities for efficient management across the whole basin instead of harboring a local focus, especially where the upstream and downstream users are concerned. Water managers and stakeholders at the basin level can work together to understand their interdependencies, encourage a participatory process, allocate resources in an equitable manner, manage demand and enhance efficiency while meeting ecosystem needs.

4.3 Establishing river basin organizations

Transboundary RBO's can basically be grouped into three categories. For ease of reference, these will be referred to as Commissions, Authorities and Basin Committees.

A Water Commission is an institution that is created by an agreement between the basin States. The Commissioners are

Opportunities for
efficient
management

usually high ranking civil servants or private sector executives with the required expert knowledge, as deemed necessary by each Party. These persons serve as permanent members of the delegation of each Party to the Commission and are rarely more than three per delegation. The Commission may therefore also co-opt any other experts in an advisory capacity, for example engineers, scientists, economists, environmentalists, international water lawyers *et cetera*.

The Commissions normally have the duty to conduct investigations and studies to enable the Commission to advise the respective Governments about the development of water resources of common interest, the construction, operation and maintenance of water infrastructure, the allocation of water for the most beneficial uses, matters pertaining to the hydrological regime of the water resources, the prevention of pollution and soil erosion, the management of droughts and floods or any other matter that the Parties might wish the Commission to attend to.

Advising the
governments

The activities of a Commission are based on the principle of joint planning and this can only be achieved if there is close cooperation between the Parties. This activity is facilitated by having joint technical task teams that work closely together with consultants, the cooperating partners and other stakeholders. It may also become necessary, as the scope of activities of a Commission expands over time, to relieve the government officials from the responsibilities to run the secretarial services of the Commission and to allocate the work to a dedicated secretariat as, for example, in the case of the Mekong Commission.

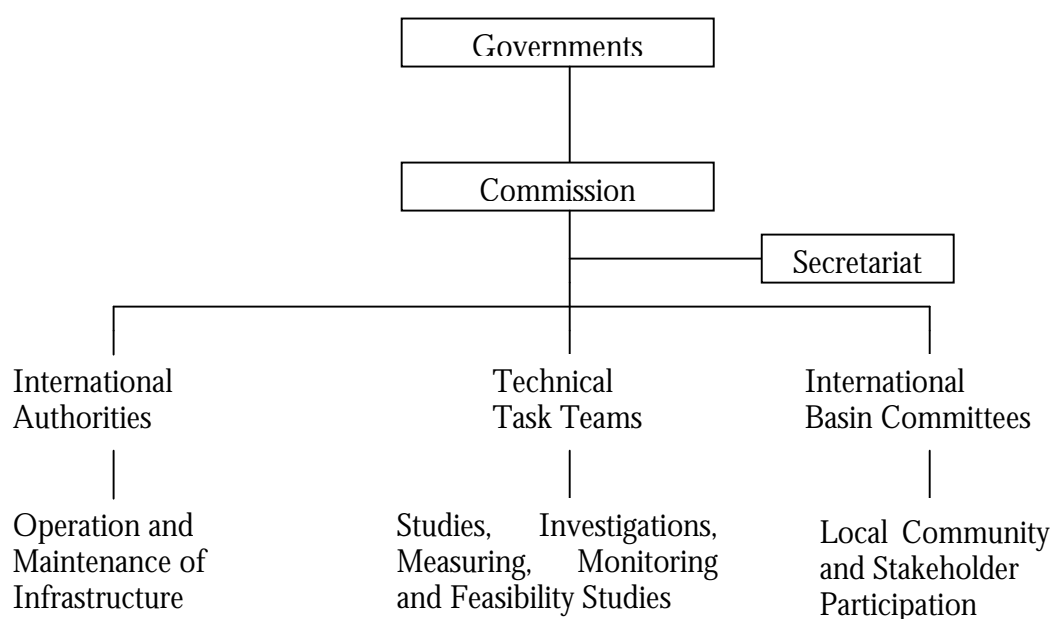
An Authority may be established to assist with the operation and maintenance of joint infrastructure schemes, for example, irrigation projects, hydropower facilities, diversion works or water supply installations. Some examples are the Zambezi River Authority (Power supply), the Lesotho Highlands Development Authority (Water and power supply), the Trans Caledon Tunnel Authority (Water conveyance), the Noordoewer and Vioolsdrift Joint Irrigation Authority (Irrigation), the Cunene River Operating Authority (Water diversion and power supply).

A Basin Committee is usually a national organization of stakeholders who has the responsibility for the management of a catchment of a domestic or internationally shared river in a particular country. The Basin Committees that have been established in the Okavango River Basin have the support of the Commission and although the Basin Committees function at community level in the respective basin States, they are also in consultation with each other through the so-called Basin Wide

Forum (BWF) that has access to the Commission to convey the joint expectations of the grassroots stakeholders to the respective Governments.

The above-mentioned Commissions, Authorities and Basin Committees are normally supported at various levels of central and local Government, but the Authorities have a major involvement of the private sector while the Basin Committees receive support from the donor community through Non-governmental Organizations (NGOs). (See Figure 1)

Figure 1: Schematic structure of river basin organizations



4.4 Management Instruments

(a) Creating a vision

After a Commission has been established, it must familiarize itself with the available information and the lack of data that are constraints to the development of the basin. The Commission should also sit down and agree upon its vision, mission, goals and objectives in terms of its mandate. This should be followed by a process of scenario building and conceptualising innovative alternatives that can be considered for further study to facilitate and decision support.

Dialogue
between the
parties

(b) Building trust

One of the most important advantages of a Water Commission is that it creates the opportunity for dialogue between the Parties. These discussions can stimulate an awareness of the value of transboundary cooperation on many strategic issues such as regional socio-economic development, food production, power supply and trade that could benefit from working together on water security. The participants will develop an understanding of the fears and expectations of each Party. Transparency about the exchange of information and accountability as far as pollution control, water quality and environmental management in each basin State is concerned will build confidence and open the door for better cooperation. In the process of cooperating, the Parties will identify their needs for joint capacity building and training that will empower the technical staff to provide the best advice to the Commission.

(c) Fostering cooperation

Long before contentious issues (such as water allocation) that could bring the Parties into conflict are discussed, there can be cooperation in many other areas. Prior agreement that the river basin should be considered as a unitary whole and the acceptance of the principles of IWRM will already go a long way to improve cooperation. Other forms of cooperation can be the joint measurements of the hydrogeological behavior of a basin, the monitoring of water quality and environmental integrity, developing plans for flood and drought management, sharing information and collecting data, involving communities and other stakeholders in joint planning, formulating development plans and harmonizing policies, legislation and regulations affecting transboundary water management. Optimizing the benefits from water supply, flood protection, power generation, irrigation, navigation, recreation and maintaining environmental integrity create many opportunities for constructive cooperation.

(d) Collecting data

The most important activity of a Commission is to gather information by measuring the hydrological conditions, collecting data, assessing the magnitude of the resource base, monitoring the quality of the water environment, determining the development potential of the basin and doing research where required. The purpose of these activities are to facilitate the

execution of feasibility studies and to assist the Commission in formulating advice about the joint development of projects for consideration and approval by the Parties to a Water Commission.

(e) Resolving conflict

The integrated management of transboundary water resources are guided by three fundamental principles. They are the inherent sovereignty of each watercourse State, the obligation that one State should not cause significant harm to another State in the utilization of water from a commonly shared resource and the requirement that the water use must be equitable and reasonable

However, these principles cannot be enforced, nor can any third party be called upon to resolve a conflict, unless all parties concerned have agreed to such an intervention. The foundation for the prevention of conflicts therefore lies primarily in the development of functional institutional mechanisms to facilitate a dialogue between the parties about their internationally shared water affairs.

All the water Commissions in Southern Africa have been established long before any conflict became an issue and it can be said that the parties understood the importance of working together before a conflict situation would arise. These proactive initiatives were not imposed on the basin States by any external agency and most of the Commissions actually mobilized significant international support by having taken positive steps to manage their own affairs in an amicable way.

When conflicts do arise, they should first be resolved through discussion and negotiations at the Commission level. If that fails, the matter should be referred to the Governments for further consultation. If there is still no compromise, the assistance of third parties could be solicited through mediation and arbitration. Legal action by going to the International Court of Justice should be the very last resort.

(f) Legal status of a commission

In order to enable a Commission to obtain and administrate funds or to enter into agreements to execute joint feasibility studies so that it can execute its duties on behalf of the Parties, it should have appropriate legal status to do so. The donor community might also wish to support the Commission more readily when it has a legal personality in its own right, instead of giving support to individual countries.

The importance of
working together

(g) Funding issues

Cost sharing
must be equal

The financial sustainability of a river basin organization and the capacity to run the institution properly, should be taken into account. Normally the cost for the Commissioners to meet and to function is carried by the Parties, but when it comes to the activities listed in 4.2, external financial support may be required, depending on the strength of the economy of the different parties, especially when cost sharing must be equal between the parties. The joint financial contribution by the basin States in secretarial functions at the management level of the Commission, resource potential investigations and feasibility studies could be augmented by soliciting the support of cooperating partners. In this regard a transboundary water Commission that seeks financial support to develop capacity or to implement projects to avoid conflicts between the Parties, will certainly attract the support of the international donor community.

5. General discussion

5.1 Angola and Namibia on the Cunene River

Before the independence of Angola and Namibia, the colonial powers, Portugal and South Africa entered into two border agreements and three water use agreements. The third water use agreement led to the establishment of a Permanent Joint Technical Commission (PJTC) in 1969. The PJTC had to direct the development of Phase 1 of the Cunene Project, comprising hydropower and water supply infrastructure, as well as the establishment of an Operating Authority. However, towards the end of the construction of the infrastructure, the Government in Portugal capitulated and Angola became independent in 1974. This gave rise to a civil war in Angola, a military conflict between Angola and South Africa, as well as the proliferation of the Namibian struggle for independence. In spite of these hostilities and the resulting damage to the infrastructure, the water and power schemes remained in operation, albeit without the Operating Authority in place.

After the independence of Namibia in March 1990, the new Namibian Government approached the Angolan Government about the most appropriate arrangements for the reparation, operation and further development of the Cunene Project. This led to an agreement in September 1990 to affirm and endorse the old agreements between the colonial powers and to re-instate the PJTC. This decision was contrary to the Nyerere Doctrine where

a newly independent Tanzania refused to accede to the agreements that were made on the Nile before the country became independent. The pragmatic approach by Angola and Namibia about the colonial agreements opened the door for amicable cooperation, better management, further feasibility studies and increasing the benefits of power and water supply on both sides of the border.

A joint pre-feasibility study was also completed to develop another hydropower scheme on the Lower Cunene. The outcome of this study led to an interesting situation where the Commission could not reach a consensus to advise the Governments about the development of the best alternative of the two sites that can be developed. The matter has therefore been referred back to the Governments for further consultation at the political level because the technical detail about the most viable site is available for consideration.

Angola,
Namibia...

5.2 Botswana and Namibia on waters of common interest

In November 1990 Botswana and Namibia established a Joint Permanent Technical Committee (JPTC) to deal with shared water resources. The JPTC later became a Commission. The resources of mutual interest were mainly the Okavango River, transboundary groundwater sources and the Kwando-Linyanti-Chobe River System that is a tributary of the Zambezi River, but forms the border between the Caprivi Region of Namibia and Northern Botswana. The most important activities of the JPTC is the successful control of aquatic weeds, joint hydrological gauging and assistance with the border demarcation activities.

5.3 Angola, Botswana and Namibia on the Okavango

The need to utilize the waters of the Okavango to augment the water supplies in the central area of Namibia via the proposed Eastern National Water Carrier (ENWC), had already been identified in 1973, long before independence of Namibia, but the question of access to the water could not be taken up with the co-riparian States (Angola and Botswana) because Namibia was not a sovereign State. However, this situation changed after the independence of Namibia. It was also apparent to Namibia that in view of the fact that the Okavango River forms the border between Angola and Namibia over a distance of nearly 400 kilometers, it would be prudent to have a specific water commission on the Okavango between the three States riparian to the perennial watercourses in the Okavango Basin.

...and
Botswana

Due to the fact that Namibia had access to Angola through the PJTC and Botswana through the JPTC as mentioned above, it was suggested to bring the Commissioners of the PJTC and the JPTC together at a joint meeting in Windhoek to discuss the future development of the Okavango Basin and the possibility to establish a tripartite water commission. This historic meeting took place in Windhoek in June 1991 and subsequently led to the establishment of the Permanent Okavango River Basin Water Commission (OKACOM) on 15 September 1994 in Windhoek between Angola, Botswana and Namibia. Due to this development, the JPTC now only deals with the Kwando-Linyanti-Chobe River System and groundwater issues outside the Okavango Basin.

It should also be noted here that the procedure to establish the OKACOM was kept relatively simple by utilizing existing basin institutions to facilitate the discussion and negotiations. (Zimbabwe is also a basin State, but does not contribute to the perennial runoff into the Okavango Delta. The runoff in the ephemeral Nata River flows from Zimbabwe into Botswana, but dissipates in the Makghadikadi Pans). The agreement on the OKACOM, like the PJTC and the JPTC, is not an elaborate document, but succeeded in bringing the Parties together around the table for meaningful discussions. The OKACOM is not an expensive institution with a large staff complement and a big budget.

The Commission had ten meetings since 1995 and facilitated a number of constructive achievements that would otherwise not have been possible. At the first meeting of the OKACOM, Namibia officially informed the other Parties about its planned measures to develop the proposed ENWC. This made it clear that the issue of coordinated development in the Okavango Basin should be addressed. The first major achievement of the OKACOM was therefore to develop a proposal for a project to execute an environmental assessment of the Okavango Basin and to develop an integrated water resource management strategy. The OKACOM agreed to the project proposal in June 1995. It was envisaged that the process to develop the strategy would provide comprehensive information about the state of the environment in the whole Okavango Basin, and that an assessment of the prevailing situation would show the potential for the future development of the Basin in each country. Such developments would of course require water from the Okavango River.

The envisaged management strategy would eventually enable the watercourse States to collect accurate data in order to provide

a factual basis for informed discussions and sustainable decisions about the future utilization of the water resources. The main outcome will be the joint preparation of an Integrated Management Plan. This is viewed as one of the cornerstones of successful cooperation between the parties and would allow them to agree among themselves on the quantity of water required from the Okavango by each State to achieve their respective development objectives. Furthermore, the whole process will develop the required technical capacity and negotiating skills that are so extremely important to reach a clear consensus on the most optimal solutions to maximize the benefits in achieving the set objectives of each Party.

In order to fund the proposed project, the OKACOM approached the Global Environment Facility (GEF) for support. The GEF agreed to make project development funds available to execute a transboundary diagnostic analysis (TDA) in order to identify the key areas of concern and the gaps in the knowledge of the bio-physical, social and economic environment in the Okavango Basin. The OKACOM appointed a steering committee, the Okavango Basin Steering Committee (OBSC) to manage the project. A study manager was subsequently retained to organize and coordinate the activities of more than 20 consultants in various fields of expertise, representing all three basin States. This could be seen as the first initiative in Southern Africa where so many individual consultants from three basin States of a shared river system worked together to achieve a common goal and is in itself a major achievement in integrated water resources management.

The TDA was completed to the extent that a brief could be drafted for submission to the GEF for further consideration and agreement to release funds for the development and implementation of the proposed Strategic Action Plan. The TDA identified the projects and programs required for a Strategic Action Plan to study the potential of the Okavango Basin and to develop the proposed Integrated Management Plan for the Okavango. The recent cessation of hostilities in the civil war in the upper Okavango in Angola will facilitate this process. The present status of the GEF Project is that the documents were approved by the GEF Council and the OKACOM. The funds to start with the project will be released as soon as the Project Manager has been appointed, and this should happen within the first quarter of 2004.

OKACOM

5.4 Namibia and South Africa on the Lower Orange River

During the transitional period before Namibia became independent, a Joint Technical Committee (JTC) was established between the interim Government of National Unity in Namibia and the Government of South Africa. The purpose of the JTC was to advise the governments on matters pertaining to the development of the perennial Lower Orange River where it forms the border between South Africa and Namibia, as well as the ephemeral Swakop and Kuiseb rivers that respectively formed the northern and southern border of the South African controlled Walvis Bay Enclave in Namibia.

Soon after the independence of Namibia, a delegation of from the Lesotho Government visited Namibia to request a “no objection” to the proposed Lesotho Highlands Water Project (LHWP), comprising four phases. At that time Namibia was surprised that South Africa, who should have known about this issue through its bilateral commission with Lesotho on the LHWP, never mentioned this at a meeting of the JTC. Nevertheless, the Namibian Government demonstrated its goodwill by not being obstructive and granted a no objection to Phase 1A and 1B of the LHWP. In view of the uncertainties regarding the hydrology of the Orange in Lesotho, and specifically the effect that the development of the remaining Phases of the LHWP may have on the availability of water along the Lower Orange, Namibia restricted its no objection to Phase 1 of the LHWP.

Lesotho
Highlands
Water Project

After the independence of Namibia in 1990, the new Government started negotiations with South Africa about the replacement of the JTC. In September 1992 a Permanent Water Commission (PWC) was established between the two countries. The PWC had the same duties as the JTC, but after the Walvis Bay Enclave reverted back to Namibia in March 1994, the PWC only had to deal with the Lower Orange River.

Namibia also entered into an agreement with South Africa in 1992 on the establishment of a Joint Irrigation Authority (JIA) for the Noordoewer (Namibian side) and Vioolsdrift (South African side) irrigation scheme on the Lower Orange River.

The PWC is at present conducting a study to improve the management of the water resources on the Lower Orange River and the work entails the possible development of a dam on the Lower Orange that could facilitate further irrigation development and the upgrading the environmental condition of the river.

5.5 Lesotho and South Africa on the Upper Orange River

Due to its high elevation above mean sea level, Lesotho is in a position to dispose of its surplus water in a more beneficial way than to just allow it to flow downstream across its border into South Africa. The possibility to transfer water under gravity from the Lesotho Highlands to the industrial heartland of South Africa in the Johannesburg-Pretoria-Vereeniging complex, had been under discussion for many years, but in 1986 Lesotho and South Africa created a Permanent Joint Technical Commission (PJTC) to guide the development of the proposed Lesotho Highland Water Project (LHWP) in the upper reaches of the Orange River Basin. Two authorities, the Lesotho Highlands Development Authority and the Trans Caledon Tunnel Authority, were created to facilitate the construction activities in Lesotho and South Africa respectively. In 1999, when the LHWP was already in an advance stage of completion, the Lesotho Highlands Water Commission was established between Lesotho and South Africa.

The LHWP is a good example to show how Lesotho and South Africa are sharing in the benefits of using the Orange River. The water is supplied under gravity from two dams (Katse and Mohale) in Lesotho by means of a tunnel to the Ash River in South Africa and from there as surface water flow into the Vaal Dam near Johannesburg. Lesotho receives royalties for the water conveyed to South Africa while South Africa is saving the costs of having to pump the water against a higher head from the Orange after it flowed across the border from Lesotho into South Africa.

Sharing the
benefits

5.6 The Orange-Senqu River Commission

As a downstream riparian on the Orange, the Namibian Government was acutely aware of the fact that the PWC was only a bilateral arrangement and that the arrangements between Lesotho and South on the LHWP fell beyond the scope of the PWC. The PWC had little to do with other developments in the Orange River basin, for example on the Vaal River System upstream from its confluence with the Orange because the Vaal was considered to be “fully utilized” already, but it was augmented from the Orange in Lesotho and the Tugela in South Africa. Furthermore, Namibia was particularly concerned about the transfer of water to and from the Orange River on South African territory and the implications it may have for Namibia. Similarly, the PJTC between Lesotho and South Africa on the development of the LHWP was also a bilateral institution. Both

Bilateral
agreements have
deficiencies

of these Commissions did not conform to the concept that the management of internationally shared rivers should be done jointly and on a basin wide scale by all basin States. Namibia therefore realized that the existence of bilateral agreements on the Orange between South Africa and Namibia or Lesotho and South Africa had inherent deficiencies as far as basin wide integrated water resource management by all basin States is concerned. Namibia therefore decided to use the PWC as a vehicle to propose the establishment of an Orange River Basin Commission and in 1993 a draft agreement was submitted to the PWC for further consideration and discussion.

The draft agreement made provision for the participation of all four basin States, namely Botswana, Lesotho, Namibia and South Africa. South Africa was requested to discuss this issue with the other two Orange River basin States, Botswana and especially Lesotho through their existing PJTC. Namibia also took the matter up with Botswana through their existing JPTC.

The proposal received strong political support from the South African Minister for Water Affairs and Forestry, but a long process of discussions and negotiations followed, mostly influenced by the evolving political transformation in South Africa since 1994 and the progressive developments in his water sector in Southern Africa. However, in November 2000 the Orange-Senqu River Commission (ORASECOM) was eventually established between Botswana, Lesotho, Namibia and South Africa.

In the Agreement that established the ORASECOM, the Commission is regarded as an international organization with international and national legal personality. The Commission is empowered to serve as the technical advisor of the Parties on matters relating to the development, utilization and conservation of the water resources of the Orange River Watercourse System. The Commission shall also perform such other functions pertaining to the development and utilization of the water resources as the Parties may agree to assign to the Commission.

The Parties to the ORASECOM view the Commission as an important forum to discuss water matters of mutual interest at a technical level. The Commission may also execute the necessary feasibility studies to enable the Commission to recommend the most feasible technical solutions, based on the hard facts. The Commission has a duty to advise the respective Governments accordingly about the perceived best technical solution and to what extent the Commission is in agreement about the way forward. In this way the proposed technical solution will be based on the facts and not on any prior political perception or influence.

Any subsequent decision can then be seen as the best solution in terms of technical viability while accommodating national interests in a balanced way through acceptable compromise. If there is no agreement about a proposed project, or if there would be a conflict of national interest, then the matter would revert back to the political level for further consideration or a final decision, as the case may be.

The allocation of water from the Orange to the Parties is also subject to negotiations between the riparian States according to the rules of mutually accepted instruments of international water law. The Commission is therefore in a position to stimulate and coordinate development on the Orange by advising the Parties about the availability of water, the results of feasibility studies and the most viable options for infrastructure development. A study to develop an integrated management plan for the Basin has been initiated, as well as a study to investigate the feasibility of a Secretariat for the Commission. The ORASECOM also managed to obtain financial support from the German and French governments through the GTZ and the FGEF respectively.

Financial
support

5.7 The Zambezi

Discussions on the proposed Zambezi Action Plan (ZACPLAN) started in 1985 and in May 1987 an agreement was reached on an action plan for the environmentally sound management of the common Zambezi River System at a conference convened by the United Nations Environment Programme (UNEP). The main elements of the ZACPLAN are environmental assessment, management, legislation and supporting measures. To achieve these objectives, there are eight programs of activities in Phase 1, referred to as "Zacpros". The Environment and Land Management Sector of the SADCC, based in Lesotho, originally directed the ZACPLAN, but it now falls under the SADC Water Division. One of the Zacplan Projects, "ZACPRO 2", deals with water legislation. A draft proposal for the formulation of a protocol on the use of the waters of the Zambezi was discussed at a workshop held in Lusaka in 1991. Shortly after independence, Namibia started to participate in the activities of the ZACPLAN and made an important contribution to initiate more lateral thinking about regional water management in the SADC. Namibia proposed that the notion of a protocol on the Zambezi River should be expanded to include all the shared watercourse systems in the whole SADC. This innovation was accepted at a subsequent ZACPRO 2 meeting held in Livingstone, Zambia and

special provision was also made in the draft Protocol to accommodate and maintain the existing agreements about RBOs between SADC member States or between SADC member States and States outside the SADC.

6. Conclusion

It is difficult to prescribe a set of criteria that can be used to measure the success of an institutional that must direct transboundary water management on behalf of two or more basin States.

Some of criteria that would be used in such an assessment can be based upon standards and information that can be verified by monitoring and confirmed in a scientific, analytical process. This applies to the determination of the extent to which water quality management is successful by executing a laboratory analysis or by inspecting a site where measures have been taken to prevent pollution or reduce the infestation of aquatic weeds. The reduction in silt loads can also be measured to see if improved land management is successful. The accuracy of hydrological measurements or the confidence that the basin States may have in the results, can be improved by embarking upon joint measurement and evaluation activities.

Other criteria to determine if optimal water management is achieved are more subjective and relates to the extent that universally acceptable best practices have been put in place by a transboundary water management institution created by a number of basin States. The level of cooperation, the trust between the parties, the understanding of critical issues and the political will to give effect to the advice from the river basin institution are the best measure of success or failure, but is not exact and remains subjective. The river basin institution should be placed in a position to manage itself properly, it should be enabled to execute the necessary studies to obtain scientifically and factually correct information and base its recommendations and advice on a general consensus that is uncluttered by political interference at the technical level.

At the end of the day, each Basin State must, within its own territory, ensure that no development activity is to the detriment of the river system or the legitimate interests of the downstream States. When scientific measurements are done, or infrastructure development takes place or conservation measures are applied, the success of a transboundary water management activity lies in the way joint planning have been done by all concerned States in order to reach agreement on the most acceptable way the

Measuring
success

proposed objectives can be achieved to obtain significant benefits for all the States involved.

In order to ensure effective transboundary water management, it is essential for the riparian States of a watercourse system to create an enabling environment by accepting on the principles of international water law and establishing an appropriate river basin organization. The institution should take all the necessary measures to investigate the potential of the river system and to advise the respective sovereign States, on a basis of general consensus, about the most appropriate way to forge ahead with management and development so that the benefits for all can be optimized.

The ultimate success of such a transboundary water management institution lies in the way it has employed the universally accepted best practices and has given effect to the expectations of the basin States.

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Why States Cooperate over Shared Waters: The Example of the Jordan River Basin

Dr. Anders Jägerskog¹

1. Introduction²

What we call Man's power over Nature turns out to be a power exercised by some men over other men with Nature as its instruments.

C.S. Lewis, *The Abolition of Man* (New York)

Water is the source of life. In many religions it is portrayed as something sacred—a gift from God. Water is required for almost all a society's activities, such as the very visible ones of washing and cooking, but also in less visible areas such as food production. While in certain areas access to clean water is plentiful, in many parts of the world this is not the case.

It is therefore no surprise that increasing attention is being given to the importance of the world's water resources and aquatic systems. The rising demand for water is due to a variety of factors, such as population growth and urbanization. The sustainable management of water resources is extremely important in the developing world, which is continually faced with a lack of the financial resources, infrastructure and human resources needed to improve water management. Today, more than 45 per cent of the world's population lives in internationally shared river basins. The increasing pressure on the limited freshwater resources in places such as the Middle East, Southern Africa and Southern Asia makes greater and deeper knowledge of how to manage transboundary waters essential.

Rising demand

While it was previously assumed that shared waters could and would be a source of conflict, and even war, it has been demonstrated more recently that they can serve as a strong unifying force if addressed in a coherent manner. A database compiled by Aaron Wolf's institution at Oregon State University, comprising all the water agreements on international watercourses (<http://www.transboundarywaters.orst.edu/>), shows that states

¹ The views expressed in the paper are those of the author and not of the Swedish Ministry for Foreign Affairs.

² This paper is based on Jägerskog, Anders, *Why States cooperate over shared water: The water negotiations in the Jordan River Basin*, (Linköping Studies in Arts and Science, No. 281, Linköping University, 2003)

tend to find ways to reach agreement rather than to engage in conflict over shared water resources. There is still a need, however, to understand *why* and under *what conditions* such cooperation occurs. Furthermore, it is of interest to analyze the *quality* of that cooperation.

The aim of this paper is to analyze why and under what conditions cooperation between Israel and the Palestinians and between Israel and Jordan has taken place and how it has functioned in the water sector. The paper analyses the implementation of the water agreements between Israel and Jordan and between Israel and the Palestinians.

While many analyses and textbooks on water in the Middle East have focused their attention on analyzing the agreements on water *per se* in detail, this paper will focus on what has happened to the agreements after their signing. In order to put the analysis into a theoretical context, regime theory is used. The regime theory is applied within the overall framework of an actor-structure approach. This overall framework is not used as a specific analytic instrument but rather as a description of a general approach to the way in which particular changes from conflictual behavior towards more cooperative behavior have occurred.

It is hypothesized that the hydrological interdependence, that is, the transnational nature of the water on which they depend, of states that are riparians of an international river basin provides a rationale for cooperation (Elhance, 1999). By analyzing the work related to and done within the different Joint Water Committees called for in the water clauses of both the Israeli-Palestinian Interim Agreement of 1995 and the Israeli-Jordanian Peace Treaty of 1994 it is possible to arrive at some conclusions regarding the implementation of the agreements and the level of cooperation (or the lack of it).

2. Israeli-Palestinian water cooperation

As stipulated in the Interim Agreement between Israel and the Palestinians, a Joint Water Committee was established after the signing of the agreement. This committee is supposed to implement the undertakings of the parties in Article 40 of the Interim Agreement, which deals with water and waste water. It is to be composed of an equal number of participants from each side and to reach decisions through consensus, which means that each side has a veto.³ Each side can call in experts to the committee as it sees fit. It should be noted that, while the actual

What happened to the agreements?

³ This is a much stronger tool for the Israelis as the projects that are discussed in the JWC are to do with the occupied Palestinian areas.

decisions implementing the Interim Agreement are to be taken in the JWC, the committee is still under the political leadership of the State of Israel and the Palestinian National Authority. This means that when a sensitive water issue of political importance surfaces in the JWC it is passed up to a higher political level. This underlines the fact that water is very much connected to the politics in the region.⁴

While regime theory is not an approach that encompasses all the issues at stake it does increase our understanding of the institutional aspects of the cooperative behavior that the parties have engaged in within the JWC. A regime analysis deals with well-defined issues around which parties create and subscribe to means of self-regulation in the international arena. The JWC could be described as such a regime.

As already mentioned, the JWC is to take decisions with regard to water projects in the West Bank by consensus. Palestinian participants in the JWC have stated that there was an expectation that the Palestinians would be able to get approval for projects in the JWC without many problems so that implementation of the Interim Agreement could proceed. However, according to the Palestinians taking part in the JWC and its subcommittees,⁵ there have been delays in decisions with regard to decisions on permits to drill wells and so on.⁶ At the same time it has also to be acknowledged that some of the implementation problems—for example, the building of a pipeline in Gaza to receive 5 mcm water from Israel per year—are a result of the fact that the Palestinians have not been able to build the transmission line in Gaza.⁷ While the Palestinians attribute many problems and delays in decisions regarding Palestinian projects to Israeli unwillingness, the Israelis maintain that they have hydrological reasons for turning down Palestinian proposals.⁸ However, well-informed sources admit that Israel's

⁴ For more on the Interim Agreement and the powers and limitations of the Joint Water Committee see the Israeli Ministry of Foreign Affairs at <http://www.mfa.gov.il/mfa/go.asp?MFAH00qd0#app-40> and the Palestine Liberation Organization at <http://www.nad-plo.org/fact/annex3.pdf>.

⁵ The JWC has the right to form various subcommittees, which it has done, in order to work with specific issues such as technical matters. The decisions in these subcommittees are subject to approval of the JWC.

⁶ Jarrar, Ayman, personal communication, Delft, The Netherlands, 22 Nov. 2002; and Barghouti, Ihab, personal communication, Ramallah, 27 Nov. 2002.

⁷ Jarrar, Personal communication, 22 Nov. 2002.

⁸ Cantour, Shmuel, personal communication, Tel Aviv, Israel, 30 Apr. 2001.

refusals to agree on project proposals with the Palestinians are sometimes due to political rather than technical reasons.

A further reason, highlighted by officials in the PWA, which is delaying the implementation of the Interim Agreement, is the fact that the protocols/minutes from the JWC meetings need to be signed by all four members of the JWC (two Israelis and two Palestinians). This is a lengthy process that can take months to finalize. While this can be seen as normal committee procedure it is also possible for either side to withhold a signature as a political tool. According to Ihab Barghouti at the PWA, the Palestinians have raised the problems of getting approvals for projects with their Israeli counterparts in the JWC, who are mainly technical people, and maintain that many of the problems were due to not them but rather to the political leadership.⁹ Another problem for the JWC is that the Interim Agreement has an in-built ambiguity.¹⁰ While it can be helpful when working towards an agreement to keep it ambiguous as regards particular points, the ambiguities become obstacles in the implementation stage, particularly if they involve politically sensitive issues.

Ambiguities
become obstacles

Another impediment to swift implementation is the problem of funding for Palestinian projects. This problem is only minor since there are willing donors active in the Palestinians water sector.¹¹ The ongoing al-Quds *Intifada*, which started in autumn 2000, has also had a negative impact on the implementation of the agreement since there are various problems associated with the movement of PWA personnel as a result of closures, Israeli refusals to grant permits and so on.¹² The Palestinians also highlight the fact that there is a difference depending on whether Likud or Labor is in power in Israel. According to Anan Jeusi, more project proposals are accepted in the JWC if Labor is in power in Israel than if Likud is.¹³ Thus, internal Israeli politics are intimately linked to what it is possible to do in the JWC.

Although various problems have hampered the implementation of the agreement, both parties acknowledge the importance of it being in place. Indeed, even in the midst of the latest tensions during the current *Intifada*, the work of the JWC continues. A joint statement of 31 January 2001 from the Israeli and the Palestinian heads of the JWC reaffirmed their commitment, despite exogenous challenges, to continue their

⁹ Barghouti, Ihab, personal communication, Ramallah, 27 Nov. 2002.

¹⁰ Shamir, Uri, personal communication, Haifa, Israel, 30 Apr. 2001.

¹¹ Jarrar, Ayman, personal communication, Delft, The Netherlands, 22 Nov. 2002.

¹² Jarrar, personal communication, 22 Nov. 2002.

¹³ Jeusi, Anan, personal communication, Amman, Jordan, 9 Mar. 2002.

Keep water out of
the conflict

cooperation. In the declaration the parties, represented by the head of the PWA, Nabil el-Sharif, and the head of the Israeli delegation to the JWC, Noach Kinarty, promised to take all necessary steps to keep water out of the conflict and also appealed to their respective constituencies to refrain from damaging water infrastructure (Schiff, 2001).

In the regime literature it is argued that regimes function as learning processes and can hereby also be a place for the policies of parties in a regime to converge, thus creating fertile ground for increased cooperation (Mayer, Rittberger and Zürn, 1993). Behavior along these inherently constructivist lines of thinking is not immediately apparent in the Israeli–Palestinian water relations. However, both parties acknowledge that the joint mechanism for dealing with their transboundary waters is necessary.¹⁴ This is a result of an appreciation on both sides of the fact that they are linked by their hydrological interdependence. It is also acknowledged that a level of trust has been built in the JWC, in particular on a professional level.¹⁵ Thus the impediments to implementation seem to be related more to the politics of the region than to problems on a professional (meaning technical) level.

According to regime theory there are various ways in which regimes come into existence. The realist argument—that regimes are created by powerful hegemon because it serves their interests—seems to have some bearing in this case as it can be argued that the USA has seen a stabilization of the region and cooperation over water as fitting its interest. In addition, Israel, which can be portrayed as a regional hegemon, also views agreement with its Arab neighbors as something that would serve its interests, both from a strategic and from an economic perspective. At the same time, the neo-liberal argument for regime creation, which pinpoints the **demand** for regimes as the most important factor, also has a bearing in this case. This stems from the idea that by creating a regime the parties to the regime can more accurately estimate the costs and benefits of action. In other words the parties to the regime are in a better position to avoid sub-optimal outcomes (Hasenclever, Mayer and Rittberger, 1997). In the case of Israel and the Palestinians, the common appreciation of their hydrological interdependence has spurred a demand for joint management of the shared waters. The epistemic communities approach, which emphasizes shared

¹⁴ E.g., Barghouti, Ihab, personal communication, Ramallah, 27 Nov. 2002; and Ben Meir, Meir, personal communication, Kfar Masorik, Israel, 29 Apr. 2001.

¹⁵ Barghouti, personal communication, 27 Nov. 2002.

knowledge (see Haas, 1994, pp. 128–39, seems to be less applicable in this case since the involvement of experts, or at least the adoption of their advice, is subject to the politics involved in the negotiations.¹⁶

It is concluded that the water relations between Israel and the Palestinians resemble a water regime. There are principles, norms, rules and decision-making procedures (more or less well established), which are deemed necessary for a regime (see Krasner, 1983, p. 1). These features are influenced by the power asymmetry, identified by Keohane and Nye (1989) as a source of power for affecting outcomes, by which Israel is able to exercise a strong influence on the direction implementation takes.

In terms of effectiveness it is concluded that the members have generally abided by the rules of the regime. However, an impediment to the effectiveness of the regime is that, while the Interim Agreement was supposedly negotiated in ‘good will’¹⁷ the political relations that inevitably affect the JWC have substantially slowed its implementation.

In terms of robustness and resilience the Israeli–Palestinian regime is a strong one. In spite of all the political problems during the current *Intifada*, the JWC and its subcommittees have continued to meet and coordinate water-related activities. Fadl Kawash, the director general of the Palestinian Water Authority, stated in late October 2002 in an interview in the *Jerusalem Post* that Palestinians were working together with their Israeli counterparts to prevent pollution of water through the JWC in spite of the *Intifada* (Muscal and Lamia, 2002).

2.1. Implementation as seen from an actor–structure perspective: the Israeli–Palestinian case

Two underlying questions in this thesis are how and why change occurs in the water relations in the Jordan River Basin. It is argued that we need to look at both actors involved in the management of the water resources as well as the structures in which they are working.

When assessing the water negotiations and the work of implementing the agreement in the JWC it is clear that, if the professionals involved in the JWC were not subject to guidance by politicians (which is of course impossible), working relations

The Water
Regime is a
strong one

¹⁶ Abed Rabbo, Alfred, personal communication, Antalya, Turkey, 1 Nov. 2002 and Tammimi, Abdul Rahman, personal communication, Ramallah, 25 Nov. 2002.

¹⁷ Interim Agreement, Article 40, <http://www.mfa.gov.il/mfa/go.asp?MFAH00qd0#app-40> or <http://www.nad-plo.org/fact/annex3.pdf>

Analysis of
actors in their
context

would be much better and it would be possible to look at the various project proposals and so on from a purely technical perspective.¹⁸ Yet, as Hay (1995) points out, agents/actors are never to be analyzed apart from their context. He calls this the contextualization of agency, which means that the social and political action of agents should be analyzed within the structural context in which it takes place.

Thus, while the level of technical understanding between the people participating in the work of the JWC is high, the Israelis as well as the Palestinians are situated in a structural context (meaning, for example, the ongoing political conflict) which affects what they can and cannot do. Indeed, the structures work as a sort of 'boundary' for action. Still, the actors also affect the structures. For example, although almost all of the cooperation between Israel and the Palestinians has been suspended as a result of the *Intifada*, the shared understanding among the participants in the JWC—that it is imperative to continue to have a functioning joint mechanism for water issues between the parties—has resulted in cooperation. The meetings of the JWC and its subcommittees have continued in spite of the outside political structures pointing in another direction.

Israel, too, is
constrained

In terms of structures it is important to note that the structure–agency issue is a matter of power as well. Hay has pointed out that structures can be enabling as well as constraining. He maintains that structures provide resources and opportunities to the powerful while at the same time they constrain the weaker party (ibid, p. 205–06). This issue, which can be seen as an issue of asymmetry in power, is emphasized by the Palestinians as a constraining factor since it is, according to their view, possible for Israel to pressure them in the sphere of water because they are more powerful in terms of economic size, military strength and so on (Jarrar and Awayes, 2002). Still, Israel as well can be seen as being constrained by the international structures (meaning, for example, influence and pressure from the international community), which demand a resolution of the conflict, including a settlement of the water dispute.

To summarize, it is essential to be aware that the political structures (international and national) are important for an understanding of why actors act in the way they do. While the actors who are part of the JWC agree on technical aspects of project proposals that are put forward in the JWC, the structures

¹⁸ E.g. Barghouti, Ihab, personal communication, Ramallah, 27 Nov. 2002; and Cantour, Shmuel, personal communication, Tel Aviv, Israel, 30 Apr. 2001.

sometimes constrain them from acting on a shared understanding. At the same time, they do sometimes act 'against' what may be seen as a constraining factor, for example, when the Palestinian and Israeli head of the JWC jointly called for water to be kept outside the violence of the *Intifada*. Thus actors and structures are mutually constitutive in the interactive process of the JWC.

3. Israeli-Jordanian water co-operation

Like the Interim Agreement between Israel and the Palestinians, the Peace Agreement between Israel and Jordan stipulates that a Joint Water Committee should be established. The JWC is to be composed of three members from each side and be able to call in experts whenever it is deemed necessary.¹⁹ The JWC that was created is responsible for the implementation of the water clauses of the Peace Treaty. Thus, in order to be able to assess the pace and quality of the implementation of the treaty, it is relevant to study the work of the JWC.

A tool for
creating
peace

Before embarking on an analysis of the actual work of the JWC it is important to view the history of Israeli-Jordanian water cooperation and coordination. Water has been portrayed by some as a reason for conflict and even war in the Jordan River Basin. However, authors who focus on the potential for war, apart from ignoring the ameliorating factor of virtual water, have also tended to neglect that something that might be called a water regime has been in place regulating the water relations between Israel and Jordan since the early 1950s. The common understanding, reached in UN-led talks that started in the 1950s, on the use of the disputed waters of the Jordan River Basin between Israel and Jordan during a period when they were *de jure* in a state of war, is a good example of a water regime that greatly reduced the tension between two adversaries.²⁰ As such the water regime could be seen as an example of a CSBM.²¹ Dinar (2000, pp. 378–79) argues that the USA viewed cooperation on water issues in the Jordan

¹⁹ See Treaty of Peace between the State of Israel and the Hashemite Kingdom of Jordan, Article 6 and Annex I. The treaty is available at <http://www.mfa.gov.il/mfa/go.asp?MFAH00pa0>.

²⁰ UNTSO (the United Nations Truce Supervision Organization), which was put in place to supervise the truce between the parties, was the umbrella that was used for the meetings. However, Haddadin (Personal communication with the author, Delft, The Netherlands, 20 Nov. 2002) maintains that what has been labeled the picnic table talks is in fact nothing new but just an increased use of the UN mechanism that was put in place in 1949 to supervise the truce.

²¹ For a good discussion on CSBMs see Jones, 1998.

Basin as a tool for the creation of peace in the region. Consequently, the realist argument that the interests of hegemons create regimes seems to have some bearing in this case. However, there was also a **demand** for the regime from the countries, which fits the neo-liberal argument, regarding the nature of coordination of the shared water resources.²²

Regardless of how the regime came about, it has provided a means to build trust between the states and has facilitated the development of friendly relations. Furthermore, the 1955 Johnston plan for the water management in the Jordan River Basin, which was facilitated by a US team of experts, can be seen as a part of a water regime (or the beginning of a regime), despite the fact that it was not formally recognized by the states (Wolf, 1993, pp. 797–839). The plan has been used as a sort of baseline for water relations in the basin. It shall be noted that, while some of the recommendations in the Johnston Plan were adhered to, many were not, which is quite in contrast with what many of the textbooks on water in the Middle East say.

The water agreement between Israel and Jordan, which is a part of the Peace Agreement signed 1994, can be seen as having enhanced and formalized the regime cooperation between the two states. The treaty, however, stipulates the rights and obligations of the two parties, while the regime concerns mainly the actual behavior of the parties to the regime. Keohane (1984) holds that international regimes should be distinguished from specific interstate agreements and argues that a major function of regimes is to facilitate the making of agreements. Young (1989), however, does not agree. He argues that if that view of regime analysis were adhered to it would merely resemble an analysis of explicit bargaining. In line with the argument of Young, I view the Israeli–Jordanian water relations as a water regime even though a formal agreement is in place.

Consequently the work of the JWC and the implementation of the water clauses of the Peace Treaty should not be viewed as separate from the history of water cooperation and coordination. Even before the actual treaty, principles and norms for the water relations between the parties existed. **Principles** involve goal orientation and beliefs at a general level in areas such as the environment and security. **Norms** describe general rights and obligations, which operate mainly on the level of issue areas but are still at a very general level. Hence the basics of the regime were in place before the peace negotiations started. In a fully-

²² Haddadin, Munther, personal communication, Delft, The Netherlands, 20 Nov. 2002.

fledged regime there are also **rules** which are specific prescriptions and proscriptions for action that are often stated in a formal agreement such as the water clauses in the Israeli-Jordanian treaty. In addition, there are **decision-making procedures** in a regime, which are prevailing practices for making and implementing collective choices. These can be seen to be manifest in the form of the JWC and its procedures for taking decisions.²³

The ways in which the water-related parts of the Jordanian-Israeli Peace Treaty and the Palestinian-Israeli agreement are being implemented are similar in some senses but at the same time very different since in the former case there exists a final peace treaty while in the latter there is only the Interim Agreement.

Allan argues that the implementation of the water parts of the Israeli-Jordanian Peace Treaty is not unproblematic but is happening at a reasonable pace (Allan, 2001, p. 219). Below the various aspects of implementation are discussed, both those that may be viewed as problematic and those that have been effectively implemented.

Among the issues with which the JWC has had to deal are a number that have caused disagreements and thus delays. According to Haddadin, there has been a 'slippage of dates' on the part of Israel in the implementation of its commitments to Jordan. For example, according to the agreement Jordan shall be entitled to equal amounts of water in relation to Israel from the lower Jordan River. However, in order to decide the exact amount a survey of the existing Israeli use had to be conducted and agreement has not been reached about how to conduct it. Thus, the Jordanian argument is that Israel is deliberately delaying action that is needed as background for the implementation of the water clauses of the treaty. Furthermore joint studies on water resources that were to benefit data exchange financed by the European Union (EU) were, as seen from a Jordanian perspective, delayed in part by Israel through its bureaucratic procedures. Dureid Mahasneh, who was the Jordanian head of the JWC from 1996 to 1999, argues even that the Israelis were obstructing the implementation of the treaty.²⁴ One of the heads of the JWC from Israel, Meir Ben-Meir, also maintained that there were problems in the implementation of the agreement and

Disagreements
cause delays

²³ For the ingredients of a regime see Levy, Young and Zürn, 1995, pp. 273-74.

²⁴ Mahasneh, Dureid, personal communication, Amman, Jordan, 9 Mar. 2002.

the work of the JWC, although even so both parties recognized that it was imperative that the committee stay in place.²⁵

Furthermore, Haddadin also attributes implementation problems to ineffectiveness on the Jordanian side, thus recognizing that Israel was not the only problem. While the donors, in particular the EU, acted fast in securing financial support for joint projects, there were sometimes disagreements over which firms should carry out studies and also delays in processing agreed terms of reference for consultancies owing to the bureaucratic procedures of the parties. In addition, work to identify the additional water of 50 mcm per year for the benefit of Jordan has not seen much progress (Haddadin, 2001, pp. 412–15). This is because there is disagreement as to who should bear the cost of the additional water. According to Israel it is Jordan that should bear the cost since the water is for its benefit. Not surprisingly, Jordan does not agree.²⁶ While Jordan has proposed that the additional 50 mcm should be taken from Lake Tiberias, Israel has proposed a scheme for reclamation of the Jordan River coupled with desalinated water from the saline springs of the Lake Tiberias and Bissan area. Until this has been implemented Israel has agreed, on a temporary basis, to supply Jordan with 25–30 mcm per year of Tiberias water (el-Nazer, 1997).

Political changes
affect water relations

It should also be noted that, from a Jordanian perspective, the changes in the political scene in Israel which brought Likud to power in 1996 also affected its water relations with Israel.²⁷ According to Haddadin the meetings became intermittent and less productive, although some studies were implemented. On technical matters, however, the working relations between Israel and Jordan still functioned reasonably well.²⁸

Having noted the problematic aspects of the implementation process, it is also important to discuss the positive aspects. For example, the canal for storage of Yarmuk water from Jordan in Lake Tiberias was built quickly and was inaugurated by King Hussein at the beginning of July 1995. However, as was discussed in section 4.5.2 on risk in the negotiations, there are no provisions for what to do when there is a drought. This is a serious issue for the parties. Apart from the problems of 1999 when Israel did not want to supply Jordan with what was stipulated (although it eventually did), there has been no problem in the transfer of

²⁵ Ben Meir, Meir, personal communication, Kfar Masorik, Israel, 29 Apr. 2001.

²⁶ Shamir, Uri, personal communication, Haifa, Israel, 30 Apr. 2001.

²⁷ Mahadin, Kamal, personal communication, Amman, Jordan, 9 Mar. 2002; and Haddadin, 2001, p. 414.

²⁸ Alem, Zafer, personal communication, Amman, Jordan, 10 Mar. 2002.

water from Israel to Jordan.²⁹ Trottier (1999, p. 68–69) reports about fears on the Jordanian side that the quality of the water that Israel releases to it in the summer is of much worse quality than what it receives from Jordan in the winter (from the Yarmuk). However, according to Jordanians involved in the JWC, who are responsible for the water that comes from Israel, the water released has been of high quality.³⁰ The joint project to bring water from the Red Sea to the Dead Sea, announced on 1 September 2002 at the World Summit for Sustainable Development in Johannesburg, can also be counted as evidence of positive tendencies. The aim of the project is to reverse the decline in the water table of the Dead Sea.³¹

The effectiveness of the regime between Israel and Jordan has been limited since conflicts between them (not over water) have forced them not to abide by the rules of the water regime at all times. That said, it is apparent in the agreement from 1994 that many of the principles existing on the international level, such as the provision not to cause ‘significant harm’, have been incorporated. Furthermore, a joint institution (the Joint Water Committee) has been established in order to implement and monitor the principles agreed upon. It is positive to see that emphasis has been put on cooperation in the maintenance of the common resource.

It is concluded that the regime it is a rather strong one in terms of its robustness and resilience. The last time it was severely challenged was during the drought in 1998–2000, which produced a disagreement over allocations in periods of drought between Israel and Jordan (see also section 4.5.2). This was partly because no provisions had been made for drought in the agreement from 1994. The conflict was, however, resolved and the norms, rules and principles that existed in the water regime contributed to this end.

3.1 Implementation as seen from an actor–structure perspective: The Israeli–Jordanian case

Above it was concluded that neither an approach that is confined to a structural analysis of the problems at stake nor an approach

Causing no significant harm

²⁹ Alem, personal communication, 10 Mar. 2002; Mahadin, Kamal, personal communication, 9 Mar. 2002; El-Nazer, Hazem, personal communication, Amman, Jordan, 11 Mar. 2002; and Haddadin, 2001, p. 414.

³⁰ Alem, Zafer, personal communication, Amman, Jordan, 10 Mar. 2002 and El-Nazer, Hazem, personal communication, Amman, Jordan, 11 Mar. 2002.

³¹ http://www.johannesburgsummit.org/html/whats_new/feature_story33.htm. See also Mutaz, 2002.

that is solely actor-oriented will give us a satisfactory picture of why some items have been implemented and others have not with respect to the water clauses of the Israeli–Jordanian Peace Treaty. The concept of a “contextualization of agency” put forward by Hay (2002, p. 190) is central for an understanding of the work of the main cooperative and implementation-oriented forum—the JWC. This essentially implies that every action in the JWC should be analysed in its broader political context.

The working relations within the JWC, on a professional level, can be seen as functioning rather well.³² This stems from a joint professional understanding of the importance of having a function in place that enables cooperation on the shared waters. At the same time the institutionalization of the JWC as an arena for discussion, coordination and cooperation can be seen as a structure that enables the professional understanding to grow.

However, there are also ‘external’ structures that can effectively constrain or enable the work in the JWC and, consequently, the implementation of the agreement as well. As mentioned above, the change in government in Israel from Labor to Likud affected the work of the JWC and was perceived by the Jordanian side as having delayed implementation. While the actors within the JWC (from both parties) had a wider range of avenues for action under a Labor government in Israel, the room for maneuver decreased during the Likud period. Thus, the surrounding political environment effectively sets the boundaries for what has been feasible in the water sector.

When assessing the influence of structural and actor-related reasons for cooperation (or non-cooperative behavior) over water, it is important to acknowledge the positive impact (from a pro-cooperation perspective) that the characteristics of the water relations regime between Israel and Jordan have had.

4. Water regime formation in the Jordan River Basin: An explanation for transboundary water cooperation?

At the beginning of this chapter it was hypothesized that transboundary waters created a rationale for cooperation through an acknowledgement of the hydrological interdependence of the parties. From the analysis made in this chapter, centring mainly on the respective JWCs, it is concluded that the arrangements for

³² Alem, Zafer, personal communication, Amman, Jordan, 10 Mar. 2002; Mahadin, Kamal, personal communication, Amman, Jordan, 9 Mar. 2002; El-Nazer, Hazem, personal communication, Amman, Jordan, 11 Mar. 2002; and Ben Meir, Meir, personal communication, Kfar Masorik, Israel, 29 Apr. 2001.

The professional understanding is growing

handling the shared waters between Israel and Jordan and between Israel and the Palestinians can justifiably be called a water regime. It is clearly understood by all parties that the cooperative structures the JWCs provide are essential for the management of the water resources they share.³³

A good example, which shows that the importance of transboundary water cooperation is understood not only at the state-to-state level but also at the local level, can be found in the cross-border cooperation between the Israeli city of Emeq Hefer and the Palestinian city of Tulkarem. The 'green line'³⁴ divides those cities but their respective leaders are engaged in an ambitious program to manage their shared water.³⁵ Thus local initiatives also contribute to the building and further institutionalization of the water regime in the region.

A good example

4.1 Limitations of regime theory in the Jordan River Basin case

While regime theory contributes to our understanding of how water cooperation might come about it has, like any other theory, its limitations. An obvious objection to functionalist regime theory is that it is somewhat blind to the fact that water may be subordinate to much more important areas of dispute. The hierarchy of issues is important in this regard. A hydropolitical realist objection to the focus on water experts would be that it is the interests of the powerful that make regimes come about. Hence, the cooperation between Jordan and Israel would be a result rather of US interests than of anything else. Furthermore, Kütting argues that regime theory concentrates too much on action and behaviour and thereby misses the wider social and historical process (Kütting, 2000, p. 19–22). Thus, while a regime exists, it is not an all-encompassing explanation but rather a way through which insights into the institutional aspects of the water cooperation in the Jordan Basin are to be found.

5. Policy relevance

In particular, two areas of importance from a policy perspective are identified through the research.

³³ Alem, personal communication, 10 Mar. 2002; Mahadin, personal communication, 9 Mar. 2002; El-Nazer, personal communication, 11 Mar. 2002; and Ben Meir, Meir, personal communication, Kfar Masorik, Israel, 29 Apr. 2001.

³⁴ The border between Israel (pre-1967) and the West Bank which was part of Jordan under the armistice line of 1948.

³⁵ Itzkovitz, Nahum, personal communication, Antalya, Turkey, 2 Nov. 2002; and Feitelson, Eran, personal communication, Jerusalem, 24 May 2001.

Long-term
support

- First, the research shows that water (and water cooperation) is intimately linked to politics. For those who come from a political science background this is perhaps to state the obvious, but from a water practitioner's perspective it is seldom well understood. While donor agencies and international organizations sometimes see water as separated from other fields, this research suggests that such an approach will lead to misunderstandings and disappointments, for example, with regard to why support activities do not accomplish the expected results in the estimated time. Furthermore, and as has been pointed out by Waterbury in the context of the Nile Basin (Waterbury, 2002, pp. 26–27), the development of water policy with regard to the shared waters of the respective states is a very complex process and is determined by considerations stemming from both the domestic and the international political arena.
- Second, observations have been made with regard to the evolution of cooperation on transboundary waters. My conclusion is that by long-term support to processes of establishing cooperation on a shared water resource donor agencies and international organizations can play an important role. In the Israeli–Jordanian case it is evident that the role of the UN Truce Supervision Organization (UNTSO), which worked as an 'umbrella' for discussions on water coordination in spite of the absence of a peace agreement, was important. The activities, involving many meetings between Israelis and Jordanians, started as early as the 1950s and continued up until the Peace Treaty in 1994. As in this case, the process of developing a water regime is often a long one and it meets setbacks on occasions. It must be remembered that the institutionalization of cooperation requires time (and not just a signed agreement). The financial support international donor institutions could provide to bring about water cooperation is seldom rewarding in the beginning and can be seen as a high-risk investment. However, if cooperation is achieved and institutionalized the rewards are great since cooperation and coordination over a shared body of water are prerequisites for many other water development projects as well as rural development projects. The involvement of donor institutions should not be too far from the national interests of their clients (the riparians) but should stimulate collective action, albeit stopping short of trying to impose it. Thus for a donor or organization to engage in building cooperative structures in a shared river basin demands courage and a

vision that will have to go beyond the lifetime of a single project.

6. Conclusions

The focus of analysis in this chapter has been on the actual implementation of the agreements (both final and interim) between the parties in the Jordan River Basin. The case of Israel and the Palestinians is different from the Israeli–Jordanian case in that the agreement to be implemented is an interim one, while Israel and Jordan are working with the implementation of a final agreement.

Within an overall actor-structure theoretical framework, regime theory has been used to analyze the implementation process, which has mainly taken place within the respective Joint Water Committees. It is concluded that it is imperative to analyze the actions of actors in the committees within their proper structural context, which means that an account of linkages between water and other political issues have been incorporated into the analysis.

With regard to the implementation of the various parts of the agreements it is concluded that they are often being implemented somewhat painfully. That said, it is also evident that in the Israeli–Palestinian case many parts of the interim agreement awaiting implementation are being delayed despite a general understanding on part of the professionals (among experts) that implementation should be carried through.³⁶ Furthermore, while the ambiguities that exist in the agreements are useful when trying to reach an agreement, they work as obstacles in the post-agreement phase when they are to be implemented. For example, the lack of provision for drought in the Israeli–Jordanian agreements has served to create tension between the parties and has thus tested the robustness of the agreement. It is concluded that the power asymmetry between the parties, which is particularly evident in the case of Israel and the Palestinians, effectively gives Israel the upper hand in the decisions with regard to the implementation of the agreements.

Furthermore, it is noted that, in comparison, the Israeli–Jordanian cooperation and implementation of the agreement can be described as fairly smooth while the Israeli–Palestinian cooperation and implementation of the Interim Agreement have

Implementing
the agreements

³⁶ Politically sensitive issues, such as the locations for the drilling of Palestinian wells in the West Bank, are generally blocked by Israel for hydrological reasons but it seems that there are often political reasons for those decisions. This is also unofficially acknowledged by Israeli officials.

encountered obstacles. These obstacles cannot be attributed to problems of cooperation on a professional level. They are rather the result of the surrounding political circumstances, which are much more sensitive and problematic in the case of Israel and the Palestinians than in the case of Israel and Jordan.

In spite of the problems in implementation there exists a kind of contained mechanism that guides the action of the parties. This can be called a water regime. While this does not imply that there are no problems in the sector, it is concluded that the evolving principles, norms, rules and decision-making procedures resemble a water regime. In addition, during times of pressure on the regime, such as the drought in 1999, which resulted in strained relations between Israel and Jordan, or the *Intifida* between Israel and the Palestinians that started in September 2000, the water regime has showed robustness and resilience despite the fact that its effectiveness had been hampered.

Hence it is concluded that the international water regimes that exist might be seen as a conflict-mitigating factor since they promote basin-wide interstate cooperation and thereby increase water security. The analysis of the water cooperation in the Jordan River Basin through the prism of regime theory has been helpful in explaining why cooperation has occurred in spite of the significant political conflict. When a convergence of values has occurred within a regime and the cooperation has been institutionalized it is more difficult than one might think to reverse or end this cooperation.

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Interest Groups as Local Stakeholders involved in the Water Politics of a Transboundary River: The Case of the Proposed Epupa Dam across the Kunene River¹

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Abstract

Pervasive phenomena of any society, interest groups have the ability to either enhance or constrain government policies. Considerable friction, often leading to disputes, between interest groups and governments might occur if interest groups, as local stakeholders, should decide to influence government policies not to implement infrastructure on transboundary rivers. With this in mind, this paper explores the question: can local stakeholders break the political deadlocks in transboundary water cooperation? By analyzing the transnational role and involvement of interest groups in the water politics of the proposed Epupa Dam across the Kunene River, it is found that interest groups and the Namibian government are unable to break the political deadlock concerning the dispute over the proposed dam. This is because of incompatible resource use perceptions held by both sides, as well as contrary norms developed by the actors to further their arguments for or against another dam across the Kunene.

Keywords: Interest groups, disputes, water politics, political deadlock, 'agential power', Kunene River, proposed Epupa Dam.

Can stakeholders break political deadlocks?

¹ Based on research for a D.Phil thesis with the title: "The Transnational Role and Involvement of Interest Groups in Water Politics: A Comparative Analysis of Selected Southern African Case Studies." (<http://upetd.up.ac.za/thesis/available/etd-09072005-122600/>) under the supervision of Professor Anton du Plessis in the Department of Political Sciences at the University of Pretoria.

1. Introduction

Interest groups have always been omnipresent phenomena in any society. These actors are defined as non-state entities that influence government policies, and the policies of non-state and inter-governmental organizations (IGOs) in the national political and international affairs domain. Interest groups therefore have a relationship with the state and other domestic and international actors regarding policies. With this in mind, it can be asked if interest groups, as local stakeholders in water politics, can break the political deadlocks in transboundary water cooperation? Answering this problem statement will be the main objective of this paper.

This paper consists of a number of parts. In the first part, a number of theoretical concepts, aspects and phenomena will be outlined and defined, which will provide the background in solving the problem statement. The concepts water politics, interest groups (the different types and their agential roles), a political deadlock, and dispute and 'agential power' are defined. In the third part, the role and involvement of interest groups in the Kunene River basin, with respect to the proposed Epupa Dam, is discussed. The fourth part is an analysis, based on the case study of interest groups as local stakeholders having a role to play in transboundary water interaction. In this penultimate part of the paper, the problem statement is answered. Lastly, a conclusion is drawn.

2. Theoretical stepping stones

A number of theoretical stepping-stones are presented to progress towards answering the problem statement. The purpose of these is to function as a framework for analysis with which to analyze the problem statement in a coherent and orderly fashion. These theoretical aspects concern the definition and nature of water politics, interest groups as agents, political disputes and deadlocks and the types of 'agential power' an actor possesses.

2.1 Water politics

A number of definitions of water politics (or hydro politics as it is also known) have been developed during the past decade. Water politics was first defined by Elhance (1997, p. 218) as the "systematic analysis of interstate conflict and cooperation regarding international water resources". This definition is too restrictive, for it takes interstate interaction as the only level of

analysis in water politics. For this reason, I have (1998, pp. 4-5) defined water politics “as the systematic investigation of the interaction between states, non-state actors and a host of other participants, such as individuals within and outside the state, regarding the authoritative allocation and/or use of international and national water resources.”

This definition has been criticized by Turton (2002, p. 16) as being “fuzzy” or vague, but “wider” than Elhance’s definition. For Turton, “the literature [on water politics] can be categorized according to either of these definitions, but there is no single definition that covers all hydropolitical analysis.” In order to define water political analysis in its entirety, Turton (2002, p. 16) “return[s] to a first principle [basic]” of politics, and uses David Easton’s (1965, p. 21) definition of politics as “the authoritative allocation of values in society”. By doing this, Turton (2002, p. 16) defines water politics as “the authoritative allocation of values in society with respect to water.” Although similar to Meissner’s definition of water politics, Turton’s definition is useful in that it places the spotlight, indirectly and non-intentionally though, on values, including norms, in society regarding water resources. Therefore, Turton’s definition takes the clarification of water politics a step further than Elhance and Meissner, to include the normative aspects of water politics. Nevertheless, Turton’s definition does not tell us much, if anything at all, about the levels or units of analyses from which to approach water politics.

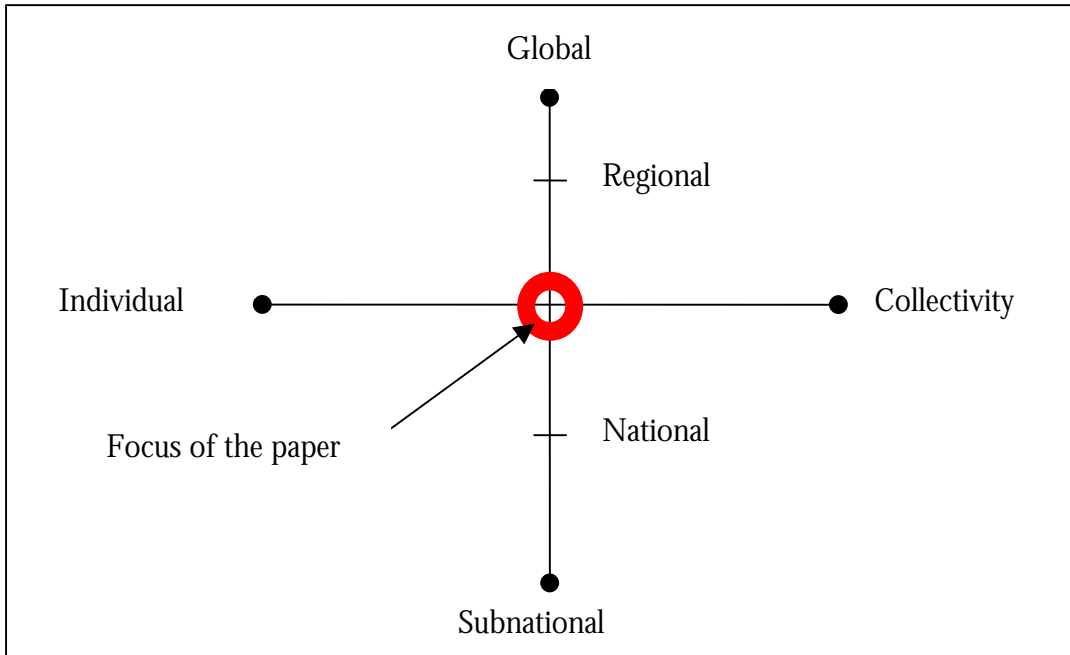
Defining water politics

Regarding units and levels of analyses, Rosenau (1990, p. 119) distinguishes between micro (individuals that is citizens, official leaders and private actors) and macro actors (collectivities, like states, sub-groups, transnational organizations, leaderless publics and movements). For instance, interest group activities are usually confined to the interaction between the sub-national and national levels. Nonetheless, because their actions are unrestricted to domestic politics they are also involved in politics at the global level. Therefore, an approach will be followed that concentrates on the synthesis between the micro and macro actors and the sub-national, national, regional and global levels of analysis (see Figure 1).

With these different definitions of water politics and units and levels of analyses in mind, and with none of them elaborating on the role of norms in water politics, a new definition of water politics will read as follows: Water (hydro-) politics is the transnational interaction, through norm creation and utilization, between a plethora of non-state and state actors, varying from individuals to collectivities, regarding the authoritative allocation and use of, and perception towards domestic and international

water resources. Because norms play an important role in this definition, norms will be defined “as shared (thus social) understandings of standards of behavior” (Klotz, 1995, p. 14).

Figure 1: Focus of this paper



Even so, this definition is not the last say on what water politics entails. Furthermore, an important theoretical and methodological consideration to keep in mind is that none of the above definitions is incorrect. Depending on the research agenda, any of these definitions is employable to analyze water politics. Nevertheless, the new definition of water politics alludes to transnational interaction between parties and non-state actors. These non-state actors may be interest groups.

2.2 Interest groups as agents

An interest group is defined as a non-state *entity* that influences government policies and other non-state institutions in the national and international political domains (Anderson, 1979, p. 41; Wilson, 1990, p. 1; Wright, 1996, p. 22). The main objective of an interest group is to influence public policy or projects and programs contained within a public policy arena. Notwithstanding the main function of interest groups, they are also categorized into five types, each with its own characteristics (see Table 1).

Table 1: An interest group typology

Type of Interest Group	Characteristics
<i>Anomic</i>	Spontaneous; based on strong emotions; unorganized; short-lived; unpredictable; uncontrollable and the tactics are sometimes illegitimate e.g. riots.
Communal	Members know each other on a personal basis; membership is not required; and groups are established on a common origin, tradition or loyalty e.g. ethnic groups, families, tribes, and castes.
Non-associational	Rarely well organized; activities are eventful; membership based on interests of region, religion, profession, kinship, ideology; and interests are articulated on an <i>ad hoc</i> basis e.g. consumer groups.
Associational	Limited number of goals; represent the interests of a certain group of people in society; formal procedures of formulating interests and demands; have an employed staff; a permanent character; is institutionalized; and is divided into promotional and sectional groups e.g. Greenpeace.
Institutional	Formally organized; have other social functions; part of a governmental department; exercise influence through the governmental apparatus; and can be powerful because of insider status e.g. a group of persons within the Department of Water Affairs and Forestry (DWAFF).

Adapted from Almond and Powell (1995); Heywood (1997); Sadie (1998); and Grant (2000).

That being said, interest groups operate as agents within society through the different roles they play. Regarding their agential roles, the public policy process is dynamic and can be seen as circular, rather than linear. It has a number of processes. These are agenda setting, policy formulation, legitimization, organization, implementation, evaluation, and policy termination (Hogwood and Peters, 1983, p. 8; Booyesen and Erasmus, 1998). Interest groups can be involved throughout this cyclical progression. It is within this dynamism that interest groups start to become relevant actors on the water political stage. They will play certain roles within this arena and articulate some of the key issues contained within it or add new issues **via** their role-playing.

What are the roles interest groups can play at any moment in time? Before answering this question, it will be useful to define a role. A role means a contribution, or a fulfilled function; an influence or impact; anticipated behavior based on certain rules; a

The roles of interest groups

Influencing
actors

course of action; a part in a larger script; policy decisions; a status, rank, or position in the political process. A role refers to an interest group's own definition of types of decisions, commitments, rules and actions to be taken, and its functions in the international and domestic political system. In other words, "who does what, when, and how" (Holsti, 1970, pp. 245–246; Le Prestre, 1997, pp. 3–4) and for what reason are the main considerations regarding roles.

In this context, interest groups are participants, representatives, and influencing actors in the political process. They participate as agents, affording them agential power. The lexical definition of an agent states that it is "one who or that which exerts power or produces an effect' and 'one who acts for another in business, politics, etc." (COD, 1982, p. 18). Thus, interest groups play an agential role in society because they can produce an effect and represent others in politics through a course of action, contributions, fulfilled functions, certain types of behavior, and from a status, rank, or position in the political process.

Interest groups have two important roles in society. Firstly, and as has been mentioned before, they have an influencing, and secondly a representation role. Other roles complement the function of influencing policies and the representation of the interests of their members, or they are subordinate to these main roles. The role of interest groups in water politics will depend on the following factors, namely: the issues they are concerned with; their targets of influence; their methods of articulation; the type of interest group; the cultural setting in a society; the political situation and the status of an interest group. The roles are grouped together under three generic categories: discursive, participatory and philanthropic roles (see Table 2).

Through the two main roles (influencing and representation) interest groups engage government. This interaction can either be cooperative or conflictual, or, more realistically it might resemble a mixture of the two types of relationships (Puchala, 1971, p. 5). These types of interaction bring to mind the nature of disputes and political deadlocks.

Table 2: Interest group roles

Generic Roles	Discursive	Participatory	Philanthropic
Agential roles within the broader generic categories	Opinion generation agent	Interactive agent	Guardian agent
	Standard creation agent	Representation agent	Assistant agent
	Norms creation agent	Transnational agent	Safety provider agent
	Epistemic agent	Policy shaping (influencing) agent	Empowerment agent
	Agenda construction agent	Institution construction agent	
		Watchdog agent	
	Oppositional agent		

2.3 Political dispute and deadlock

Unpacking a number of definitions of a dispute and deadlock will reveal the nature of these occurrences. According to Fox (1997, p. 81) a dispute is a “[d]isagreement on a point of law or fact; a conflict of legal views or of the interests between two persons [or parties]”. Bailey (1977, p. 81) says a dispute is a “specific disagreement, which takes the form of claims between parties, which are met with refusals, counter-claims, denials, counter-charges, accusations, etc. A dispute relates to a question of material or moral interest, or concerns the interpretation of a point of law, usage, prevention of usage, abuse, violation of a right, etc.” Furthermore, Moore (1986, p. ix) equates a dispute with conflict. Thus, a dispute does not always and necessarily imply armed violence between states, or states and non-state actors like terrorist organizations. A dispute can also be an argument or a disagreement between two people or collectivities, like an interest group and a government. In so far as disputes are pervasive in human relationships, Anstey (1993, p. 12) observes that: “It [a dispute] is readily apparent in international, intergroup and interpersonal levels of interaction. It is present in relations in politics, communities, families, friendship groups, churches, social clubs, business and labor, finding expression in a wide variety of forms from war to **‘friendly discussion’** (emphasis added). Thus, conflict is endemic to human society and has a plethora of forms, from armed conflict to ‘friendly disagreements’.

Cooperative or
conflictual?

Strong emotions

Having established the nature and extent of a dispute it will be necessary to look at the sources and types of disputes. Five major types and sources are isolated. The first is an interest dispute, which is caused by actual or perceived competition over substantive, procedural or psychological interests. A structural dispute (the second cause and type) is founded by unequal control, ownership, or distribution of resources or by environmental or time constraints. The third cause or type is value disputes, which may be caused by differing ideologies, religious beliefs, actual norms and ethnicity. Data disputes are rooted in a lack of information, misunderstanding, or differences over the interpretation or relevance of data. Lastly, relationship disputes are caused by breakdowns in intergroup, intersocietal acceptance, linking communications and understandings. Strong emotions, hostile stereotypes and negative repetitive behavioral patterns emerge to dominate relations between parties quite independently of substantive differences they may have (Moore, 1986, p. 27; Anstey, 1993, p. 13). As has been said, without a dispute the possibility of a political deadlock is not possible. Similarly, there is also the potential for cooperation in a disputed relationship should the deadlock be broken.

A deadlock, defined as a complete standstill, lack of progress, or a complete failure to reach an agreement or settle a dispute, is categorized into three distinct types. The **first** type is a process deadlock. This deadlock takes place in a situation where neither party can exert enough pressure on the other to force a change in perception or behavior. In such a situation, each party regards its own position as non-negotiable and looks to the other side for concessions. Each side believes that it is not going to be necessary for it to make concessions, but instead is prepared to let the dispute remain rather than to negotiate. The **second** type of deadlock, an issue deadlock, occurs at that stage in the negotiation process when the parties have some idea of each other's resistance points, and are beginning to look for solutions to resolve the dispute. The entrenched perceptions and hardened attitudes of the parties toward each other will often result in the parties being unable to find a solution to move towards a final settlement. A **third** type of deadlock, called an image loss deadlock, normally transpires during the closure phase of negotiation when one, or both parties, needs to make concessions and there is a concomitant loss of face by negotiators who perceive themselves as losing ground. The way in which this deadlock is resolved often has important implications for the future relationship between the parties (Fells, 1986, p. 18; Radford and Glaser, 1993, p. 61, 62).

The definition, causes and types of political disputes and deadlocks indicate what the possible nature of a relationship between two individuals or collectivities might be. Such relationships hint at the power of such actors, because power only attains meaning when it is used in a relationship between two actors, especially when attempting to influence each other or to affect behavior (Ray, 1990, p. 195). In this regard, 'agential power' is important to consider.

2.4 'Agential power'

There are three types of 'agential power': domestic, international and reflexive. 'Domestic agential power' is the "ability of the state to make domestic or foreign policy as well as shape the domestic realm, free of domestic social structural requirements or the interests of non-state actors." 'International agential power' is defined as the "ability of the state to make foreign policy and shape the international realm free of international structural requirements or the interests of international non-state actors." 'Reflexive agential power', furthermore, is the "ability of the state to embed itself in a broad array of social forces, not just the capitalist class, as well as the ability of the state to embed itself within non-class structures (e.g. the normative structure of society)" (Hobson, 2000, pp. 5, 7, 227).

To explain 'reflexive agential power' further, 'the more reflexive of society the state is the greater its ability to enhance its governing capacity; conversely the less reflexive or the more isolated the state is from society, the weaker its governing capacity becomes. In short, the state gains power when it collectively collaborates or makes 'synergistic linkages' with a broad array of social forces and non-state structures'. Thus, states can still have autonomy or agency while at the same time being constrained by social forces. This is called the "paradox of state reflexivity" or the "paradox of state strength" (Hobson, 2000, p. 227). With the focus of 'agential power' on the state, are interest groups also capable of possessing 'agential power'?

Interest groups, as non-state actors, have the ability to enable or constrain state policies and actions. This is an indication that interest groups do possess 'agential power' when in relation with the state (Hobson, 2000, pp. 224, 226–27). This is an indication that 'agential power' only has meaning and substance when two actors stand are in a relationship. Moreover, through the agential roles interest groups play, their 'agential power' comes to the fore. With the theoretical 'stepping stones' being discussed, the transnational role and involvement of interest groups, as local

Reflexive of
society

stakeholders, in the water politics of the proposed Epupa Dam across the Kunene River will be described.

3. Interest groups and the proposed Epupa Dam

This section of the paper looks at the transnational role and involvement of interest groups in the water politics of the planned Epupa Dam across the Kunene River. The section has two parts. In the first portion, the Kunene River is defined as well as the planned Epupa Dam, and in the second the transnational role and involvement of interest groups in the water politics of the dam is discussed.

3.1 The Kunene River

Shared by Angola and Namibia, the Kunene River has a total length of 1,050 kilometres (km), with its headwaters rising in the *Sierra Encoco* Mountains of southwestern Angola, and emptying into the Atlantic Ocean at *Foz da Cunene*. The river has a catchment area of 106,500 square kilometers (km²), and a mean annual run-off of 5,500 million cubic meters per year (mcm/yr). Initially it flows in a southerly direction to the Ruacana Falls for about 800 km, before turning west to form the border between the basin states for the last 340 km. Moreover, from its headwaters near Huambo to its mouth, the Kunene flows from an altitude of 1,900 meters (m) above mean sea level (amsl) (Truebody, 1977, p. 23; Olivier, 1979, p. 123; Meissner, 2000, p. 107; Heyns, 2003, pp. 7, 9).

This feature of the Kunene River has very important implications for both Angola and Namibia, especially when viewed from a developmental perspective. As Heyns (2003, p. 10) succinctly puts it: "In the 340 km between Ruacana and the Atlantic Ocean, the river falls more than 1,100 m, this important feature provides the Kunene River basin with a hydroelectric power potential of approximately 2,400 MW [mega-watt]."

Because of the hydroelectric importance of the Kunene River, a number of dams have been constructed so far across its stream: Gové, Matala, Calueque and Ruacana. Except for Calueque, all three other dams are used for the generation of hydroelectricity, with Calueque, now being rehabilitated, used for the diversion of water into northern Namibia. A fourth dam just below the Epupa Falls is at present being proposed. When built, this dam will be largest of the dams in the Kunene River, with a total height of 150 m, a crest length of 600 m, a reservoir capacity and surface area of 7,300 mcm and 295 km² respectively, an

Angola and
Namibia

installed hydroelectric generation capacity of 415 MW and the ability to generate 1,650 giga-watt-hours electricity per year (GWh/yr⁻¹).²

Notwithstanding the potential for further hydroelectric generation, the proposed dam at Epupa raises a number of environmental concerns, for instance the likely impact it will have on the Himba people's lifestyle, the river's riverine and marine environments and water loss due to high evaporation from the reservoir's surface area. The issue of the Himba's lifestyle is important in the debate surrounding Epupa. The Himba are semi-nomadic herders, keeping cattle, sheep and goats. They move around large areas in Kaokoland, bordering the southern bank of the Kunene, and cross into Angola according to the season for access to food and grazing for their livestock. Cattle's value is primarily cultural, representing power and wealth. Apart from livestock, land is also significant to these people. (Warwick, 1996, pp. 39–40; Pottinger, 1997; FIVAS, 2000; Harring, 2001, pp. 39, 42–45; Heyns, 2003, p. 12). It is against these anthropological, economic, geographical and political circumstances that the dispute between local interest groups and Namibia regarding Epupa should be viewed.

Environmental
concerns

3.2 The transnational role and involvement of interest groups

Because of the environmental concerns regarding the planned dam, a number of interest groups, within and outside Namibia, are influencing the Namibian government and NamPower (the country's electricity utility), not to construct a dam below the Epupa Falls. This interaction has led to a debate between the interest groups, on the one hand, and the Namibian government and NamPower, on the other regarding the merits of the proposed scheme and the likely negative impacts it will have on the Himba people living in the region where the dam will be constructed, and the different environments supported by the river. Before and after 2000, the development of Epupa was on hold because the Angolan government preferred the Baynes site, which is, in Namibia's view, not technically, economically and environmentally the most advantageous site (Heyns, 2003, p. 12). In other words, for a while a difference of opinion between Angola and Namibia existed regarding the selection of a preferable site for the new dam.

Cultural and
religious
identity

² Piet Heyns, personal communication, 17 November 2002; Heyns, 2003, pp. 11, 12.

The Himba community, organized as the Epupa Action Community (EAC), is the interest group that is the most vociferously opposed to Epupa being constructed. This communal interest group is against the proposed dam because, as they and other interest groups argue, it will have a negative impact on their living standards as well as their cultural and religious identity. However, the essence of their arguments against the dam is that the land on which it would be built is **their** land. According to them, the government therefore has no right to take the land away from them to construct the dam. It was in the early 1990s that interest groups started to become involved in the debate surrounding Epupa. This debate is emotion-laden, especially for the interest groups from the environmental and human rights lobbies (IRN, 1997; L. Pottinger, personal communication, 8 June 2000; IRN, 1999a; Miescher, 2000, p. 349; Stott et al., 2000; Haring, 2001, p. 100).

As has been implied, the Himba community is not the only interest group opposed to the planned dam. Other interest groups from Namibia are also directly involved in lobbying the Namibian government and NamPower not to construct Epupa. These interest groups are Earthlife Africa (ELA) (Namibia branch), the Legal Assistance Centre (LAC) and the National Society for Human Rights (NSHR). What is also important to note is that there is a plethora of other interest groups from Germany, Italy, Kenya, Norway, Poland, Slovakia, South Africa, Sweden, Switzerland, the United Kingdom and the United States that are also either directly or indirectly involved in the Epupa debate and supporting the Himba people in their cause. Together with these interest groups, the two basin states and NamPower, the number of actors involved in the water politics of Epupa is a staggering 49 (IRN, 1999a).

What is the Namibian government's position on Epupa? The Namibian government is adamant to go ahead with the proposed dam, taking the stance that the dam will be built, 'not if, but when'. The rationale behind the dam is summarized as follows:

- Hydroelectricity is cost effective. Once a hydropower plan has been built there are no further costs except for maintenance.
- Hydroelectricity is environmentally friendly, which is not the case with coal-fired power stations.
- Electricity might be exported to South Africa and other countries around Namibia, like Zambia and Botswana, earning much needed foreign revenue.

Epupa will make Namibia self-sufficient in electricity, which is not the case at the moment because the country is partially dependent on South Africa for its energy. Also, Ruacana is only producing electricity at 50 percent of its capacity; together with Epupa these plants will add 50 per cent more capacity to the Namibian power grid

The planned dam will also bring much needed socio-economic development to Kaokoland, with schools, hospitals, police stations, and infrastructural developments like roads and electricity supplies. In addition, according to the Namibian government, the living conditions of the Himba will also improve significantly. For instance, in July 2001, the Namibian Deputy Justice Minister, Albert Kawana, said at a seminar, organized by the LAC, that Namibia is committed to building Epupa. He also stated that the Himba have a constitutional right, like every other Namibia citizen, to development, and that the government will make sure that this right is accorded to them (Miescher, 2000, pp. 351, 358, 359; Harring, 2001, p. 55; Maletsky, 2001; Piet Heyns, personal communication, 17 November 2002).

Constitutional right
to development

How did the local interest groups influence the Namibian government and other actors not to construct or support the planned dam respectively? Table 3 indicates the ways in which the local interest groups influenced the Namibian government and other actors as well as the agential roles played during the process.

Table 3: Local interest groups influencing different actors and the agential roles played by the local interest groups.

Interest group	Year	Actor influenced	Influencing technique	Agential role played during use of influencing technique
Himba community	October 1996	Feasibility study team	At a public hearing on the feasibility of Epupa the Himba raised their objections to the dam.	Opositional, interactive, safety provider and opinion generation agent
NSHR	March 1997	Namibian government	Called on the government not to build the dam if it wanted to avoid bloodshed.	Opinion generation and interactive agent.
LAC	March 1997	Namibian government	Warned the government that it will use litigation if the government should go ahead with the dam and the Himba's concerns were not properly addressed.	Opinion generation, safety provider, interactive, agenda construction and oppositional agent.

Interest group	Year	Actor influenced	Influencing technique	Agential role played during use of influencing technique
Himba community	July 1997	Members of the German parliament, European Union (EU) ministers, Managers of financial institutions, NORAD and Norconsult.	Put pressure on the Namibian government not to build the dam, and asked some of the institutions not to finance Epupa.	Transnational and interactive agent
EAC	November 1997	President of Finland, Marti Ahtisaari	Asked the Finnish president to advise the Namibian government not to go ahead with the planned dam.	Oppositional, guardian, policy shaping, transnational, representation, interactive and opinion generation agent.
Local interest groups in concert with transnational interest groups	1999	African Development Bank (ADB)	Letter sent to Getinet Giorgis (division chief industry and infrastructure south region) urging the ADB not to finance Epupa	Oppositional, policy shaping, transnational, interactive and opinion generation agents.
EAC and LAC	November 1999	World Commission on Dams (WCD)	Informed the WCD about the negative impact the dam could have on the Himba in the event of it being constructed.	Opinion generation, transnational and interactive agents.

Sources: IRN, 1996, 1997a, 1997c, 1999a, 1999b; Pottinger, 1997; ELA, 1997; The Cape Times (12 November 1999), Stott et al., 2000.

Gifts to the Himba

What was the Namibian government's and NamPower's reaction towards the lobbying? The reaction of the Namibian government ranged from avoiding the lobbying against it to the presentation of 'gifts', in the form of a speed boat and four wheel drive vehicle, to the Himba. Nevertheless, highlighting some of the reactions will give an indication of the nature and extent of the dispute. The deputy minister of mines and energy, Jesaya Nyamu, responded to the two Himba chiefs visit to Europe by calling it a "well organized farce" and that "environmental extremists in the West" used the chiefs. He was also adamant at a public meeting in 1997 that the dam will be built irrespective of the outcome of the feasibility study. This was also the reaction from NamPower's

managing director, Leake Hangala, when he said that there is a market for Epupa to generate electricity. Regarding the 'gifts' presented to the Himba, these did not have the desired effect, if they were presented to reverse the Himba's stance on the matter. After the boat and *bakkie* (pick-up truck) had been delivered, the Himba remained unbending in their stance towards Epupa (ELA, 1997; Maletsky, 1998a).

In June 1998, Namibia's president, Sam Nujoma, launched a scathing attack on the opponents of Epupa. For instance, he warned foreign nationals who "disturbed the peace" in Namibia that they would be "deported", "got rid off" or "dealt with", with "immediate effect". The LAC, in particular came under severe criticism from the president (Maletsky, 1998b). It is not sure what Nujoma meant by 'dealt with' and 'got rid off', but this is an indication that opposition towards government policy is not taken lightly by the top decision makers of the country. The criticism from the president and the comments made by Nyamu and Hangala are also indications of the government's unrelenting stance towards Epupa.

This attitude of the government towards Epupa was further reiterated in January 2004 when Namibia's foreign affairs minister, Hidipo Hamutenya, said that "a recent meeting between Namibian and Angolan delegations discussed the possibility of accelerating construction of the Epupa power scheme." Hamutenya also indicated that "the process of establishing a power scheme at Epupa would move more quickly this year" (Maletsky, 2004). Therefore, it seems as if the deadlock between Angola and Namibia concerning cooperation over Epupa is on the wane, but the deadlock between the Namibian government and local interest groups remain.

Accelerating
construction

4. Analysis

Having explored the interaction between the local interest groups and the Namibian government, what norms were produced during their relations? Among the interest groups a norm regarding the protection of the Himba's minority rights was established during their lobbying campaign against Epupa. The Namibian government and NamPower practice a norm that socio-economic development of Namibian society through another hydroelectric power plant on the Kunene River is suitable behavior. Thus, for these state entities, utilizing the Kunene River (hydraulic mission) as a source of electricity is an acceptable shared (social) standard of behavior, which is incompatible with the norm established by the local interest groups. These norms

Livelihoods
depend on
ecosystems

are also utilized by the opposing actors to further their arguments for or against the proposed dam. A perception is therefore created by the interest groups that the Kunene River is not only there for the use of the common good of the entire Namibian population, but that the minority rights of the Himba should also be of importance when developing the river further.

Therefore, a dispute does exist between the Namibian government and the Namibian interest groups over the policy of implementing a dam at Epupa. As local stakeholders, the Himba are particularly opposed to any such plan, because they have the most to lose if the dam is built. It is not only their livelihoods that depend on the riverine ecosystems supported by the Kunene, but also their religious and cultural identity that is at stake. For the Namibian government, socio-economic development, not only of Kaokoland, but also of the entire Namibia, is paramount in their push for Epupa. In this case, the dispute can be classified as an interest and value dispute. Firstly, there is actual and perceived competition over substantive interests (the Himba's traditional lifestyle *versus* the further development of the Kunene). Secondly, there are differing ideologies of the Himba and Namibia's ruling party, as well a difference in actual norms (protection of the Himba's minority rights and land claims **versus** the socio-economic development of the entire Namibian population) and ethnicity.

The local stakeholders, especially the Himba people, are not willing to break the deadlock in the dispute with the Namibian government over Epupa. Thus, local stakeholders (interest groups and governments alike) can break the political deadlocks in transboundary water cooperation, if they wish to do so, or they cannot if they wish not to do so. The same holds true for the Namibian government. What is making the deadlock unbreakable, at this moment, is an incompatible resource use perception that both the Himba's and the government possess. Resource use perception is the perceived utilization of a resource within a distinctive mindset. Because of this, the engineer, water manager or top-ranking decision makers, on the one hand, and the environmentalist or local community to be impacted on by the WRMP, on the other, do not see eye-to-eye on the WRMP. Moreover, the dispute or deadlock is sustained by the agential roles played by the interest groups as well as the Namibian government's inability or unwillingness to be more reflexive in its 'agential power' relationship with the local interest groups. Should the government become more reflexive in its stance, in other words, imbed itself into the normative and social structures surrounding the Epupa issue, the dispute might be resolved. At

this stage the deadlock is only a process deadlock, where both parties are unbending towards each other's stance over the issue, which makes room for improvement in the relationship possible. Thus, it depends on state and non-state actors as local actors to break the political deadlocks in transboundary water cooperation.

Only a process
deadlock

5. Conclusion

This paper explored the question: can local stakeholders break the political deadlocks in transboundary water cooperation? The answer to the question was reached by first discussing a number of theoretical 'stepping stones'. Water politics was the first of four of these 'stepping stones'. This was followed by an exploration of interest groups as agents, and the agential roles they can play in society. The definition of a political dispute and deadlocked followed, with 'agential power' defined and classified in the last instance.

By analyzing the transnational role and involvement of local interest groups in the water politics of the proposed Epupa Dam, it is found that the interest groups and the Namibian government cannot break the political deadlock. This is because of a clash of substantive interests, ideology and norms. For the interest groups the traditional lifestyle of the Himba is important, while the Namibian government perceives the Kunene River as an important source of hydroelectricity. There is therefore an incompatible resource use perception between the two parties, which makes it difficult to break the deadlock in the dispute.

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The Politics of Water Use and Water Access: How National Water Development Plans Affect Regional Cooperation (Focus on Zimbabwe and Southern Africa)

Simon C Pazvakavambwa

1. Introduction

Water is one of the three elements on earth, the others being fire and air. In most countries water is found in various states of purity and chemical composition. The variety of uses for water has influenced policy particularly with regard to basic standards of quality for both domestic and industrial use. It is important to note that although most countries use water of different quality standards, there are the World Health Organisation (WHO) guidelines on the minimum acceptable standards for drinking water, which most countries have adopted. The level of availability of water for whatever purpose is a function usually presided over by different local authorities charged with responsibility to provide water to various communities.

Availability of
water

Water is not only used for drinking purposes, there are the other natural needs such as requirements for cattle watering, general personal hygiene, conservation of natural resources, moisture conservation, irrigation and construction, construction of towns and sometimes navigational and leisure purposes. Apart from areas where such water occurs naturally in lakes and rivers, in the majority of cases in Southern Africa, such water has had to be developed at great expense. While the development of water resources is driven by different imperatives in different countries, the basic need for development has been to meet the domestic and industrial water needs of a usually growing nation. Depending on the location of countries and the state of rainfall for agricultural needs, further water resources development has been necessitated by the need to guarantee crop development and growth for adequate food supplies and irrigation to generate wealth through exports or import substitution.

Southern Africa, unlike other parts of the world, experiences a seasonal rainfall pattern. The rain season stretches from the end of October to the end of March and rarely goes beyond April. This is the time that crops can be grown using natural rain. Beyond April, any crop production has to depend on irrigation.

Even during the rain season, if the distribution of rainfall in time and space is not conducive to optimum crop growth, supplementary irrigation is practiced. The seasonal nature of rainfall and run off means that even for water supply for drinking and industrial use, some form of storage has to be considered. The form of storage is usually in the form of dams and other reservoirs of different sizes depending on the catchment characteristics of a given catchment. Such impoundments have tremendous impact on river ecology and downstream water requirements. In cases where such dams are developed across international rivers, the need for consultation and agreement on the nature of storage and release mechanisms becomes paramount. The issue of access to water becomes accentuated and assumes both local and international dimensions. Where agreements cannot be reached, the result has either been no development at all, or development with conflict.

This paper will examine the different scenarios for water resources development in the Southern Africa region and discuss areas of potential conflict and what the region is doing to minimize or eliminate conflict through political intervention. The paper will further evaluate the effectiveness of current political efforts to keep the dialogue option open.

How to minimize conflict?

2. Development of water resources in the Southern Africa Region

The SADC region has a total land area of nearly 6.8 million square kilometers at an average altitude of 1000 meters above sea level and has 16 main river basins.

Of the region's total land area

- 3 percent are humid receiving more than 1500 mm of rain annually;
- 40 percent are moist sub-humid receiving between 1200–1500 mm/yr
- 19 percent are dry sub-humid receiving 600–1200mm/yr
- 16 percent are semi-arid; 400–600 mm/yr
- 15 percent are arid; 100–400 mm/yr
- 7 percent are a desert, receiving less than 100 mm/yr.

Given the above status of rainfall and its spatial distribution on a seasonal basis, the need for water resources development was paramount.

Irrigation
considered as
luxury

Development of water resources in the Southern Africa region took place at different times and with different paces very much governed by the development imperatives of each given country. In the past each country could develop water resources within its borders with little or no regard of what happened downstream of other countries. Such developments were focused on individual country needs and sought to satisfy individual country requirements. This approach meant that those countries with more resources could progress faster than those with limited resources. In addition, the colonial era segmented water resources development requirements depending on the population growth of the different countries. Thus one finds that water resources development in the 1950's was characterized by a singular focus on the need to provide water for urban growth. Although irrigation was also developed, this was targeted at crops of high economic value. In addition, incidences of crop failure were rare and the need for supplementary irrigation was deemed to be a luxury. Water resources development was therefore intended to enhance urban growth and provide for a growing urban population.

The development of water resources for non-consumptive uses such as electricity generation was intended to facilitate growth of the urban and industrial sectors. Large dam developments such as the Kariba and Cabora Bassa, were intended to provide for self sufficiency in the availability of energy resources complementing other forms of energy generation. The development of the Kariba dam was undertaken on the mutual understanding that the major riparian states of the then Northern Rhodesia (now Zambia) and Southern Rhodesia (now Zimbabwe) would derive equitable benefits that would drive their economies. Cabora Bassa, developed on the Zambezi River through capital from Portugal, the former colonial master of Mozambique, and expertise from South Africa (then under a strong Apartheid regime), was again intended to boost the energy requirements of the urban industrial and mining conurbation of South Africa, with a small proportion of the energy going directly to Mozambique. There is little evidence of consultations (if any) having been undertaken prior to the construction of these two major reservoirs. The reasons why no extensive consultations were undertaken could be due to the following:

- The need for equity among the riparian states was not considered to be an important factor.

- The project promoters were driven more by economic gain than by social equity and balanced access to water for all riparians.
- There was no politically recognizable forum which would have provided the vehicle for consultation.
- The development initiative was externally driven and hence local and regional opinions carried less weight.
- Such developments were intended to benefit a privileged few individuals whose interests did not take into account the needs of the majority of people.
- The absence of consultation could be due to the absence of political independence.

With the rise of nationalism and a focus on the need to develop natural resources for mutual benefit, the development of water resources in the region has assumed a different dimension. Although water development schemes that benefit more than one country are being implemented, the mode of implementation as well as the approaches to such developments have taken a more consultative approach in recent years.

3. Water resources needs in Southern Africa

Southern Africa has an estimated population of 250 million. The majority of these people live in the rural areas although the rate of urban growth as evidenced by rural to urban migration statistics has been on the rise following political independence in the various countries. The increase in urban population means that there has to be a phenomenal increase in food production, particularly the basic staple foods since very few (if any) urban dwellers engage in any meaningful agriculture. The demand for this phenomenal increases in food production has resulted in the need for more efficient and reliable methods of producing that food. The one sure way of guaranteeing crop growth and adequate food reserves has often been expressed in the need for more land to be put under irrigation. Due to the seasonality of rainfall in the region, any irrigation increases had to materialize in the form of greater water resources development. However, due to the fact that the easier and cheaper sources had already been developed, those that remain to be developed or are currently being developed have often required not only greater resources, but also international cooperation. Thus the region has developed instruments at the political level that are intended to facilitate such development. In the water sector, one of the important

Increasing
food
production

instruments to be developed at a political level has been the SADC Protocol on Shared Watercourses.

Table 1: Water resources availability in SADC member states

Country	Land area 1000 sq.km.	Irrigated land as % of arable land	Annual internal renewable water resources <i>per capita</i> cu.m.	Annual freshwater withdrawals as % of water resources 1980-89	Annual freshwater withdrawals <i>per capita</i> cu.m. 1980-89
Angola	1,247	2.5	16,618	0	52
Botswana	567	0.5	1,588	1	100
Lesotho	30	0.9	2,551	1	31
Malawi	94	1.7	1,678	2	20
Mauritius	2	17.0	1,979	16	410
Mozambique	784	4.0	12,997	1	53
Namibia	823	0.9	333	38	166
S. Africa	1,221	10.3	1,206	18	410
Swaziland	17	35.8	5,275	4	408
Tanzania	884	5.0	2,998	1	36
Zambia	743	0.9	12,267	1	86
Zimbabwe	387	7.0	1,776	5	138
AVERAGE		7.2	5,106	7.3	159

Source: UNDP, 1996. Zero indicates that data is unavailable.

A water deficit area

The above table indicates that the Southern Africa region is a water deficit area as none of the countries enjoy more than 50 percent of annual fresh water withdrawals as a percentage of water resources. Furthermore, the region is periodically affected by both severe and prolonged droughts which may be interrupted by devastating floods. The water use statistics indicate that an average of 152 cu.m. of water are used *per capita* per year in SADC, with the highest being in Mauritius and South Africa at 410 cu.m. *per capita* per year.

Variability is a factor of population dynamics, economic development, water related environmental issues, political and socio-cultural matters at regional and national levels as well as the existence or lack of cooperation at the regional level. With the exception of Mauritius which is an island, the rest of SADC shares water between and among more than two countries. Prior to the promulgation of the SADC Treaty, sharing of water resources was either considered as a bilateral issue among the parties, or there was just no consultation as each country sought to do its own thing and develop its own water resources based on

internal demand. However, with the realization that the region is not only drought prone but also greatly affected by the variability of rainfall, the need for sharing mechanisms at the political level has become paramount.

4. Examples of political efforts in water resources use and development

Some examples of current political effort to share water on an equitable basis are to be found in the number of basin commissions that have either been established or are in the process of negotiation. The paper will review a few of these:

4.1 The Orange and Sengu Rivers Commission. (ORASECOM)

This commission has been negotiated and signed between South Africa, Botswana, Namibia and Lesotho. The states have agreed to exploit the resources of the river through consultation and on an equitable basis. If this arrangement had not been entered into, the likelihood is that South Africa would quite easily have used its economic and even military might to gain a lion's share of the waters of the Orange and Sengu rivers. Weaker states would have been denied access and their economic development potential which would have come about as a result of the availability of water in the two rivers would remain a pipe dream. Even if South Africa were to eventually get a lion's share of the water, this would be the result of a process of negotiation.

Exploit the resources of the river on an equitable basis

4.2 The Limpopo Basin Commission (LIMPCOM)

The Limpopo river is shared by Botswana, Zimbabwe, South Africa and Mozambique, with Botswana being on the upper reaches of the basin, South Africa and Zimbabwe in the middle to lower reaches while Mozambique is a downstream state. Water from the Limpopo is used for cattle watering and wildlife needs in all the four countries, while South Africa and Zimbabwe use the water to supply urban settlements such as Beitbridge and Messina, as well as for irrigation in the Northern Province of South Africa and the Matabeleland South Province of Zimbabwe. Mozambique uses the water to supply the town of Xai Xai as well as for agricultural purposes in the Maputo province. There is a recent development in the form of the Trans Limpopo National Park involving South Africa, Zimbabwe and Mozambique. This national park will draw most of its water needs from the Limpopo basin. In recognition of the shared nature of the Limpopo basin waters, the governments of Botswana, South Africa, Mozambique

and Zimbabwe signed the agreement on the Limpopo basin commission in November 2003. Although Botswana and Zimbabwe did not sign the agreement in Maputo, they gave a commitment that they would sign the agreement once their internal processes are through. This agreement shows the political commitment of the four basin states to share the water in the basin in an equitable manner, and it provides for all the necessary technical interventions to take place.

4.3 The Inkomati Maputo River Commission.

Political
commitment

This commission has been set up to oversee the management of the two rivers Inkomati and Maputo which are of interest to South Africa, Swaziland and Mozambique. In South Africa, the Inkomati river is used largely for irrigation, and some of the water has even been diverted to the Tunzini and Swaziland irrigation schemes in the Mhlume area of Swaziland. Due to increasing demand for irrigation particularly in South Africa and Mozambique, the chances that the basin waters may become over committed is real which would lead to untold difficulties in the management of the agricultural enterprises already developed. Therefore, it was prudent for the three countries to establish a mechanism through which sharing arrangements and access to water is considered and agreed. The sharing and access arrangements would take into account the fact that the city of Maputo relies on this basin for all its fresh water needs. In keeping with the spirit of cooperation in the water sector, the three countries signed an agreement in Maputo, Mozambique, in November 2003.

4.4 The Nyasa, Shire Basin Commission

This basin is shared by Mozambique, Malawi and Tanzania. Although there is not much economic activity involving water resources at present, this is considered to be the prime area for future activities in the three countries. Irrigated tea estates in Malawi extend to this area and the future prospects are bright. Despite the fact that there maybe little economic activity at present, the three countries still considered it prudent to sign an agreement which was again signed in Maputo, Mozambique, in November 2003. The agreement, like the others signed on that day, commits the three countries to an equitable utilization of the water resources of the basin.

4.5 The Pungwe River Joint Commission.

The current activity around the Pungwe river between Mozambique and Zimbabwe is typical of what may happen between riparian states if there is no consultation. Zimbabwe was keen to develop a secure water source for the city of Mutare. Various development alternatives were considered and the one involving a diversion weir and pipeline to the existing water supply and treatment plants for Mutare proved the most economical. This option, unlike the one involving water from the Osborne Dam, did not involve pumping and, hence, was cheaper. However, in order to get the development under way, an agreement with Mozambique had to be reached. Although Zimbabwe was to abstract only 0.7 cubic meters per second, a seemingly insignificant amount compared to the total flow in the river, it was thought to be prudent and politically expedient to consult its neighbors.

Mozambique uses the water from the Pungwe both for irrigation at the Mafambise Irrigation Scheme and as supply to the city of Beira. The city of Beira does not have a dam, hence the need to maintain a reasonable flow in the Pungwe river. Both the Mafambise Irrigation Scheme and the City of Beira share the same off take. The Mozambique government allowed the construction of the weir and pipeline to Mutare but not the off takes for irrigation along the way because they wanted to assess the full impact of the scheme. To date, the water supply project to Mutare has been completed but the irrigation component is on hold pending the negotiations that are currently taking place. It is hoped that the end result of the negotiations will be an agreement between Zimbabwe and Mozambique on the utilization and sharing of the waters of the Pungwe basin between the two countries. Current negotiations involve the undertaking of a joint study of the Pungwe and an elaboration of its hydrological characteristics.

Negotiations
on Pungwe

4.6 Zambezi River Commission (ZAMCOM)

The Zambezi is a major river basin in Southern Africa with the following countries as riparian states: The Democratic Republic of the Congo, Angola, Zambia, Namibia, Botswana, Zimbabwe, Malawi, Mozambique and Tanzania. The most significant development in the Basin is the mighty Kariba dam which was constructed in the 1950's. This dam provides electricity to largely the two countries of Zambia and Zimbabwe. Further downstream is the Cabora Bassa dam which was constructed in the 1970's to

provide electricity to South Africa and Mozambique. Currently, electricity from the two sources is part of the Southern Africa regional power pool. Further upstream is the Kafue power station drawing water for electricity generation from the Kafue river, a major tributary of the Zambezi.

Variable
progress

The size and complexity of the basin demanded a staged approach to its planning. A program approach where National steering committees are being set up has already commenced. The National steering committees have a country focus which will then be incorporated into the agreement setting up the commission. Currently, the Zambezi River Authority, an organ of the Zimbabwe and Zambian Governments is charged with the management of the dam. They are providing the much needed backstopping to the National Steering Committees. The different national Steering Committees have made variable progress and this will delay the overall progress on the establishment of the commission. Despite the delays in establishing the Zambezi River Commission, there is already an understanding among the basin states that a sustainable, reliable and fair system of sharing the waters of the Zambezi basin is required. A draft agreement has been drawn up and is currently under the scrutiny and consideration of the different countries' legal experts. If approved, the Zambezi Commission agreement will open up huge opportunities for the development of water resources in the basin, including the much awaited Batoka Gorge dam and other dams in the tributaries such as the Kudu dam in Zimbabwe and the Matabeleland Zambezi water project for the provision of water to the dry Matabeleland area. The realization that there is a need to share water on the basis of equitable access is very much understood among the basin countries. There is also the political will to cooperate and hopefully this is going to minimize or eliminate conflicts between and among basin states.

4.7 The Save River Commission

The Save river is shared between Mozambique and Zimbabwe. It is a major river draining the south eastern part of Zimbabwe and comprises part of an important and unique agricultural enterprise for Zimbabwe. Presently, Zimbabwe has not developed a reservoir on the main trunk of the river although potential dam sites at Kondo and Chitowe have been identified for which preliminary designs are available. There has been limited dam development on some of the tributaries of the Save notably, the Osborne, the Rusape and the Ruti dams. These developments do not meet the full water resources development requirements for

Zimbabwe, hence the proposed Kondo and Chitowe dams. The South East part of the country is a major sugar producing area and any significant water resources development will enhance the productive capacity of growing sugar in the country.

In Mozambique, the Save basin is an important facility that could be used to enhance agricultural productivity. The absence of a major reservoir on the Save has resulted in the following:

- Zimbabwe has not been able to realize the full potential of the resources of the basin
- Mozambique has also not been able to realize the full potential as most of the flow finds its way into the Indian Ocean without having been used for any significant production.
- In times of floods a significant portion of land in Mozambique has been flooded with incalculable loss of agricultural production. We believe this situation could have been abated had there been one or two major dams on the Save river in Zimbabwe.
- In times of drought, both countries have suffered considerably a situation that could have been avoided or ameliorated had there been reservoirs on the main river which could release stored water as and when required.

Realize the full potential

As both Mozambique and Zimbabwe have recognized the importance of an agreement on the utilization of the water resources of the Save river, efforts are now underway to establish a river basin commission and negotiations will start soon.

The above examples demonstrate that there must exist a symbiotic relationship between the national water resources development needs of a country and regional cooperation, especially where such development involves shared watercourses. Politics plays an important role in regional cooperation and the water sector is not an exception to this. It has been demonstrated that where there has been political commitment and cooperation, development of water resources has been facilitated. In the event that political commitment is not readily available, there has been delays or non-development. The Southern Africa region is part of the global village and what happens elsewhere in the world has affected the manner and nature of development in the region. Fortunately, the level of cooperation at the political level in SADC is so high and that is why the region has forged ahead in areas of development that require regional cooperation. Apart from the Water sector, SADC region has developed protocols in

various other sectors, all in an attempt to promote regional unity and development through cooperation.

5. Beyond the region

We have often heard of water related conflicts in other regions and because of this, the SADC region has taken steps to nip any potential conflicts in the bud. Experiences from the Nile basin initiative as well as the Senegal and Mekong river basins have underlined the need for agreement in the use and access to shared water course systems. Some of the history in the Nile for example has resulted in protracted animosities and mutual suspicion among basin states. This was because there was no forum that had been developed to provide a means where the thorny issues of sharing a scarce resource could be discussed. Through the Nile Basin Initiative, some progress has been registered and there is currently a situation where all the riparian countries are now sharing ideas and possibilities of long lasting solutions are now within reach. Some of the hard political stances previously exhibited by Egypt for example have been replaced by progressive suggestions on how all the countries of the Nile basin can enjoy the resource on an equitable manner. This is not to suggest that conflicts are over, far from it. The present situation simply demonstrates that there is more to be gained through dialogue than through war.

In the case of the Mekong River, the long history of conflict between the three countries that share the river are known. The river has more than an economic significance for Cambodia, Vietnam and Thailand. The Southern Africa region has learnt from these examples and that is why there is so much activity politically on issues relating to water resource sharing and access.

6. Requirements for equitable access beyond political harmony

While it is a noble idea that water resources need to be shared and equitable access promoted, there are a few fundamental requirements for these noble objectives to be realized. Countries cannot share what is not known quantitatively. Most river basins do not have any measuring devices and therefore it makes it difficult to come to terms with what quantities should accrue to each riparian state. With this realization, UNESCO under the International Hydrological Program (IHP) has been promoting the determination of flow and other hydrometric measurements as well as assisting countries to build capacity in the measurement

Nile Basin
Initiative

and gauging of selected basins. It is hoped that these efforts will provide a solid basis on which sharing and access can take place. There is need to foster greater understanding so that the gauging stations that are established can be preserved in order to measure the important parameters for decision making. The existence of data and information will only promote equitable access and sharing of water resources if such data and information is also shared. There has been a tendency among some countries to treat hydrological and hydrometric data and information as classified information thereby making it inaccessible to others. Such instances make cooperation difficult and do not provide an informed basis upon which sharing of resources can be done. Because of this position, countries have tended to develop their information bases in different formats some of which are totally incompatible. There is need to extend the political will to the sharing of data and information on unimpeded basis. This will create a common platform on the basis of which solutions can be found as it will be a matter of comparing like with like. The political cooperation that has been demonstrated through the SADC Treaty and the Protocol on Shared Watercourses needs to be further demonstrated in the generation and sharing of information to facilitate the fuller implementation of political decisions.

The need to share data

7. The legal dimension

Most countries in the Southern Africa region have embarked on comprehensive water sector reforms. Part of the reason why this has happened is due to new thinking in terms of water use and access while the other part involves the need to remove from statutes laws that are no longer contemporary to the situation. Zimbabwe and South Africa have already drawn up Water Resources Management Strategies and enacted new Water Laws. Other countries are at an advanced stage of reviewing their water laws and modernizing them. All this activity is being carried out in fulfillment of the SADC protocol on shared watercourses. Thus the political imperatives have been drawn up and what remains is the need to fulfill those imperatives.

8. Conclusion

National water development plans can no longer be drawn up and implemented independent of the political imperatives. This is because, unlike other forms of resources, water knows no political boundaries. The best way forward has been to engage the

international stakeholders who would be affected in the event that an individual country chooses to implement a major water resources development project on a shared basin. A framework for political cooperation must first be established to facilitate development planning. There is need for sharing information among the riparian countries if sharing is to be meaningful quantitatively. From a position of sharing resources equitably and providing equitable access to water, it is hoped that the cooperation so engendered will result in the sharing of benefits on a sustainable basis.

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The Euphrates and Tigris: South Boundary Utilization and Views

M. Salman'

Abstract

The Euphrates-Tigris basin, where the problems of water use are at an advanced stage, exemplifies many of such problems, and is a case of a resource dispute over fresh water with many associated economic, social and political factors involved. Within this context, it does not seem possible to assert which factor is foremost at any given time. However, the aim of this paper is not to stress on this assertion but to look, from a technical point of view, at the issue of water availability, use and demand by the south boundary countries of the basin, Syria and Iraq, while giving an overview of the disputable arguments of the two countries on allocating water of the two rivers. The paper intentionally meant to separate the dispute into two positions regardless of the geographical factor and due to the similarities in the position of Syria and Iraq that could be considered one boundary "South Boundary" while Turkey holds the other position that may be considered as "North Boundary".

A technical
point of view

The paper provides a review of water supply and use in Syria and Iraq, examines the utilization of the Euphrates and Tigris rivers in the two countries and analyses current supplies and future supplies which will be available as a result of supply management policies in terms of foreseeable water demands by the riparian countries to determine the extent to which supplies match demands. The paper also presents the standings of the south boundary countries with the objective to evaluate the dispute on water allocation in the basin and argues the possible solutions to mediate such a dispute and reach a cooperative integrated solution. As a conclusion, the paper emphasizes on the no doubt need that the three countries have to seriously consider the value of water and, thus, have to implement measures to increase the productivity of water use in order to meet their development goals and the increasing water demand in their countries.

¹ The presentation of the material in this paper does not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or the delimitation of its frontiers or boundaries, or claimed rights or option.

1. Introduction

Although important in many places, water interests and issues are more significant in the Middle East than in any other region of the world; the reasons are obvious. The countries of the Middle East are characterized with large temporal and spatial variations in precipitation and with limited surface and groundwater resources. The rapid growth and development in the region have led to mounting pressures on scarce resources to satisfy water demands. The dwindling availability of water to meet development needs has become a significant regional issue, especially as a number of countries are facing serious water deficit (ESCWA, 1998).

Meet
development
needs

Water serves different sectors and its value differs from one sector to another. Though its value, when restricted to economic terms, is often considered the lowest compared to other sectors, agriculture is the largest user of water and the most important economic activity in the region. Demand for fresh water is dramatically escalating in the region due the rapid growth of population while the supply is constant and even decreasing as a result of deterioration. Supply of water is seen, by most of the governments of the region and most of those shaping water policy, not only a prerequisite for organized development but also as a basis for spontaneous development. The political subdivision of the region, however, has led to a situation in which water supply comes mainly from rivers shared by more than one state. According to Kolars (1990), over fifty percent of the population of the Middle East either depend on water from rivers which cross an international boundary before reaching them, or on desalinized water and water drawn from deep wells. Water shortage in the region has been exacerbated by the extraordinary development of large irrigation projects there which aim at promoting intensive agriculture with a high economic value, capable to satisfy part or all of the national food needs and achieving an exportable surplus while stabilizing production through mitigation of the negative effects of drought which make rainfed agriculture fragile and non reliable (Bazza and Ahmad, 2002).

Amongst those representing cases that provide significant insights into the agricultural development of their regions as well as the economic, social, environmental and political issues that have to be addressed by their countries when attempting to optimize national interests while claiming to take the rights of neighboring countries into account is the case study of the Euphrates and Tigris rivers. The location of the two rivers has created a great national strategic concern amongst the countries

Foreseeable
water demands

that share their waters. The basins carved by the two rivers have witnessed the site of what is considered the 'Cradle of Civilization' and were the birthplace of advanced agriculture, urban, cultural and artistic development.

The paper aims at examining the utilization of the Euphrates and Tigris rivers in the two south boundary countries and analyzing current supplies and future supplies which will be available as a result of supply management policies in terms of foreseeable water demands by them to determine the extent to which supplies match demands. It also presents the standings of the two countries with the objective to evaluate the dispute on water allocation in the basin and argues the possible solutions to mediate such a dispute and reach a cooperative integrated solution. The paper is structured as follows. The following section presents water supplies and use and their pressure on water resources for agriculture in Syria. Section three sketches the irrigation development in the Euphrates-Tigris basin in Syria. With the available data from academic studies, published papers, and UN reports that unfortunately do not update, section four and five present water agriculture sector in Iraq, supplies and use as well as the irrigation development in the Euphrates-Tigris basin in this country. Section six gives an analysis of the supply, use and demand of water in the Euphrates-Tigris basin in the south boundary countries as well as their arguments on the dispute of water allocation. Due to the lack of updated data, some assumptions had to be made based on available historical data in order to accomplish the analysis and reach a satisfactory result that can be used as a basis for any solution to share the two rivers' waters amongst the three riparian countries. Section seven, finally concludes with the need to consider the value of water and thus implement measures to increase the productivity of water use in order to meet the irrigation development goals and the increasing water demand in the three riparian countries.

2. Water supply and use in Syria

In Syria, the total estimated water use volume is about 15 billion m³. The Euphrates and Orontes basins account for about 50 percent and 20 percent of the water use respectively. Table 1 shows water availability and use in the various basins of Syria. As shown in this table, water balance in most basins has been in deficit (except in the coastal basin and the Euphrates basin). This will be exacerbated further especially in those basins encompassing large urban areas such as Damascus and Aleppo.

Table 1: Water availability and use

Basin	Irrigation (m.m ³)	Domestic (m.m ³)	Industrial (m.m ³)	Total use (m.m ³)	Renewable water resources (m.m ³)	Deficit (m.m ³)
Yarmouk	360	70	10	440	500	60
Aleppo	780	280	90	1150	500	-650
Orontes	2230	320	270	2730	3900	1170
Barada/ Awaj	920	390	40	1350	900	-450
Coastal	960	120	40	1120	3000	1180
Steppe	340	40	10	390	700	310
Euphrates	7160	250	110	7520	N.A.	N.A.
Total	12750	1390	570	14700	-	-
% Share	87	9	4	100	-	-

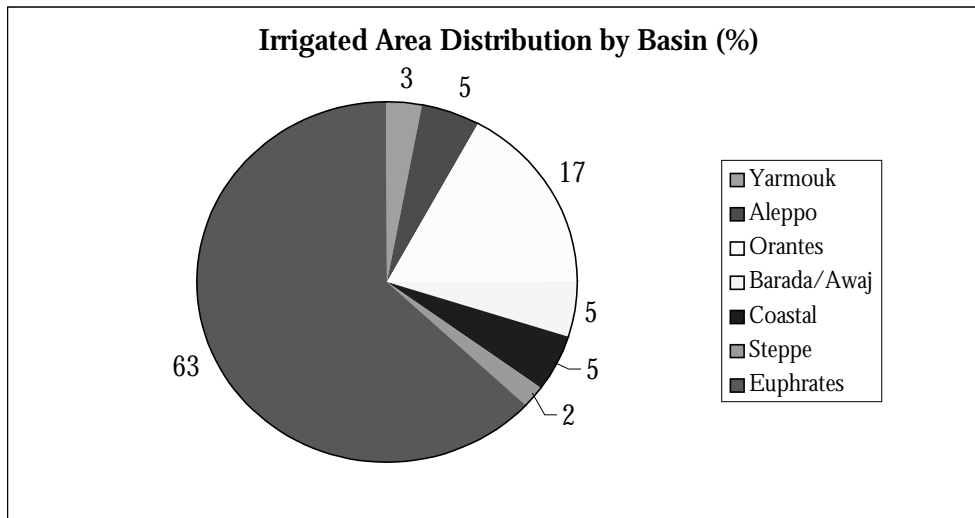
Source: Adapted from World Bank Report, 2001

Agriculture is the largest water-consuming sector in Syria accounting for about 87 percent of water use. The domestic and industrial water uses stand at about 9 and 4 percent respectively. While the urban water demands is rapidly increasing due to strong population growth rate (about 3 percent per annum) and industrial growth, new water sources are becoming scarce and extremely expensive to develop. Water deficits are expected to worsen placing additional stress on all uses. Since drinking water needs are given top priority in the government's policy, water availability for agriculture use could face severe constraints. Pressures on water resources of the country come from all sectors of the economy with highest demand from agricultural sector.

In 2000, the cultivated land area in Syria was estimated at 5.5 million ha, which accounted for about 30 percent of the total country area. Twenty percent of the cultivated land area (1.2 million hectares) was irrigated. The Euphrates and the Orontes basins account for the major share (Figure 1). The total irrigated area increased from 650,000 ha in 1985 to 1.3 million ha in 2002 (Somi et al., 2001 and 2002). This rapid expansion of irrigated agriculture is mainly attributed to the government policy objective of achieving food self-sufficiency and the remarkable increase in groundwater irrigation.

New water sources are scarce

Figure 1: Irrigated area distribution by basin



Source: Adapted from World Bank Report, 2001.

Redefine self-sufficiency

Cereal and cotton production has been encouraged by the government at a policy level as a mechanism for ensuring the country's self-sufficiency. The notion of self-sufficiency has been recently redefined into a more flexible concept oriented to increase production of certain crops that profit from comparative advantage and thus exports of these products can counterbalance the need to import other commodities (Sarris, 2001). The production of selective crops, especially wheat and cotton, has shown marked improvement when comparing consumption. The ratio of production/consumption for wheat has increased from 0.51 in 1989 to 1.41 in 1997 while for cotton, it has increased from 1.56 to 1.74 during the same period (World Bank, 2001). The high level of self-sufficiency and the increase in the production of selective crops appear, however, to have come on the expense of unsustainable water use patterns.

Groundwater use, particularly for irrigation has increased dramatically over the last two decades (See Table 2). Sixty percent of all irrigated area in Syria is currently irrigated by groundwater. Most are privately developed and operated.

Table 2. Irrigated area by source of irrigation

Year	Surface irrigated (1000 ha)	Groundwater irrigated (1000 ha)	Total irrigated area (1000 ha)
1985	334 (51%)	318 (49%)	652
1990	351 (51%)	342 (49%)	693
1995	388 (36%)	694 (64%)	1082
2000	512 (42%)	698 (58%)	1210
2002	583 (43%)	764 (57%)	1347

Source: Adapted from Somi et al., 2002

A substantial portion of the increase in groundwater use is related to increases in irrigation for wheat, cotton, citrus, and sugar beet. Area increases have been substantial in the last decade in sugar beet (32%), cotton (75%), irrigated wheat (40%), and citrus (40%). Much of the expansion in wheat has been driven by rapid expansions of its price while water cost has remained low. Farmers from public irrigation schemes obtain water at an extremely subsidized rate, and groundwater costs do not reflect their real value because the energy required for pumping is also subsidized (Rodriguez et al., 1999).

Subsidized
water

Government policies have contributed to the tremendous increase in groundwater irrigation. Wheat supported prices which have been higher than the world prices for several years, coupled with subsidized energy costs have proved to be strong incentives for farmers to take up groundwater irrigation in many areas.

This great expansion of groundwater-irrigated agriculture has, however, resulted in groundwater being overexploited in most basins of the country. Continuous decline in groundwater tables have been accounted affecting some surface sources such as spring flows and causing seawater intrusion in land areas adjacent to the sea.

Traditionally, surface water has been developed widely in most basins and a large share of the surface water is supplied by dams. Though there still remains some potential for further development of dams and augmentation of storage volume, the cost for such exploitation is considered extremely high.

Except for the Euphrates, most of the distribution systems of the irrigation schemes are with low conveyance efficiency that

does not exceed 40–50 percent. Even with the concrete lined canals that the irrigation schemes of the Euphrates basin have, the conveyance efficiency still does not exceed 60-70 percent due to evaporation and poor maintenance (Salman et al., 1999). In order to improve the conveyance efficiency and to provide more reliable water supply to the fields, the Ministry of Irrigation has planned to convert old open surface distribution system into pipeline system and rehabilitate new lined canal systems.

Surface gravity system is the prevailing irrigation system at field level covering about 95 percent of the irrigated area in Syria. Basin irrigation is the predominant method used for wheat and barley. On farm water use efficiency is in general low (40–60%) due to over irrigation with the use of traditional basin irrigation method. Even with cotton and vegetables which are irrigated by furrows, the efficiency is still low due to the lack or inadequacy of land leveling. Thus, there seems to be a considerable scope to increase the efficiency of water use at field level by introducing advanced on farm irrigation techniques like drip and sprinkler irrigation or by improving on-farm water management and conserve water.

Moreover, urban water demand has rapidly increased in the country during the last decade due to strong population growth (around 3 percent) and industrial growth. The primary objective of the national water policy has always been the provision of safe drinking water. Ninety-five percent of the population in urban areas and 80 percent of the population in rural areas have access to safe potable water. Urban and rural water supply and sanitation facilities have been enlarged and upgraded regularly to accommodate the expanding population. Water balance in most basins has been in deficit. This will be exacerbated in those basins encompassing large urban cities like Aleppo and Damascus putting more pressure on water use for agriculture. Barada/Awaj basin, where Damascus is located has no significant water sources, both surface and groundwater, other than the Barada and Figeh Springs which supply drinking water to the inhabitants of Damascus. As most of water resources of the basin are being dedicated continuously to support Damascus increasing demand for drinking water, internal conflict over water has risen. Farmers, in Damascus countryside, who have been using groundwater for irrigating their lands for years, have protested the drying up of their wells caused by the massive groundwater extraction.

Safe drinking
water

3. Irrigation development in the Euphrates and Tigris Basins in Syria

The most problematic issue faced when carrying out any study on the irrigation development in the Euphrates and Tigris Basins is the availability and reliability of the data on the natural flows of the two rivers at the borders between the three riparian countries, in particular the Euphrates. The three riparian countries tend not to agree over how much water there is, or when it is available. This has even been more confidential and not made available to the international community with the establishment of the GAP project in Turkey. Turkey and since the eighties when it started its GAP project has had an exclusive control of the data about the rivers' discharges and has not published them. Moreover, in the recent study of the World Bank on the agricultural sector of Syria, it has clearly been indicated that water resources management issues pertaining to international rivers were not discussed as agreed with the Syrian government thus related data were not made available (World Bank, 2001). Reports and evaluations by other different studies seem also to quote a different set of figures of the discharges of the two rivers. FAO global information system of water and agriculture (AQUASTAT) quotes a total annual of 26.29 BCM for the Euphrates according to the Protocol of 1987 and 21.2 BCM for the Tigris when entering Iraq after passing the border with Syria, while Kolars (1994) quotes a figure of 32.72 BCM for the total annual flow of the Euphrates and 49.2 BCM for the Tigris. However, it is important to mention here that the main difference between the Euphrates and Tigris in terms of how their discharge is generated is that the Tigris receives water from a series of major tributaries in the mid-portion of its course. In contrast, on the Euphrates, all of the major tributaries are in the extreme upper part of the basin (Beaumont, 1998).

Differing
discharge data

Syria has neither the ample rainfall of Turkey nor a second major stream such as the Tigris in Iraq. Nevertheless, agriculture that employs nearly 31 percent of the workforce, with another 50 percent of the manufacturing force dependent on it for employment, and contributes about 32 percent to the GDP, is very important element in the national economy. The Syrian government has pursued several major goals for the agricultural sector which are framed within the context of much broader national development goals such as sustained economic growth, increased national self-sufficiency, full employment and greater social equity and economic well-being. Expansion of the irrigated areas has been part of the strategy to reduce dependence upon

Insisting on the whole plan?

rained cultivation. The Euphrates once seemed to offer an answer for land expansion. Syria, therefore, have had ambitious plan for major irrigation projects of 645,000 ha along the Euphrates, particularly in the lower reaches of the Rivers Balikh and Khabour. These are: 185,000 in the Balikh Basin, 170,000 in the Euphrates Valley, 70,000 in the Lower Khabour, 25,000 in the Rasafa Basin, 40,000 in the Meyadine Plain and 155,000 in the Meskeneh Basin. However, owing largely to a lack of funding, these projects did not commence large-scale development until the late 1980s. In the mid-1980s it is claimed that no more than 208,000 ha were being irrigated (Kolar and Mitchell, 1991). Over the last decade, however, the pace of development of irrigation networks has been considerable and the development has reached 300,000 ha. In spite of all the claims by different sources that the original plans to irrigate 645,000 ha of land with water from the Euphrates river have been revised downward drastically and all the suggested estimates of potential irrigated area (420,000-480,000 ha), certain government sources still insist on the whole plan and even suggest a rise in the total irrigated area stressing on a greatest potential located in the lower part of the Khabour Basin. This does appear to be rather optimistic following up the process of development in the three riparian countries but if achieved, it would raise the water needed by Syria from the Euphrates to 9.5 BCM annually including the loss of water through evaporation from the main reservoirs excluding the Khabour River.

Syria also has a border on the Tigris River in the extreme northeast of the country with Turkey on the opposite bank with a small catchment area of 1000 km² and a course passing a deep valley. The Tigris River only contributes to the Syrian demands on local and private land owners small scale agricultural and sanitary needs. The Syria use of the river remains something of an enigma. Over the last ten years, Syria has approached Turkey about the possibility of extracting water from the Tigris and releasing it into the upper part of the Khabour basin. Syria has prepared a master plan of what is called "the Irrigation Project of Tigris in Syria" for a total irrigated land of 157,000 ha. From an engineering point of view, this would be a fairly straight forward project but would only be possible with the active support of Turkey and the willingness of Iraq to lose some water from the Tigris. What is certain, though, is that Syria's demand for water to be used within the catchment of the River Tigris itself will be small if to consider the current and planned use by Turkey and Iraq. If achieved, this would lead to the amount of 1.8 BCM

annually needed by Syria from the Tigris River to irrigate the planned area.

4. Water supply and use in Iraq

The total area of Iraq is 438 320 km² of which 11.48 million hectares are estimated cultivable, or 26 percent of the total area of the country. The total area estimated to be used for agriculture is 8 million ha, which is almost 93 percent of the cultivable area. However, due to soil salinity, fallow practices and the unstable political situation it is estimated that only 3 to 5 million ha are actually cultivated annually. In 1993, the area actually cultivated was estimated at about 3.73 million ha, of which 3.46 million ha consisted of annual crops and 0.27 million ha consisted of permanent crops (FAO, 1994).

The total population in Iraq is about 20.4 million (1995), of which 25 percent is rural. With a large land area, a small rural population and a generous endowment of water resource, under proper resource management, Iraq could offer the greatest opportunities in the region for agricultural growth. Iraq's agriculture has, unfortunately, been the victim of many adverse events over the past three decades that have left their undeletable marks on it. The two wars that the country fought and the following economic sanctions by the international community on the country destroyed a lot of the social and economic infrastructure that were the stay of agriculture and took a heavy toll on agriculture and left the sector weak and tottering. Iraq's agriculture has a lot of potential for growth, given the right support and policy environment. It is presently under-performing in many areas that has lowered its productivity and output. Presently agriculture provides 29 percent of the GDP and 20 percent of employment in Iraq (FAO-AQUASTAT). It also supports a rural population of 7 million people, almost 27 percent of the country's 26 million population. In the last 15 years agricultural production, however, has declined on an average by 1.1 percent per year. The average per capita agricultural production has also declined by 3.9 percent per year during the same period (FAO-World Bank-WFP, 2003).

Iraq's abundant water resources carry great potential for the development of irrigation but also present significant problems in terms of water control since considerable flooding and poor drainage have been the negative attributes of the two major rivers and their tributaries. The principal water resources in Iraq are the Euphrates River and the Tigris River and its main tributaries with a total on-river storage capacity of 50.2 BCM, mainly in the Tigris

Greatest
opportunities
for agricultural
growth

River basin, and off-river storage capacity of 88.3 BCM, the Tharthar dam and Habbaniya dam (FAO-AQUSTAT).

Good quality subterranean water has been found in the foothills of the mountains in the northeast of the country and in the area along the right bank of the Euphrates. However, it has been reported by the Global Environment Outlook 2000 that the groundwater is rapidly deteriorating in Iraq because the water volumes withdrawn far exceed natural recharge rates. According to the World Water Development Report (WWDR, 2003), the total renewable groundwater resources in Iraq is 1.2 BCM annually.

It is always difficult to bring the accurate and recent figures of water use and need in Iraq as the international community lacks access on its data due to the disruption the country have had for the last two decades. However, the most recent figures available are drawn by the unpublished report of FAO-Representation in Iraq in 1994 and Medzini (1997). According to FAO (1994), the total water withdrawal is estimated at 42.8 BCM in 1990, of which 92 percent is used for agricultural purposes (three percent are used for domestic supplies and 5 percent for industrial use). According to the same source of information, in 1991 safe water supplies reached 100 percent of urban areas but only 54 percent of rural areas. The situation has deteriorated as a result of the Gulf war as regards the water supply and sanitation sector. Medzini (1997) cited that there has been a steady increase in water demand for all consumption sectors in Iraq and thus the total use has risen from 40.00 BCM in 1975 to 52.00 BCM in 1995 for irrigation, from 0.58 BCM in 1975 to 3.50 BCM in 1995 for domestic use, and from 2.24 BCM in 1975 to 11.90 BCM in 1995 for industrial use due to the rapid expansion in the industrial sector such as oil refineries, textile factories and thermal power generation.

In order to increase water transport efficiency, minimize losses and waterlogging, and improve water quality, a number of new watercourses were constructed, especially in the southern part of Iraq. The Saddam river (or Third river) functions as a main outfall drain collecting drainage waters of more than 1.5 million hectares of agricultural land from north of Baghdad to the Gulf, between the two main rivers (the Euphrates and the Tigris). The length of the watercourse, completed in December 1992, is 565 km, with a total discharge of 210 m³/s. Other watercourses were also constructed to reclaim new lands or to reduce waterlogging.

Urban water
was safe

5. Irrigation development in the Euphrates and Tigris Basins in Iraq

The history of irrigation started 7500 years ago in the land between the Tigris and the Euphrates when the Sumerians built a canal to irrigate wheat and barley. It is only in the post-Second World War period that the emphasis on irrigation development switches from downstream diversion schemes to upstream water storage projects (Beaumont, 1998).

Unlike the Tigris, the Euphrates receives no tributaries during its passage in Iraq. Its total annual flow differs according to the source on information and the period of measurements. Kolars and Mtichell (1991) quote an annual average of 28.4 BCM based on 49 year records at Hit (from 1931 until 1969). Abbas (1984) quote a figure of 29.26 of the annual average flow based on 46 years of measurement. However, all figures quoted by the different sources of information rely on measurements that were taken before the 1980s when the situation changed and Turkey started the establishment of its GAP project and signed the Protocol of 1987 in which it committed itself to provide 500 m³/s at the border with Syria (an amount 15.8 BCM annually). According to an agreement between Syria and Iraq (1990), Iraq shares the Euphrates' waters with Syria on a 58 percent (Iraq) and 42 percent (Syria) basis, based on the flow received by Syria at its border with Turkey. This agreement would in fact represent 9.0 BCM annually for Iraq. Thus one can only count on this figure when discussing the issue of the Euphrates water availability for Iraq.

Agreement
between Syria
and Iraq

As indicated before, the main difference between the Euphrates and Tigris in terms of how their discharge is generated is that the Tigris receives water on its left bank from four major tributaries, as well as some other minor tributaries, in the mid-portion of its course. From upstream to downstream, these are:

- The Greater Zab, which originates in Turkey and is partly regulated by the Bakhma dam. It generates 13.18 BCM at its confluence with the Tigris; 62 percent of the 25,810 km² of river basin is in Iraq;
- The Lesser Zab, which originates in Iran and is equipped with the Dokan dam (6.8 km). The river basin of 21,475 km² (of which 74 percent is in Iraqi territory) generates about 7.17 BCM, of which 5.07 BCM of annual safe yield after the Dokan construction;
- The Al-Adhaim (or Nahr Al Azaym), which drains about 13,000 km² entirely in Iraq. It generates about 0.79 BCM at its

confluence with the Tigris. It is an intermittent stream subject to flash floods; and

- The Diyala, which originates in Iran and drains about 31,896 km², of which 75 percent in Iraqi territory. It is equipped with the Darbandikhan dam and generates about 5.74 BCM at its confluence with the Tigris.

A striking feature for Iraq during the last four decades has been an increasing use of the water resources of both rivers, in particular the Euphrates. Due to the lack of data, it is difficult to present the actual amounts of water used for irrigation. However, Medzini (1997) gives reasonable estimates by examining the records of discharge of the river Euphrates at two gauging stations at Hit and Hindiya for a period of 30 years with an assumption of average requirements of 13,300 m³/ha/year. His estimate implies using 16.368 BCM for water withdrawal to irrigate 1.23 million hectares. Kliot (1994) quotes figures from the late 1980s and early 1990s that are not different from Medzini's figures. Kliot's estimate of the actual irrigated area along the Euphrates river in Iraq was 1.0-1.29 million hectares. The most important areas irrigated by the Euphrates are: the middle Euphrates area, the Hindiaya barrage area and the lower Euphrates area. According to FAO AQUASTAT, irrigation potential was estimated in 1990 at over 5.5 million ha, of which 63 percent in the Tigris basin, 35 percent in the Euphrates basin, and 2 percent in the Shatt Al-Arab basin. The total water managed area was estimated at 3.5 million ha in 1990, all of it being equipped for full or partial control irrigation. The areas irrigated by surface water are estimated at 3,305,000 ha, of which 105,000 ha (3 %) in the Shatt Al-Arab river basin, 2,200,000 ha (67%) in the Tigris River basin, and 1,000,000 ha (30%) in the Euphrates river basin. According to the same source of information, however, it should be noted that all these areas are not actually irrigated, since a large part has been abandoned due to waterlogging and salinity.

Land
degradation

The areas irrigated from groundwater were estimated at 220,000 ha in 1990, with some 18,000 wells. About 8,000 ha were reported equipped for micro-irrigation, but these techniques were not used. Salinity has always been a major issue in this area and it was already recorded as a cause of crop yield reductions some 3800 years ago.

Iraq, in particular central and southern parts, has suffered land degradation due to waterlogging and salinity. In 1970, it was estimated that half the irrigated areas were degraded. The absence of drainage facilities and, to a lesser extent, the irrigation practices

used (flooding) were the major causes of these problems. In 1978, a land rehabilitation program was undertaken, comprising concrete lining for irrigation canals, installation of field drains and collector drains. By 1989, a total of 700,000 ha had been reclaimed at a cost of around US \$2,000/ha. Recent estimations have nevertheless shown that 4 percent of the irrigated areas were severely saline, 50 percent medium saline and 20 percent slightly saline, i.e. a total of 74 percent of the irrigated areas suffered from some degree of salinity. The Ministry of Irrigation estimated at 17 million tons the amount of salt transported to the Gulf by the Saddam river in 1995. Irrigation with highly saline waters (more than 1500 ppm) has been practiced for date palm trees since 1977. The use of brackish groundwater is also reported for tomato irrigation in the south of the country (FAO-STATS).

6. Analysis and views—South Boundary Countries

The demand for water can be thought of in two principal ways: first, a demand which can be satisfied because water is available, and second, a demand which cannot be met owing to water scarcity. Until the 1960s the water demands of all three countries in the basin could be satisfied with water to spare. Since then, as water demands in the upper part of the basin have increased, the situation has changed and will continue to do so for the next two decades until all the planned irrigation projects are fully commissioned (Beaumont, 1998).

Syria, at least by one measure, is the most dependent amongst the three riparian countries on the waters from the two rivers and mainly from the Euphrates since it is the only major river with perennial flow crossing its territory. According to the World Water Development Report (WWDR, 2003), the Total Renewable Water Resources (TRWR) *per capita* in Turkey and Iraq is almost twice as in Syria. Apparently, Turkey and Iraq are the least dependent countries because of the other water resources alternatives they have.

Syria is most dependent

According to the Syrian official plan to irrigate 645,000 ha from the Euphrates water and taking into consideration the loss of water through evaporation and the estimated water requirements per unit of area, water demand for Syria from the Euphrates would be 9.5 BCM annually. As we have seen from the different figures of water consumption in Iraq that range between 10 BCM to 17 BCM annually, and taking into account the 1987 Protocol between Turkey and Syria and the 1990 agreement between Syria and Iraq on the Euphrates water, the question of water demand in Iraq becomes something of a theoretical

concept. If Turkey continues to release only the 500 m³/s (an amount 15.8 BCM annually) agreed with Syria at the Turkish-Syrian border and if Syria reaches its goal of developing the whole planned area on the Euphrates, this would leave Iraq with only 6.3 BCM annually (half of the estimated current water demand in Iraq). To cope with water availability and demand, this simply leaves us with three individual solutions if not an integrated cooperative solution by the three riparian countries is made:

- Turkey revises its proposed irrigation goals of its GAP project,
- Syria revises its proposed irrigation goals of its Euphrates project,
- Iraq accepts the situation and the abundance of lands with no more water available to irrigate or diverts water from the Tigris River into the Euphrates.

Consequently, the three riparian countries seem to go ahead with their own development schemes with little consideration of the impact of their projects on the other states in the basin except of Iraq in the last few years due to its political disruption. Without doubt, Turkey is in the strongest position with regard to its potential control of a large part of the water resources of the Tigris-Euphrates basin and it doesn't seem to consider revising its irrigation goals. Syria, on the other hand, is still not in a weak position to surrender and it is continuing on the development of its plan on the Euphrates in spite of the difficulties in funds availability and delaying in accomplishment. It is then Iraq, the poorest, that will have to suffer the consequences of the lower flow conditions.

Iraq will suffer
consequences

Once Turkey's needs of the Tigris River (claimed to be 3.7 BCM annually to irrigate 558,000 ha) have been met, this leaves Iraq with theoretically enormous quantity of water to which it has access on the Tigris. It is then conceivable that Iraq might decide to divert part of the Tigris water over to the irrigated area along the Euphrates. This could be achieved via the Tharthar Depression. However, experiments have shown that this is likely to increase the salinity of the water considerably and so is unlikely to be a practical proposition. Another suggestion is a tunnel/canal following for the most part the 500 m contour between the Tigris and the Euphrates. This would be a large scale project, as the canal would be over 200 km in length. However, if built, it would be able to deliver water to the Euphrates downstream from the Haditha Dam. The flow of water into the canal could easily be controlled from the Mosul Dam on the Tigris. Such a scheme would permit the continued cultivation of much of the land on

the Euphrates in Iraq which will soon be going out of cultivation as the result of the reduced water supply along the river (Beaumont, 1998).

On the other hand, Turkey may face a choice between irrigation and hydro-electricity generation as maximizing such a generation would be on the expense of releasing more water and thus limiting its irrigation program. At the current time this might not be a problem for the Turkish government. However, as demands for electric power increase, it is possible that Turkey might be willing to sacrifice some of its newly irrigated land so that more power can be produced. The two downstream countries may even suffer more if Turkey has decided to achieve both targets of planned irrigation development and hydro-electricity generation. It is also important to mention here that the figures for water use in the GAP project are only officials presented in the main planning document of the project. Field evidences, however, indicates a higher usage leading to a higher water demand (IPTRID, 2003).

Both Syria and Iraq have disputed the irrigation development in the GAP, the upstream control of the Euphrates and Tigris waters by Turkey, and the pattern of water release, in particular of the Euphrates.

Syria and Iraq have similar arguments on the dispute based on the acquired rights of the two countries and the inhabitants living in this basin and practicing irrigation from the antique and Mesopotamian periods and, therefore, no upstream riparian country is entitled to take the rights of these people.

Syria states that the allocation of water of the two rivers should be done through a simple mathematical formula which foresees that:

A mathematical formula

- Each of the riparian country shall declare its water demands on each river separately;
- The capacities of both rivers (in each riparian country) shall be calculated;
- If the total demand does not exceed the total supply, the water shall be shared according to stated figures;
- In case that the total demand of water, declared by the three riparian countries, exceeds the water potential of a given river, exceeding amount should be deducted from the demand of each riparian countries.

Syria position insists that the Euphrates and Tigris are “international watercourses” which can be classified as “shared resources” and thus those two rivers must be shared among the

riparian countries according to a quota to be determined. Syria demands that all sorts of disputes among the basin countries must be referred to an international body such as the International Court of Justice to resolve.

Iraq, in its turn, declared officially that the waters of the Euphrates and Tigris must be shared among the riparian countries through a similar mathematical formula, such as:

- Each of the riparian country shall notify its water demand for each of its completed projects, projects under construction and planned projects;
- Hydrologic data shall be exchanged on the Euphrates and Tigris waters;
- After gathering all relevant data, joint technical committee, shall first of all, calculate the demands of water for projects under operation, then for the projects under construction and finally for the planned projects. The determination of needs for these projects shall then be made separately.

Iraq also argues that the 1987 Protocol in which Turkey has undertaken to supply a flow of 500 m³/s at the Syrian border has lost its validity due to the fact that it was made until the “filling up” of the Ataturk dam is completed. The meant “filling up” has been completed and thus a final allocation must be made and an amount of water higher than 500 m³/s should be released to downstream countries. This amount should not be less than 700 m³/s. According to the Iraqi opinion, equitable and reasonable approach must be followed for such an allocation.

Two positions
in the dispute

Turkey by its turn has its argument that is not meant to be covered by this article and would be found in several official documents or studies. The paper intentionally meant to separate the dispute into two positions regardless of the geographical factor as it has been found that there are similarities in the position of Syria and Iraq that could be considered one boundary “South Boundary” while Turkey holds the other position that may be considered as “North Boundary”. Without going into the details of its argument, Turkey is proposing a “three stage plan” within an assumed framework of “equitable utilization” of the Euphrates and Tigris waters. This plan consists of the following stages: (1) inventory studies for water resources, (2) inventory studies for land resources, and (3) evaluation of water and land resources.

Each of the stages, has several sub-components that the author believes they are promising and could lead to an integrated cooperative solution that satisfies the three riparian countries, if discussed thoroughly.

7. Summary and conclusions

The Euphrates and Tigris systems represent a complex of water problems set in the midst of many additional factors connected with the geographical conditions of the region, and the external and internal policies and the different economic approaches of the countries of their basin. There is no doubt that the potential for conflict over water allocation of the two rivers does exist and may rise with the increase of water demand due to the rapid growth and development in the region, the competition over water by the other sectors such as domestic and industrial ones, and the limited amounts of available water.

The last four decades have indeed witnessed a remarkable restructuring of water use in the Euphrates-Tigris basin that will have inevitable social and economic impacts that the local inhabitants will suffer from. Land atonement in the downstream countries, in particular along the Euphrates is foreseen and thus rural depopulation would increase putting more pressure on the already crowded urban centers as long as the upstream country goes ahead with its own development schemes with little consideration of the impact of its projects on the downstream countries. By contrast, both rural and urban populations seem bound to increase in the upstream country of the basin in Turkey as economic opportunities grow hand in hand with the expansion of irrigated areas which have previously not been cultivated in any widespread manner.

As signs of cooperative management of water utilization amongst the three riparian countries do not seem bound in the surrounding horizon, the challenge in the Euphrates-Tigris basin, however, is likely to concern a new emphasis on the value of water. The critical factor is likely to be the maximum economic productivity which can be achieved from the utilization of the unit of water. Just how quickly this approach will permeate the basin will depend on the pressure put on the water resource base and how individual governments will react. Under the proposed irrigation schedules for the Southeastern Anatolia Project, wheat is planned to account for 25 percent of the irrigated area, and barley and other feed grains a further 15 percent (Altinbilek 1997). A relatively small cut-back in these figures would release large quantities of water which could be utilized for other purposes, including hydroelectric power and could lessen the pressure of possible water shortage by the downstream countries and the level of tension and dispute amongst the three riparian countries. In Syria, a sound step towards modernizing irrigation systems and thus maximizing the productivity of water use has

The value of
water

been progressively taken and it will be interesting to see the effects of such a move on water allocation and water sharing with the other riparian countries. It is in the end Iraq being currently tied with its disrupted political situation if the consequence of development and use continues and if the changes/moves by the two upstream countries do not succeed which will be suffer.

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Political Challenges to Sustainably Managing Intra-Basin Water Resources in Southern Africa: Drawing Lessons from Cases

Larry A. Swatuk

“[W]ater management is never ‘neutral’, ‘technical’ or ‘an end in itself’. Neither do neutral water institutions exist, whether they are Catchment Management Agencies, Catchment Management Committees, Water User Associations, forums, or Stakeholder Reference Groups. Nor is DWAF [the Department of Water Affairs and Forestry in South Africa] a neutral facilitator for institution building, limiting its role to that of a constitutional watchdog to ensure demographic representation. Decentralising water management is even less a matter of handing over neutral authority from the state to a neutral public.”

Schreiner and Van Koppen (2002: 975)

“I would argue that in the 260 river basins across the planet that are shared by more than one state there are tensions in every single one of them, without exception, to a greater or lesser extent. In some cases it is so small you wouldn’t see it and some cases very large indeed. So there is suspicion between all states that share river basins without exception, including in Africa.”

David Grey (World Bank, IRIN interview)

“River Basin Development Authorities (RBDAs) have been exposed to the worst excesses of bureaucratic gigantism. They have survived, and proved effective covers for corruption but poor promoters of any form of rational or integrated development.”

Adams (1992: 126 in Newsom, 2000)

1. Introduction

Water reforms are underway throughout the SADC region (Swatuk, 2002a, for an overview). Whereas these began piecemeal throughout the 1980s (e.g. the development of River Basin Committees in Tanzania in 1981; the establishment of ZACPLAN from 1985), they gained considerable momentum at that decade's end. From the early 1990s, local drought combined with global forums (Dublin, Rio) to push water resources management to the front of SADC and global developmental agendas. Political changes in the region and the world facilitated more broad-based dialogue regarding integrated, cooperative approaches to economic development.

General
agreement on
basic facts

What seems to have emerged is an epistemic community of sorts, with general agreement on basic facts about water (e.g. it is essential, finite, fugitive), the state of water resources in the world (diminishing relative to expanding populations), the impact of current water management practices on natural and human environments (degraded physical landscapes and declining water quality and quantity through waste and crumbling infrastructure), the importance of water in poverty reduction/eradication, the gendered nature of inequitable access to safe water and sanitation, and the actions that must be taken if water resources are to be sustainably managed, with the latter captured quite clearly in the 1992 Dublin Principles.¹ Global networks devoted to water resources management have developed through time and are extensive, interlinking *inter alia* (I)NGOs, IGOs, government departments, private foundations and think tanks, university based research centers and academic programs, private companies and consultancies. Visiting a single website (e.g. <http://www.righttowater.org.uk>) leads one almost immediately to websites maintained by groups such as Water Aid in the UK, the World Water Forum, World Water Council, Global Water Partnership, International Water Management Institute, International Rivers Network, the IUCN, various UN organizations (World Bank, UNESCO, WHO). Each of these sites leads to many others and to a wealth of policy and academic papers devoted to sustainable water resources management, including those delivered at the 2001 Bonn International

¹ On the various themes above, see Savenije, 2002; Gleick, 2002; Agenda 21 at http://www.un.org/esa/sustdev/documents/WSSD_POI_PD-English/POIChapter2.htm; and the Dublin Principles at <http://www.wmo.ch/web/homs/documents/english/icwedece.html>.

Conference on Freshwater². Simply typing in 'IWRM' on the google search engine returned more than 10,000 links.

At the heart of most of these efforts is the concept 'integrated water resources management' (IWRM). Pollard defines IWRM as follows: 'Equitable access to and sustainable use of water resources by all stakeholders at catchment, regional and international levels, while maintaining the characteristics and integrity of water resources at the catchment scale within agreed limits' (Pollard, 2002: 943). IWRM encapsulates each of the four Dublin Principles. To briefly reiterate:

Principle No. 1—Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment

Since water sustains life, effective management of water resources demands a holistic approach, linking social and economic development with protection of natural ecosystems. Effective management links land and water uses across the whole of a catchment area or groundwater aquifer.

Dublin
Principles

Principle No. 2—Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels

The participatory approach involves raising awareness of the importance of water among policy-makers and the general public. It means that decisions are taken at the lowest appropriate level, with full public consultation and involvement of users in the planning and implementation of water projects.

Principle No. 3—Women play a central part in the provision, management and safeguarding of water

This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programs, including decision-making and implementation, in ways defined by them.

² See <http://www.water-2001.de/days/>

Principle No. 4—Water has an economic value in all its competing uses and should be recognized as an economic good

Within this principle, it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price. Past failure to recognize the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.

These four principles inform, if not underpin, the character and content of current water reforms in Southern Africa. Given the multilateral approach to global water governance—through UN, World Bank, World Water Forum, IUCN networks for example—one might argue that together the Dublin Principles constitute a global norm akin to ‘human rights’ – although argument continues regarding the meaning of water as an economic good and whether that stands in contrast or complement to water as a basic human right (Gleick, 2000; Savenije, 2002).

Operationalize the
action agenda

In this paper, I present some empirical results from attempts to operationalize the ‘action agenda’ of the Dublin Statement—providing safe water for all; guarding against natural disasters; building a knowledge base; creating an enabling environment through law and institutional reform; capacity building at the level of state and civil society; resolving conflicts; protecting aquatic ecosystems; increasing agricultural productivity; improving the quality and reach of urban delivery systems; implementing demand management principles—based on its four principles. My data is primarily drawn from two special issues of the journal *Physics and Chemistry of the Earth* (vol. 27, nos. 11-22, 2002; vol. 28, nos. 20-27, 2003). These special issues comprise research conducted by (junior and senior) scholars, practitioners and policy makers active in the water sector throughout the SADC region. This research was presented at the 2nd and 3rd annual meetings of WATERNET, a region wide program funded by SIDA’s Water Research Fund for Southern Africa (Warfsa) which seeks to build on Dublin action agenda items regarding capacity and knowledge base building. The 2002 meeting’s theme was ‘Integrated Water Resources Management: theory, practice, cases’; that of 2003 was ‘Water Demand Management for Sustainable Use of Water Resources’.

While generalizing from the data, it should be pointed out that the specific basins include the following: the Pungwe, Odzi, Save, Manyame and Mazowe Rivers in Zimbabwe; Lake Chilwa in

Malawi; the Rufiji, Usanga, Pangani Rivers and Lakes Victoria and Manyara in Tanzania; the Kuiseb, Cuvelai Rivers as managed by Namibia; the Okavango River as managed by Angola, Namibia and Botswana; the Olifants, Sand, Inkomati, Crocodile and Sabi Rivers as managed by South Africa; three unidentified Water Management Areas in South Africa's Kwa-Zulu Natal region; and the cities of Maputo (Mozambique), Bulawayo, Harare, Masvingo and Mutare (Zimbabwe); Lusaka (Zambia); and Windhoek (Namibia).

What will be shown below is the similarity of experience—primarily but not only negative in character—with IWRM and WDM in practice, especially regarding the creation and early operationalization of river basin organizations (generally denoted Catchment Management Councils or Authorities) and attempts to shift toward (full) cost recovery through for-profit utilities in urban areas.

The general argument of this paper is that politics stands at the center of these problems—so political challenges to sustainable river basin management are great. However, as will be shown below, the sort of politics I am talking about is not simply that of resistance by entrenched interests in favor of the status quo (although that is part of the story). A good deal of the politics involved revolves around the discourse of development and the place of IWRM (including integrated river basin management, IRBM) therein. If IWRM is to be successfully realized in the SADC region, purveyors of these global norms must reflect on the basic assumptions, and conscious and unconscious ideologies informing their approach to design and implementation. As the opening epigram from Schreiner and Van Koppen points out, water sector reforms are profoundly political matters. Residents of the SADC region—from landless peasant to NGO operator to national elite—are engaged in a continuous dialogue with national, regional and especially global actors, be they mercenary, missionary or fellow traveler. The result is that some of these ideas are adopted (but rarely *in toto*), others are rejected (but rarely outright), still others are modified (through a process of 'localization'³), and only some find their way beyond protocols and laws into enactment and enforcement by state authorities. Understanding this process is key to achieving sustainable water resources management in the region.

Politics stands
at the center

³ According to Acharya (2003), "localisation describes a complex process and outcome by which norm-takers build congruence between transnational norms ... and local beliefs and practices".

The paper locates water reforms within the broad ambit of development discourse, emphasizing the interrelationship between transnational norm entrepreneurs and local actors. Geographically specific in this case to Southern Africa, IWRM constitutes both a discursive site and multilateral landscape where various forms of power—political, social, cultural—are exercised in the production of new social practices. Framed this way, IWRM is far more than the technical application of good ideas based on sound scientific and managerial methods. As such it presents its supporters – within the region and the world – with seven key political challenges. These challenges are flagged within the text and briefly discussed in the conclusion.

2. The politics of water reforms in SADC states

Motives for reform

Motives for reform arise out of a mix of general facts about water resources in Southern Africa and the particular experiences of individual states. In terms of the former, it is generally agreed that there is a mismatch between resource abundance and human settlement: the majority of the region's people reside in areas of relative water scarcity (Conley, 1996; Swatuk, 2002a). Population growth rates are said to be putting pressure on existing resources while access to available water resources mirrors historical inequalities (Robinson, 2002). As a result of these factors, conflicts over water resources are said to be increasing at the same time that stocks and flows of natural resources are being depleted and degraded. Myriad studies have been produced in support of this narrative (e.g. Ohlsson, 1995; Turton and Henwood, 2002). Conclusions drawn based on these 'findings' vary between those who regard conflict over essential resources as a gateway to further conflict, perhaps warfare in the case of international watercourses, or as a pathway to peace (Turton, 2003; Swatuk, 2002b)⁴.

In terms of country-specific motives, it is clear in the South African case that a massive developmental backlog (where 50 percent of South Africans are income poor and 10–12 million people lack access to clean water) in contrast to fully committed water resources in service to the few (where, for example, 97 percent of available water resources in the Mhlathuze Basin in Kwa-Zulu Natal are used by 10 percent of the population) was

⁴ Those who continue to foresee increased conflict as the more likely outcome – despite mounting evidence to the contrary – seem wedded to this idea more for its alliterative value ('water wars', 'hydropolitical hot spots') or its catchy metaphors ('praying for rain', 'reflections on water') than any evidence in support of these arguments.

anathema to the goals of the post-apartheid government (data from Schreiner and Van Koppen, 2002, pp. 969–70). Changes would have to be made. Inequalities of access, limited financial and human resources at national level, declining infrastructure and poor service delivery, declining quality and quantity of the resource, a narrow band of stakeholder involvement in the sector, institutional fragmentation, conflicting sector policies, recurrent drought/flood and increasing numbers of stakeholder conflicts were motives common to Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe (Dube and Swatuk, 2002; Mwendera et al., 2003; Kashaigali, 2003; Maganga et al., 2002; Maganga, 2003; Mulwafu et al., 2003; Robinson, 2002). Scarcity and inequality of access were also motives in Namibia (Bote et al., 2003) while scarcity, internationally shared watercourses and regional trends are the driving force behind reforms in Botswana (Swatuk and Rahm, 2004).

To put it bluntly, the goals of these reforms are equity, efficiency and sustainability—all buzzwords in current global water governance. The means to achieve these goals combine activities undertaken at global, regional, and national levels. While certain of these activities take the River Basin as the basic unit of management, none of these initiatives have evolved to the extent where one may accurately speak of a ‘river basin level’. They remain national or international activities whose (proposed) management focus is the river basin. **(CHALLENGE 1)**

Equity,
efficiency and
sustainability

Global activities revolve around multilateral efforts to achieve consensus on water governance. Key global principles, accords and conventions (e.g. Helsinki, Dublin, the 1997 UN convention on non-navigational uses of international waters) inform multilateral (e.g. Commonwealth), continental (e.g. the Africa Water Task Force), and regional positions and initiatives (e.g. the SADC protocol on Shared Watercourses). An increasingly dense network of activists, policy makers, academics, and entrepreneurs form the basis for what I labeled earlier as a nascent epistemic community. Given the highly technical nature of, for example, water engineering, hydrology, geohydrology, and related environmental, ecological and soil and land management sciences, this network constitutes a relatively exclusive club of ‘experts’ who hold a monopoly on the production and application of ‘knowledge’. Understandably, they tend to interface with each other, to the exclusion of the ‘soft’ sciences, the humanities, let alone smallholder farmers and village chiefs. **(CHALLENGE 2)**

Evolving global interests (from, for example, soil conservation to environmental resource management to water resource management) are reflected in regional and national

governance architectures: SADC's original (virtually moribund) soil conservation unit located in Maseru, Lesotho, evolved in the late 80s/early 90s to become the environment and land management sector out of which grew the water sector coordinating unit. National water master plans, local and national environmental action plans (LEAPs and NEAPs) and government departments and/or ministries devoted to the environment were the direct result of global activities leading up to the Rio Earth Summit of 1992. The end of apartheid and increasing global trends toward regionalization encouraged SADC states to pursue a variety of protocols (in trade, energy, tourism, shared watercourses, communications, for example) and to rationalize the organization all with a view toward greater regional integration (Du Pisani, 2001). Whereas this regional integration was designed to ostracize apartheid South Africa in the past; current efforts privilege South African interests—a rather ironic twist (Oden, 2001; Swatuk, 2000). **(CHALLENGE 3)**

Not simply
policy takers

Clearly, trends in national and regional thinking regarding resource exploitation, use, and management have been guided by forces external to the region and the continent. Indeed, it is quite common to locate the genesis of this trend in colonial/imperial policy making (Swatuk, 2001). However, this is not to say that present day SADC governments, businesses, academics and citizens are simply policy takers, making the best of an uneven global playing field by making deft if reactive choices. Rather, actors throughout the region engage in a complex process of localization, seeking out those ideas that are morally appealing and/or serve their political interests—e.g. 'peace parks', 'transboundary natural resources management'—without threatening extant configurations of power nationally or regionally. Where certain transnational norms are ambiguous in impact—such as the commitment to equity in water resources management—elites may adopt the language of the norm, without immediately giving it content. At the same time, inside proponents of the norm (e.g. a local NGO or community based organization) may place pressure on government to 'make good on their promise'. Equity may be grafted to other norms, such as 'good governance', or reframed to appeal to a wider audience ('water as a human right') in order to force government's hand and draw in interest from influential transnational forces, particularly donors.

Given the profound power asymmetries that exist within SADC states (e.g. rural/urban, urban/peri-urban; white/black; male/female), between states (in particular South Africa and 'the rest'), and between the region and the world (in particular

between SADC and the U.S. and SADC and the EU), strategies of localization, while desirable, are not always possible. According to Wolfers (1999, p. 56), localization is a broad, evolutionary process akin to the 'endless elaboration of new local-foreign cultural wholes'. In some instances, however, policy makers must simply adapt to changing circumstances in order to deal with the foreign impact in the short/immediate term. The clearest instance of this was the grudging acceptance of structural adjustment programs as the new development orthodoxy of the 1980s. Bankrupt SADC states faced little choice. This was particularly the case after the fall of the Soviet Union which put paid to any further notions of 'actually existing socialism' in Tanzania, Mozambique, and Angola (if it was ever the real aim in the first place) and race-based development in Namibia and South Africa.

Yet localization remains a viable practice throughout the region—though clearly frustrating for those Acharya (2003) labels 'moral cosmopolitans', i.e. transnational actors who regard their perspective as universal in space and time and regard any resistance as immoral and unacceptable (Western liberal characterizations of the land invasions in Zimbabwe as 'flagrant abuse of the rule of law' being a good example). Localization, in my view, is made possible by the region's more complete incorporation into global capitalism through settlers' concerted attempts to recreate the region as a neo-Europe (Crosby, 1986). This is particularly the case in South Africa, Namibia, Botswana, Zimbabwe and parts of Malawi, Swaziland, Zambia and Tanzania. 'African' social forms and processes, partly shaped and conditioned by capitalist development seem knowable to the Western eye and mind. Because Harare and Windhoek look like Western urban spaces, they must be amenable to Western processes—like liberal capitalist development which is no longer a consciously held ideology but simply the 'way things ought to be' (Weber, 2001, p. 5).⁵

The consequences of de-othering (but continuing to subordinate) the African—of simply assuming that s/he is nothing more than an unenlightened Westerner—are particularly

Localization
and moral
cosmopolitans

⁵ Weber describes conscious ideology as 'a fairly coherent and comprehensive set of ideas that explains and evaluates social conditions, helps people understand their place in society, and provides a program for social and political action'. Unconscious ideology in contrast is 'not formally named and ... is therefore difficult to identify. It is the common sense foundation of our worldviews that is beyond debate', e.g. 'boys will be boys'. She further argues that 'if culture is a site of meaning production, ideology is a site where meanings that are culturally produced are transformed into just the way things are or the way they ought to be' (2001, p. 5).

pertinent for my analysis. The ‘myth of wild Africa’ infused Western perceptions of ‘the African’ for perhaps 350 years. It formed the basis for uncountable and unconscionable horrors visited upon Africans—from slavery to side-show exhibits to the object of sport hunting. It continues to form the basis for unconscious ideological beliefs held by the vast majority of non-Africans: that to be black is to be inferior; that to be African is to be backward and violent; that to be **African** is explanation enough for the failure of myriad development interventions—including water reforms.⁶ Settler Africa, because great swathes of it are ‘like’ Europe—encourages statist hierarchies, with South Africa at the ‘top’ and Sierra Leone somewhere near the bottom, but all a good way below OECD states in terms of ‘development’. White South African claims of ‘Africanness’ further encourage the notion that Black Africans are simply a little slow to learn—at least in South Africa or Botswana or Zimbabwe.⁷ In terms of water resources management, the centrality of so-called ‘hard science’ plays directly into the unconscious ideological positions highlighted above. Africans privileged by Western actors do not openly dispute universalist claims regarding development trajectories as it is not in their best interest to directly contest intellectual and material hegemony. Nevertheless, localization occurs incrementally as terms such as ‘the African way’ and ‘it is a regional issue’ are grafted on to transnational norms. SADC state makers’ collective approach to the Zimbabwe crisis is one such example.

Rival
explanations are
discounted

The insidiousness of ‘that’s just the way things are’ ‘explanations’ for project failure or society wide chronic underdevelopment and instability stems from the fact that outcomes are not only pre-determined, but rival explanations are de facto discounted. If debt (whose principal was long ago paid in full) were forgiven, Western markets opened to African products, and borders and immigration laws relaxed, a very different Africa would emerge from the one that ‘just is that way’.⁸ Pre-

⁶ If I had 10 cents for every time I heard a white person say ‘oh... these people’, I would be a very rich man indeed.

⁷ According to Said (1978), ‘In a quite constant way, Orientalism depends for its strategy on this flexible positional superiority, which puts the Westerner in a whole series of possible relationships with the Orient without ever losing him the upper hand’. I would argue that development discourse performs the same act in Africa: it is, in fact, an instance of Africanism (see Moore, 1995, for details).

⁸ I find it rather curious that the development literature rarely factors in the importance of emigration from Europe in European ‘development’—perhaps for fear that others condemned to live within bizarre colonial borders might take to flight.

determined explanations also facilitate sectoral approaches to development; so, water resources management may be approached separately from questions of debt, trade, security and foreign policy when in fact, it seems to me, they should be considered as parts of a whole. Given the essential nature of water, its central role in all aspects of social reproduction, 'hydropolitics' seems a rather ridiculous concept.
(CHALLENGE 4)

I am articulating the various ways in which power manifests itself in Southern Africa. While the specific geography under consideration may be a river basin or a country, the politics played out is global in scope and multilateral in form. Global norms are brought to bear by transnational norm entrepreneurs—good governance, sustainability, IWRM, development, participation, neoliberalism—interested in specific normative outcomes: sustainable ecosystem management, poverty alleviation, enhanced food production, gender equity, upholding human rights, opening markets for products, profiting from water resources infrastructure development. The motives are as many and varied as the actors. Individuals, households, firms, organizations and various levels of government in target states and basins have their own motives as well.

Global norms

Power is exercised through material and non-material means. While a common definition of 'the political' is 'organized conflict about the use of public power', and of politics as 'power, the struggle to obtain it and to maintain it, and the use made of it' (Curtis, 1974, p. xxiii), or control over institutions, resources and people, power is much more evanescent than this. Power is knowledge, it is the ability to frame a particular discourse in a particular way, it is 'fluid and relational' (Tapela, 2002, p. 1003).

Power, and hence politics, is everywhere present in water resources management reforms. It coalesces around the discourse of IWRM and its essentially contested concepts, equity, efficiency, sustainability: What do these terms mean? How may we realize them as goals? SADC states have quickly gone forward with the reform process, led by South Africa and Zimbabwe and the donor community, accepting the basic methodology of reform as being: (I) creating new legislation (e.g. national water master plans; new Water Acts; new Water Services Acts); (II) creating new institutions (Catchment Management Authorities, River Basin Commissions, Water User Associations, River Boards, Water Point Committees); (III) creating new funding arrangements (user-pay fees, full or partial cost recovery, levys for stored and abstracted water, for-profit utilities, public-private partnerships). As Latham points out in the Zimbabwean case

(2002, p. 907), there 'was almost universal consensus amongst water administrators, legislators and academics that the Water Act of 1976 was in need of reform or replacement. This perception was strengthened by world trends and conflict related to access to resources'. For Van Koppen (2003, p. 1048), "one can speak of a global movement for IWRM-based water reform, in which African stakeholders take active part". Quoting from the Accra Declaration of Africa's Regional Stakeholders' Conference for Priority Setting, Van Koppen articulates the following principles (Van Koppen, 2003, p. 1048):

- Management at river basin level
- Management at the lowest appropriate level
- Demand-driven approaches
- Ownership and participation by all stakeholders, especially women and youth
- Promotion of knowledge and information exchange aimed at institutional sustainability and conflict prevention.

3. Results of the reform process thus far

3.1 Institutions

Keohane and Nye (1993, p. 19) argue that localization processes are more practical than wholesale change because it is easier to maintain and adapt existing institutions than make new ones. The gradual reform of SADC's structure is a case in point. In contrast, water reforms have entailed the creation of entirely new institutions across the region: catchment management councils/authorities. For Dovers (2001, p. 215), "institutions are both barriers to and opportunities for ecologically sustainable human development. Institutions can pervert or empower human potential". This hope for empowerment, it seems to me, formed the basis for the creation of new institutions. And, given that existing institutions tend to reflect the past more than anticipate the future, CMAs were necessarily created from the ground up (Dovers, 2001). However, almost without exception they have run into serious difficulty. Dube and Swatuk (2002) and Tapela (2002) highlight how the fast tracking of the process in the Save River Basin, wherein the whole structure was to be in place and operational in six weeks, resulted in a mad scramble for authority among the farming community. As a result, extant power relations were reproduced in the new institution (also, Manzungu, 2002). Other groups identified by government as key stakeholders refused to participate (Kujinga, 2002). Latham (2002), Manzungu

(2002), Marimbe and Manzungu (2003) reported similar results. Ngana et al. (2003) report that people in their study area of Lake Manyara, Northern Tanzania, had virtually no knowledge of water reform processes. Tapela (2002), in her study of institutional change in the Save River Basin, highlights the difficulties inherent in overlaying a new institution on top of a variety of other existing institutions with different jurisdictional boundaries (Rural Development Council; Provincial Government; District Council to name three). Dungumaru and Madulu (2003), in the Tanzanian case, suggest that “participation” was nothing more than a quick brand to legitimise changes predetermined by central government in consultation with donors. Tapela argues that claims to gender sensitivity were over-stated (2002), while Manase et al. (2003) argue that reforms left little scope for gender mainstreaming from the beginning. Latham (2002) highlights how the Catchment Council Manager, as an employee of the Zimbabwe National Water Authority, was in fact government’s overseer in the whole process: decentralization perhaps, but certainly not the devolution of power as envisioned in strategy documents. In the Tanzanian case, Sokile et al. (2003) and Maganga (2003) suggest that traditional, informal institutions and customary law may constitute a more realistic starting point for subsidiarity and popular participation in decision making and management.

A quick brand
to legitimize

3.2 Finance

In terms of new financing arrangements, Catchment Councils universally were found to be having great difficulties raising funds. Indeed, they were all donor dependent, the dangers of which are only too well known (Dube and Swatuk, 2002; Manzungu, 2002). Mulwafu et al. (2003) reported that attempts to raise funds ran into cultural barriers, particularly in rural areas. Van Koppen (2003, p. 1052) suggests that attaching rights to water to fees for that water encourages non-participation: why should rural people pay for a resource they have long used for free if there is no evident benefit to them, she asks. Kashaigili et al. (2003) argue that issuing rights for numerous smallholders is not feasible from an administrative or cost-effective standpoint. Robinson, in the Zimbabwe case, (2002) points out how support for state run smallholder irrigation projects are riddled with corruption and favoritism and asks why, somewhat rhetorically, that 20,000 smallholder families can be guaranteed access to water and support services while the balance of peasant families are left to their own devices—and now to be levied for water use? Moreover, most of the case studies focussing on Zimbabwe

highlighted the way in which land reform had thrown the entire water reform process into disarray. Some questioned the commitment of donors to reforms, since funding was frozen due to power political issues at national level (Dube and Swatuk, 2002).

In contrast to the experiences of Zimbabwe, Malawi and Tanzania highlighted above, studies by Bote *et al* (2003), Amakali and Shixwanmeni (2003), and Schreiner and Van Koppen (2002), show that more deliberate approaches to institutional development—in particular detailed stakeholder awareness and/or outreach meetings held regularly with entrenched feedback processes—can help build consensus even where government has predetermined the institutional form. Machingamba and Manzungu (2003, p. 1046) identify rural peoples' sense of communal responsibility for water point management, but also their abiding belief that government must help—an unconscious ideology in most of post-colonial Africa. This contrasts with evidence from Malawi regarding government plans to 'devolve' power to smallholder irrigation projects. While most people there believe that this is simply a code word for cutting funding, government officials themselves report skepticism as to whether government will really let go of these projects (Mulwafu, 2002, p. 843). **(CHALLENGE 5)**

Urban areas located within the boundaries of new institutions were equally reluctant to participate in the deliberations of these councils (Tapela, 2002; Dube and Swatuk, 2002). Gumbo and Van der Zaag, reporting on Mutare (2002), Robinson in examining Lusaka (2002), Dube and Van der Zaag in their study of Masvingo (2003) and Mwendera *et al.* (2003) in their overview of the region, all show how City Council's are dependent upon revenues from water sales to subsidize other council activities. They also show how eager they are to engage in new supply-side projects rather than embark on water demand management practices (e.g. leak detection; information activities regarding water saving devices), so 'solving' poor delivery systems with new water. Gumbo and Van der Zaag (2002) show quite clearly how a constellation of powerful actors—provincial administrators, city mayor, donors, commercial developers—came together to push through a new supply project (votes and profits) when other options were available.

Swatuk (2004) and Swatuk and Rahm (2004) show how the move toward for-profit delivery, either through public-private partnerships (Nelspruit) or the creation of a public utility corporation (Gaborone) leads to a narrowing of services (in the case of the former) and massive waste of treated water (in the

case of the latter), the developmental and environmental costs of which outweigh any monetary profits made. In their study of four cities in Southern Africa—Bulawayo, Mutare, Maputo, Windhoek—Gumbo, Juizo and Van der Zaag (2003, p. 828) state that while a well thought out Management Information System may help overcome some of these practices, it can only be successful if located within ‘an effective and dynamic institution which is guided by a healthy legislative framework’—something to be found in Windhoek, perhaps, but in sort supply in the rest of the region. Jewitt (2002) in his study of South Africa’s water reform program demonstrates just how far away South Africa’s ‘command and control’ approach to water resources management remains from holistic, ecosystem perspectives, no matter how viable. **(CHALLENGE 6)**

3.3 Conflict resolution

One of the primary motivators for reform, particularly the adoption of basin level institutions, was the claim that water scarcity is leading to increased instances of violence in the region. It is interesting to note that of all the basins considered in this paper, only two papers directly addressed the transboundary nature of resource management. Gumbo and Van der Zaag (2002) discuss the way in which the governments of Zimbabwe and Mozambique arrived at an agreement whereby the former was allowed to draw a fixed amount of 700 liters/second from the Pungwe River for drinking water purposes only for the city of Mutare. This amount constitutes a mere fraction of the river’s total flow through Mozambique, particularly as tributary flow from rivers originating in Mozambique is very high (for details, see Swatuk and Van der Zaag, 2003). The other paper to discuss transboundary issues is Swatuk’s examination of the Ramsar Agreement as a multilateral tool for sustainable resource use in the Okavango River Basin (2003).

This is not to suggest that transboundary conflicts do not exist; they do (Giordano and Wolf, 2003; Wolf, Stahl and Macomber, 2003). However, these pale in comparison to the numerous, primarily non-violent intrabasin user conflicts within states (sometimes on each side of an international river, such as the Pungwe). Perhaps the reason for this is the immediacy of user concerns, as most conflicts tend to arise in the dry season. Conflicts tend to emerge in a number of ways along the course of a river. In a representative case, in the Rufiji Basin in Tanzania, there are upstream conflicts between pastoralists, irrigators, and farmers returning to land from which they were at one time

More
intrabasin than
transboundary
conflicts

removed during the colonial period. There are also conflicts in the Usangu sub-basin between the environment (wetlands) and farmers who are turning the wetland into cultivated rice paddy. Upstream users conflict with downstream hydropower generation. Maganga et al. (2002) report that these farmers believe that water reforms are designed for TANESCO, the Tanzania Electricity Supply Company. And furthest downstream, burgeoning coastal towns and cities often see their water supply run dry. Similar user conflicts are to be found in each of the other basins listed at the beginning of this paper with Pollard's study on the Sabi (2002) and Manzungu's (2002) on the Inkomati being particularly informative.

Unrealistic
demand-control
approach

Proposed solutions stemming from water reform practices are to prohibit those not holding water rights from drawing water from the river. Aside from the typically punitive demand-control approach, given the large number of users this hardly seems feasible (Kashaigili et al., 2003). Kashaigili documents two recent initiatives designed to raise awareness and liaise with people at water point level. WAMISHI (Wawezeshaji Mipango Shirikishi) is a 'multi-disciplinary district participatory team' that engages in technical assistance and other outreach programs. The team is active in the Mbarali district of Mbeya region in the Rufiji Basin. Another initiative operative in the Kimani sub-catchment of the Usangu Basin is the Sub-Catchment Resource Management Programme (SRMP). The SRMP brings together different users and associations involved in the use and management of the Kimani River. According to the authors, "the idea of SRMP builds upon the existing concerns over water scarcity demonstrated by users at the lowest scales of the hydrological system, which in turn helps to reduce conflicts among various water users and leads to improved management of water resources" (Kashaigili et al., 2003, p. 846). **(CHALLENGE 7)**

Whereas policy makers in the SADC region demonstrate a willingness to put in place formal arrangements for conflict resolution where transboundary water resources are concerned—e.g. the Okavango, Orange, Kunene, Limpopo river basin commissions (Heyns, 2003)—structures at local level are slower in developing. One reason for this, it seems to me, is that at the level of inter-state relations major users (e.g. hydropower, plantation agriculture, industry, affluent urban centers) in each state continue to command the lion's share of water resources. As such, they are not likely to 'fight' over water with similar users in

neighboring states.⁹ So, conflicts arise between (empowered) major and (disempowered) minor users within states. Policy makers, already lacking financial, technical and human resource capacity, seem content to let structures evolve by those who need them most.

3.4 Knowledge

SADC states are primarily a collection of economically weak, primary commodity exporting, debt distressed countries with unconsolidated democracies (SADC, 2000; UNDP, 2003). Many face the catastrophe of HIV/AIDS virtually unarmed. Since its inception, SADC as an organization has been arguing in support of international programs that build human resource capacity, particularly through health and education. However, at all levels of society there remains a substantial knowledge deficit in the region. Informed decisions regarding resource use require reliable, valid data. Their interpretation requires a corps of skilled nationals, for it is the residents of this region that will ultimately have to live with decisions made and actions taken. Those wielding public power are highly unlikely to stray from the current course unless very convincing arguments can be marshaled in support of change. This requires not only reliable data but critical, reflective social analysis regarding the political consequences of proposed courses of action.

Reliable data and
critical analysis

Levite, Sally and Coru (2002) and Kamara and Sally (2003) present preliminary applications of decision support tools available to water resources managers (Water Evaluation and Planning Model, WEAP, and Podium, the policy dialogues model). Other decision support tools are fast becoming available in the region, mostly but not only through the scientific network in South Africa. Many of these are relatively simple to use. They facilitate, as one advocate told me, the democratization of decision-making regarding water resources planning (Soderstrom, 2003). Where once only the province of highly trained 'experts', water resources management and planning is now available to all stakeholders. Yet these computer applications remain simply 'support tools'.

Questions of methodology, epistemology and ontology remain: if you build a dialogue around a belief in absolute scarcity you are going to get a limited range of outcomes specific to those assumptions. Yet what do we mean by scarcity? Mwendera et al.

⁹ As Zoe Wilson once pointed out to be, water wars are unlikely because powerful people always have water. If poor people lack water resources they move or simply die.

(2003) state unequivocally that SADC states use too little water and that this is an uncontrovertible sign of underdevelopment. According to Van Koppen (2002: 1048), Africa's available water resources have hardly been harnessed at all. 'Water scarcity', she argues, is more accurately understood as 'economic water scarcity' – the resources are available but the economic resources and incentives to develop that water is lacking. Robinson (2002) argues that free or under-priced water benefits the rich who already enjoy services, as such the inability to recover costs prohibits the extension of services to the poor: in other words, free water harms the poor.

Savenije (2002: 744) argues that assuming that the water issue is merely about drinking water, and particularly about urban water supply leads us to believe that water – mistakenly – is simply an economic good. 'Although the drinking water and sanitation issue is one of the largest societal challenges of the next century, it is a minor issue with regard to global water scarcity.'

These are unconventional ideas. They are new ways of looking at old problems. Perhaps the biggest challenge we face is training students how to be good physical and social scientists while instilling in them an ability to think 'outside the box'. Inter-disciplinary activities like the annual WATERNET/Warfsa meeting and the associated M.Sc. in IWRM mark the beginning of such essential departures from past practice.

4. Summary

In this paper I have described the motives and methods behind Southern Africa's current water reforms. I have argued that IWRM constitutes an emerging global norm. As such, it is not simply a policy or method, but a site where power political, social and cultural are exercised through discourse, knowledge creation and social practice. It throws up a series of contradictions that are not easily resolved. In particular, empirical evidence highlights how policy makers in the region are willing to make new laws, devise new strategies and put in place new institutions – but are less inclined to commit resources which may give fuller form to these skeletal rules, norms and procedures. This reluctance may be partly explained by the evident inverse relationship between complexity and capacity: fundamentally overhauling water resources management and practice is a task beyond the budgets and human resource capacities of most SADC states. South Africa – driven by an abiding developmental deficit – and Namibia – driven by acute resource scarcity – are exceptions to this rule. Each state has embarked on what it feels to be central

tasks (new legislation; new institutions; key interventions). Moreover, much of South Africa's reform programme rests on moral arguments – lifeline supply and the water reserve as essential to the health of the society. Elsewhere, policy makers seem content to let donors drive the process, actively engaging wherever they see an opportunity to enhance their political power – new water laws where water is held by the state in trust to the nation; international river basin commissions which enhance prestige locally and globally and devise a framework wherein future allocations for major users (large-scale farming) or developments (hydropower development) may be discussed. There are, indeed, a great many supporters of sustainable water resources management in the SADC region. This is evident in the many scientific papers discussed in this paper. But states lack capacity and policy makers most often follow the line of least resistance. This may not lead to the rampant corruption Adams highlights in the opening to this paper, but it does lead to the inevitable conclusion that half-hearted interventions create more problems than they solve.

The line of least resistance

These facts pose, in my view, seven political challenges for advocates of IWRM locally and globally. I bring this paper to a close by briefly outlining these challenges.

- **Challenge 1:** States show a willingness to decentralise specific tasks (levy collection; permit allocation) but not to devolve power to River Basin Commissions. Given that access to water is access to power, how can empowerment take place at the lowest appropriate level when central governments demonstrate an abiding desire to hold on to this power?
- **Challenge 2:** IWRM constitutes one aspect of 'development'. Indeed, the World Bank clearly ties water resources management to poverty alleviation. Given that 'development' involves social change, imposing template reform programmes on the assumption that they are uncontroversial, apolitical, technical practices is leading directly to undesirable outcomes (the immediate hijacking of CMAs by elites being a case in point). Our second political challenge is to work interdisciplinarily, reflexively and cooperatively with people on the ground. Understanding the social context is vital to successful water resource management intervention. A key factor here is to question one's own stated and unstated assumptions about reasons for intervention and likely consequences: smart partnerships, as suggested above, are rarely very 'smart'.

- **Challenge 3:** Evidence throughout the SADC region demonstrates how projects fail when implemented from the top-down. In this case, the 'top' is both the international donor community and, secondarily, the central government. If IWRM is to be sustainable, questions of ownership and initiative must be addressed. Moral cosmopolitans simply assume that IWRM is the right way to proceed, with any resistance labeled 'immoral'. As many of the studies cited above demonstrate, local people were simply informed of change and involved as passive participants. The third challenge, then, is how to root reforms in local imaginaries: given the obviously shared goal of sustainable water resources for all, how would people at the lowest level of the hydrological system proceed?
- **Challenge 4:** There is an increasing tendency to treat water resources management separately from other social, economic, political and developmental processes. The highly technical character of interventions, and the complex nature of delivery systems lends itself toward 'sector specific' thinking. But water resources management is an integral aspect of all social systems, from the local to the national to the regional. It cannot and should not be separated from larger questions regarding, for example, economic policy. New social movements worldwide are increasingly turning to water as a touchstone of equitable and sustainable development for all. The fourth challenge, therefore, is to continually push for positive change in other aspects of the global political economy, while working with water specific interventions. Debt distressed SADC states will never sustainably manage their water resources.
- **Challenge 5:** The rapid pace of implementation highlighted above calls into question the political will of donors and recipient state policy makers. Why the rush? Evidence from the Cuvelai, Kuiseb, Olifants and various KZN basins show the merits of go-slow strategies. IWRM is a long term activity, involving an intricate *pas de deux* between transnational norm entrepreneurs and local actors. The fifth challenge is for donors to acknowledge that positive change is a long term process and that 'fast tracking' institutional change is tantamount to little more than an insult to local people – further proof, in fact, that Africa is little more than an experimental ground for hare-brained Western ideas.
- **Challenge 6:** The powerful knot of social forces evident in supply side bias will be a difficult one to undo. As long as new

water serves as evidence that the state is ‘providing’ for ‘its’ citizens, and as long as banks, donors, corporations and elites continue to benefit economically from large scale supply projects, demand management interventions will fail. What is the value to governing elites in telling citizens that prices will rise and that they must install low flush toilets, water harvesting infrastructure, and fix their leaks or face the pain of economic penalty? Evidence shows that governments are generally willing to wait for the rain. In the absence of rain, the aforementioned measures can be sold in terms of nation-building: national survival in the face of a fundamental challenge. The sixth challenge therefore is how to make water demand management attractive to elites and citizens alike?

- **Challenge 7:** Many claims are made regarding the importance of indigenous knowledge, including the knowledge of women as primary water managers in rural areas. Several of the studies discussed above argued in support of customary law as the basis for IWRM at the lowest appropriate level. Others argued for the interlinking of formal political structures with informal, water point committees. But most highlighted the myriad barriers to integrating local knowledge into decision making and management structures. Given that the major users of water are increasingly delinked from the village and tradition, and given that policy makers are devising management frameworks on the basis of Western concepts of private property and ‘the rule of law’, how can indigenous knowledge – e.g. concepts of water as a common pool resource indivisible from the land – contribute to IWRM? Is indigenous knowledge fundamentally opposed to IWRM in the context of neoliberalist capitalist development? Given that the vast majority of SADC people are rural dwellers, purveyors of IWRM must think more deeply about this, for, as Schreiner and Van Koppen highlights (2002), increasing scarcity in a liberal context places the poor and near-poor at a distinct disadvantage where resource capture (through ‘legal ownership’) is a real possibility.

Customary law

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Mending the GAP—Hydro-Hegemonic Stability in the Euphrates-Tigris Basin

Jeroen Warner

1. Introduction

In 2000 a hydroelectric dam in Turkey made the headlines in Britain in all the major newspapers. The press reports were without exception alarmist and can be said to have been the final straw that broke the camel's back: investors retracted and the project was put on hold. A resounding result for the international anti-Ilisu campaign, no doubt cheered by Syria and Iraq.

Given that the project is to restart in October 2005, one may wonder if the campaign scored more than a symbolic victory, but symbolism seems to play an unusually large role in this region. The present essay will zoom in on the role of water and security discourse in the strained relations between Turkey, Syria and Iraq since the 1970s, triggered (though by no means solely) by the Turkish GAP project. The building of dams and filling of reservoirs has often sparked off virulent responses at home and abroad, giving rise to explosive situations.

The hotheaded nature of these relations has often been cited as a prime example of impending 'water wars'. As a vital resource for which there is no substitute, water is fundamental to our collective survival. Still it is surprising that water should be treated as an explosive national security issue *par excellence* in the region, despite the fact that the Euphrates-Tigris is hardly the driest area in the world.

The standoffs between the riparians—Turkey, Syria and Iraq—have often generated hair-raising threats and mobilization of armed forces. Still, I shall maintain that the outcome of this is a quite predictable pattern of moves and countermoves. This stability of expectations enforced by a hydraulic hegemon makes it eligible for the label of a 'hydro-security regime'.

The riparian states however are not the only players in this game. The security issue around Ilisu cannot be understood without taking both state, private, and NGO actors into account, at the national and international level. The privatization of the Turkish water sector brought new transnational actors into play—transnational companies—whose steps are avidly watched by international non-governmental organizations (INGOs) and the

Strained relations between Turkey, Syria and Iraq since the 1970s

Privatization of the Turkish water sector

press. At the theoretical level, security speech acts on all sides¹ can be said to have played an important role in the ritual dances around dams. The case is re-interpreted in light of Barry Buzan, Ole Waever and Jaap de Wilde's "new security framework" (1998). Over fifteen years after the fall of the Berlin Wall, we still have no consensus over what 'security' entails. While the concept has branched out into many directions, both horizontally (issue-areas) and vertically (levels of security), there is no unifying model of security in general use. More is the pity as the Babel of security talk not only prevents a clear academic debate, the discourse of security has rather important political implications. An application of Buzan et al.'s security grid helps organize the security discourses

New security
framework

Notably the developments on 'securitization' by Ole Waever, can be useful in analyzing international relations issues, as it introduces a grid in which non-traditional domains and levels of security can find a place. The concept of a 'securitizing move' helps to understand how 'security' can be subject to political manipulation. Enhanced by ideas from linkage politics, it can be used to make sense of different actors' strategies. With Waever, I surmise that an **instrumentality** may underline this: **language may be used for the ulterior purpose of dominating a security domain.**

Make sense of actor's
strategies

By way of conceptual background, Section 2 gives a quick history of the changing conceptualization of security in international relations and the way Buzan, Waever and De Wilde infuse it with a discursive flavor. Section 3 introduces the background and controversy over Turkish dams. Section 4 then connects the two, annualizing the Ilisu project as a security issue, and applies it to Buzan et al.'s grid.

2. Security revisited: Beyond Westphalia

Writing on security has traditionally been dominated by international relations scholars, who focused on the art of war and diplomacy. According to international relations' conventional wisdom, the present organization of international society was created with the Peace of Westphalia of 1648. Formally independent, endowed with absolute sovereignty—the supreme, independent and final authority—clearly separated by borders and the obligation of non-intervention in domestic affairs of other states, states are commonly portrayed as unitary, impenetrable billiard balls. States are assumed to be acting to maximize their

¹ See Ole Waever's work on 'securitisations', e.g. in Buzan et al., 1998.

own 'national' interest and always on the lookout for power and stability. The state's key interest, however, is national security. A state, it is maintained, will always attempt to maximize means to safeguard its security in direct ratio to perceived threats to state survival.

What is 'high politics'?

The Westphalian paradigm clearly gives priority to military security and diplomatic relations (**high politics**) over development issues including economic and environmental problems (**low politics**). But the traditional division is not cast in stone—it is up to the state to decide what is high politics (Mouritzen, 1996, p. 73). Foreign affairs agendas become larger and more diverse, and the traditional hierarchy among issues are falling away.

At roughly the same time the concept of **human security** gained currency. UNDP started including non-economic indicators such as literacy, longevity and health in its Human Development Report in 1987 partly in response to the 1982 Palme Commission, which is credited with introducing the concept of 'human security'. This shifted the level of analysis away from states towards communities and individuals, from warheads to hospital beds. Later the Bonn Declaration defined human security as "...an absence of the threat to human life, lifestyle or culture" (cited in Solomon, 1999) which suggests a **cultural** domain of security. While **environmental security** drew attention to the environment, briefly gaining hegemony in the 1990s (Myers, 1993, Litfin, 1995; Warner, 2000a) and people depending on it, though in the subsequent policy debate **environmental security** has generally come to mean threats to nation-states from conflict over environmental resources.²

Another development in the security debate is very relevant to current water controversies. When we discuss security issues, this is usually understood as interstate politics or, more recently, state-society relations (Ayoob, 1997). This article sketches a case in which new actors have taken the security stage: the (international) private sector and international NGOs. The ongoing privatization of utilities brings in international private actors, which in turn may bring their host governments into the fray. Social and environmental watchdogs are highly aware of these links and exploit them. Thus, micro-level controversies build up to macro-level involvement. This produces quite a novel security dynamic.

² See, for example, the thorough discussion of the literature by Gleditsch, 1997).

In view of all these types of security at different levels, a need has been felt to systematically organize these concepts. In the early 1990s, different typologies have been advanced, if not always with the same rigor.

In developing my own analytical framework for the analysis of the developments in the region (see also Warner 2000b) I have greatly benefited from three concepts developed, or built on by Barry Buzan.

2.1. Hydrosecurity complex

The notion of a security complex is based on macroregional security interdependencies. A security complex (Buzan, 1991) can be defined as a set of states where the security of each state is markedly dependent on that of one or several others of the set, and not significantly dependent on a state outside the set; a group of states whose security concerns are linked in such a way that the national security of each state cannot realistically be considered apart from one another. A security complex exists when a group of countries have their respective processes of securitization, desecuritization, or both being so interlinked that their security problems cannot reasonably be analyzed apart from one another (Buzan et al., 1998. P. 201)

While analysts see a shared international water resource that wants integrated management, policymakers may see a national Turkish river, the Euphrates/Tigris. Likewise, it should be possible to define a hydro-security complex such that it involves state actors as well as sub-state and transnational **stakeholders** surrounding a basin, shared aquifer or closely connected basin-aquifer compound (e.g. the river Jordan and adjacent West Bank aquifers).

Leif Ohlsson's *Hydropolitics* was the first (edited) work to apply this theory to the water sector in the form of the hydrosecurity complex (see Schulz 1995 in that volume). Currently Anthony Turton of the African Water Issues Research Unit is pursuing this line of conceptual development with a view to understanding Southern African interdependencies and opportunities for integration. The theoretical development on the hydrosecurity complex is an acknowledgment that hydropolitics and other security politics are closely related, either through structural linkages or linkage politics—notably the Kurdish issue. Water can be an easy and symbolic focus for a much more complicated web of mutual grievances, presenting excellent linkage opportunities. An ostentative water conflict then, can easily be about something else. This broader view of conflict fits

Hydrosecurity ...

... getting both state actors and stakeholders into one boat

in with observations by, for example, Gleick (1993a) who noted that water can be a means as well as a goal in a security strategy. While the upstream/downstream dynamic advantages upstreamers, downstreamers however have considerable leeway for obstruction (Shapland 1995). Warner (1993) has noted that upstreamers will be tempted **to use water to get more power, while downstreamers use power to get more water.**

In the Euphrates/Tigris, integration is not likely to be on the cards anytime soon. At first glance, this hydrosecurity complex seems more like a Realist anarchy, where states do as they please and will use violence if need be. However, this article will argue that there seem to be some common rules of engagement being adhered to and fledgling institutions that could develop into something bigger. In this respect I agree to a degree with Ayşegül Kibaroglu's analysis (2002), if based on slightly different reasoning.

Box 1: Types of hydrosecurity complexes

<p>A security complex may constitute:</p> <ul style="list-style-type: none">* a raw anarchy where all actors have to fend for themselves and expect others to do likewise;* a mature anarchy with some common regimes (shared rules, and institutions for governing an issue-area in International Relations),* a security community where war (violence) has become an unthinkable way of resolving conflicts between states

Source: Calleja, Wiberg and Busuttil, 1994, p. 4).

2.2. Security domains

In response to the rise of new security concerns, different typologies have been advanced in the early 1990s, if not always with the same rigor. Lonergan's list, for example (economic, food, health, personal, community and political security) (1996) mixes levels and types: health is primarily an individual characteristic; community is at the group level and refers to identity. A more systematic categorization is Buzan et al.'s (1995, 1998), who postulate five domains of security which are military, economic, environmental, societal and political. The five levels of aggregation are international, macroregional, state, group and

Five domains of security:
Military, economic,
environmental, societal
and political

individual level. Arranged on two axes, this yields the 25-area security grid (see Figure 2).

Figure 2: Security diagram, after Buzan et al. 1998

	military	economic	environmental	societal	political
intl. System					
macro-region					
unit (state)					
institution					
individual					
prime concern:	integrity	wealth	health	identity	legitimacy sovereignty

2.3. The speech act of securitization

An advantage of the Copenhagen approach to environmental security (De Wilde et al., 1997) is the fact that it acknowledges security as a social-political construct. Security, and threats to it, is in the eye of the beholder, and therefore can be represented in different ways. Buzan has pointed out that states (and other authority figures) use language (speech acts) to create and legitimize facts on the ground. So-called ‘securitizations’, declaring an issue vital to one’s survival legitimize extraordinary political measures, such as violence, emergency rules, expropriation and forced resettlement. Their outcome doesn’t have to actual use of force, but ‘forces’ early closure, effectively preventing negotiated solutions (non-negotiability); democratic processes, competition, co-operation, freedoms, information flows. Thus, securitization delegitimizes choice (between alternatives) in the name of existential necessity.

Clearly in such a climate, it takes great courage for politicians and administrators to try and change the course - they risk losing their position and being charged with betrayal of the national interest. The development of a socio-political support base for change, then, includes taking enormous political risk: who would speak against ‘equity’ or the ‘national interest’?

‘Securization’

Securitization: narratives and speech acts

The construction of narratives is a very human response to uncertainty, to create coherent worldviews. In their interaction

with the world, people create representations that legitimize certain images (Berger and Luckmann, 1991 [1966], pp. 110ff). However, narrative construction may also be done purposively, for political or other goals. As people attach different interpretations to the **meaning** of a problem and its proposed solution(s), they may seek to may shape their **representation** of the issue in line with their perceived interests and try to convince others that it is the proper view. Authors such as Austin (1975, on declarative and performative acts) and Smircich & Morgan (1982 on the management of meaning) in management studies have shown how you can perform quite powerful feats with language to make things happen. Buzan et al.'s (1998) approach sees the speech act of 'securitization' as a deliberate political use of language to move an issue into the language of the absolute. Here, then, is the quick and dirty recipe for **securitization**:

Follow the security form, the grammar of security, and construct a plot that includes existential threat, points of no return, and a possible way out—the general grammar of security as such plus the particular dialects of the different sectors, such as talk identity in the societal sector, recognition and sovereignty in the political sector, sustainability in the environmental sector, and so on. (...). It is implicitly assumed that if we talk of *this* (...), we are by definition in the area of urgency: by saying 'defense' (or in Holland, 'dikes'), one has implicitly said security and priority. (Buzan et al., 1998, p. 27).

With the help of Douglas' anthropological work on risk (e.g. Douglas and Wildavsky, 1992) it can be shown how the attribution of blame for insecurity and risk has political outcomes. In the context of an international water, it is easy to blame the action of an upstream country (e.g. India's Farakka Dam) for crop failure or flooding downstream, while reasons may be far more complex. Attributing responsibility to a single (f)actor, as part of framing the problem as a danger, will also point at a certain, politically welcome solution: increase the defense budget, punish the upstream country, etc. Managing the representation (meaning) therefore seems a vital ingredient of security strategy.

The process of legitimization of certain problem images can become institutionalized and routine (Berger & Luckmann, 1991 [1966]). Likewise, securitization (as shorthand for 'invoking an existential threat to legitimize exceptional acts') can become the norm "where states have for long endured threats of armed

coercion or invasion, and in response have built up standing bureaucracies, procedures and military establishments to deal with them” (Buzan et al., 1995, 1998).

The securitization of an issue-area may serve as an expedient political strategy to add weight to the mobilization (or justify the release) of resources, while pushing out the political process of deliberation and choice. As Buzan et al. (1998) put it, politicization “means to make an issue appear to be open, a matter of choice, something that is decided upon and that therefore entails responsibility, in contrast to issues that either could not be different (laws of nature) or should not be put under political control (...).” By contrast, securitization is a speech act legitimizing extreme measures by calling on existential threats, as “so important that it should not be exposed to the normal haggling of politics.” In so doing the speech act moves politics beyond the normal, competitive rules of the game. As Guzzini (2005) notes,

Powerful
language

...in its logical conclusion, ‘securitisation’ ultimately tends to move decisions out of ‘politics’ altogether. Curiously enough, therefore the performative effects of these two concepts are connected: ‘politicisation is a precondition for a possible later ‘securitisation’, (...) Where ‘power’ invoked a need for justification in terms of a debate, ‘security’ mobilises a pre-given justification with the effect of stopping all debate.

Securitization theory opens up the possibility that because of its powerful effects, securitization may invoke crises and legitimize measures for ulterior goals—as the enunciator may be more interested in the acceptance of the emergency measure than in relieving the threat itself. We may not even have to surmise instrumental rationality to note that a drought scare or water conflict scare legitimizes political measures, or development funds, that benefit some more than others. securitization then, may serve as a political strategy to release resources that might otherwise be unavailable.

For example, the drought scare occasioning the construction of the Aswan Dam may have been as real to the planners as the Red Scare was to Ronald Reagan, but it also greatly improved state control over the Egyptian economy. Likewise, it is hard to explain how the importance of Turkey’s GAP project to national greatness can justify spending up to one-tenth of the national budget on the project—annually (World Water, 1992)—without

considering other motives such as integrating the Kurds, creating a tax base and realizing hegemonic aspirations.

This will be explored in the next Section which discusses the controversy over GAP, notably that over the Ilisu Dam, as a security issue full of securitization and counter-securitization.

3. Case study: Framing Turkey's Ilisu Dam

'Water wars' in the Middle East?

In the past decade, much (Starr & Stoll, 1987, Bulloch & Darwish, 1993, Homer-Dixon, 1999, De Viliers, 1999) has been written about coming 'water wars' in which states would be taking on each other to secure (access to) scarce resources. Mostly, the focus of these predictions is the Middle East, a notoriously parched and conflict-ridden region. And indeed, troops have been mobilized along the Turco-Syrian border with some frequency over water conflict.

Frey (1992) describes a conflict situation as "two or more entities, one or more of which perceives a goal as being blocked by another entity, and *power* [of some sort] being exerted to overcome the perceived blockage." Looking at the history of the controversy in the basin, the element of power politics has always been prominent, inviting 'realist' framework of analysis of raw anarchy (see Box 1), peppered with a dose of linkage politics.

Conflict over water is made more complex by the progressive liberalization of the water sector

A closer look at the conflict over the waters of the Euphrates and Tigris rivers shows that disagreement over water distribution is only one of many factors in a complex problem, made even more complex by the progressive liberalization of the water sector. Moreover, the scope of the conflict cannot really be grasped without taking the colonial legacy into account. Just like the Serbian trauma over their 1389 defeat (significantly, at the hands of the Turks) still informed late-20th century passions over Kosovo, the Turkish have very long memories, the memory of the giant Ottoman empire dominating the political rhetoric in present-day Turkey.

As will be seen from the case description below, Turkey can be said to play a "double chessboard strategy", seeking to gain or regain **hydro-hegemony** at home and in the wider region (see Zeitoun and Warner, forthcoming for a further conceptualization of hydro-hegemony). Dramatic posturing appears to play an important role in this. Playing at lingering Ottoman sentiments, it is good (domestic) politics to declare the 21st century the Turkish century (itself a performative speech act!), in which the Turkish Empire would span from the Adriatic to the Chinese Wall, as the late President Turgut Özal used to do (Zürcher, 1998, p. 335). However, the present article starts from the premise that this

claim amounts to more than just demagoguery: a mix of carrots and sticks is used to ensure pole position. Water plays a major role in this pursuit.

3.1 The hydraulic imperative

The traumatic loss of empire can be followed by an intensive “internal colonisation” (Swyngedouw, 1999). The expansive energy is now directed at the development and harnessing of the natural resources in its own territory. Peripheral regions are (re)integrated, the administrative system centralized, class divisions ironed out. Water security and development add up to the magic formula to align mutually opposing forces in a project that **depoliticizes** those contradictions. This was true of Spain after the loss of Mexico and the Philippines (Swyngedouw 1999).

It certainly seems a plausible explanation for the Turkish course of action after 1920. When the French and English laid down the current Turkish boundaries at San Remo—blithely ignoring natural boundaries and denying the Kurds their nation-state—they laid the basis for many current resource conflicts in the region. The Ottoman empire was miniaturized: the Fertile Crescent (Iraq, Syria, Lebanon, Palestine and Jordan) became a Franco-British mandate, Northern Mesopotamia fell to Great Britain and except for Thrace all European territories had to be ceded.

Rather than look back in anger, the Turkish government decided to look forward. The ‘hydraulic imperative’ for the development of its hinterland proved a manageable project to weld together feudal and modernizing (industrializing) forces into a historic, nationalist compromise. The towering figure of ‘papa’ Atatürk plays a crucial role in the new strategy.

First, the early twenties saw the intensive homogenization of the Turkish populations including a massive exchange of ethnic and religious minorities as a consequence of the war with Greece (1921–1922), and large-scale ‘ethnic cleansing’ of Armenians—a tragedy disputed by the Turks (Beeley, 1995). The Lausanne Treaty of 1923 gave birth to the First Turkish Republic, an indivisible, unitary Turkish state in which the Kurds formally do not even exist. The Kurdish identity was not so easily repressed, however, and remains a formidable obstacle to the homogenizing thrust of the Republic of Turkey. The GAP project can be seen as a new strategy to integrate the Kurdish minority into Turkey by economic means.

A second pillar buttressing the internal colonization drive is development for autarky and export. Turkey may be poor in oil

Turkey’s history in the development and harnessing of its natural resources

and gas (Turkey imports both from Libya and Saudi Arabia) but the country is very well endowed with raw materials. Until long after the Second World War Turkey was a one-party state and until this day the army often seems to exercise *de facto* control. Like many a post-colonial state, Turkey's development trajectory was state-led and authoritarian. Public money funded large infrastructural works and educational improvement to equalize the level of human development across the country's regions.

Building of dams

In 1997, a total of 681 dams higher than 15 m were already built or under construction in Turkey, 465 of which were in operation (Tomanbay, 2000). Seen against this context, the prospect of 22 more dam projects (80 dams, 66 hydropower stations) somehow does not seem all that excessive. Incidentally, not all of these dams are on the Euphrates or Tigris—eight dams are planned under GAP in the valley of the River Munzur in Tunceli and three more on the Greater Zap in Hakkari province (KHRP, 2005).

Greater Anatolia Project—GAP

Internally, economic integration has not really taken off yet—even today, the average income in Ankara is still many times that in Anatolia, where food security is still a problem. Started in 1974, and scheduled to be completed in 2010, the Guneydogu Anadolu Projesi, more conveniently known internationally as the Greater Anatolia Project (GAP), is one instrument aiming to right that balance. In addition to water for domestic and industrial uses, developing of the Euphrates and Tigris basins holds out an enormous potential of hydropower and irrigation farming, the former as a substitute for imported fossil energy, the latter as a 'breadbasket' for the region—all other Middle East countries are now massive net food importers. Southeast Anatolia is rich in fertile soils—in 1996 only some 120,000 hectares out of a potential 314 million were under irrigation (Mutlu, 1996). The hydropower and irrigation projects (80 dams, 66 hydropower stations) are to develop a 2 million-hectare area, an area the collective size of the Benelux countries. If all goes according to plan, GAP will irrigate nearly 1.7 million ha of land out of those 2 million or 20 percent of Turkey's total irrigable land. Annual energy production from GAP will produce 22 percent of Turkey's total energy production with an installed energy capacity of 7476 MW.

The GAP started with the intention of reforming the socio-economic situation in the most underdeveloped Turkish region in a 'Fordist' class compromise strategy to integrate the poor, Kurdish-dominated regions (though it is true that Turkish and Arabic groups in the area are also significant) into a prosperous Turkey to prevent immiseration and secessionist drives. So far,

progress with the project has been impressive. Indeed, glowing press releases call attention that tremendous export boosts (in cotton and grain) appear to have been induced by GAP³. However, GAP so far has not been an unqualified success story:

- It was hoped regional development would precipitate land reform, to break the power of entrenched interests, latifundists, fight widespread poverty and provide much-needed physical infrastructure to the region. Large landowners (*agas*) have effectively blocked much action in this respect, and they will be the ones to reap the benefits of agrarian development;
- The works have tended to promote the development of the regions of the West, not the impoverished East, and the dams have mainly produced electricity while the provision of water for irrigation has fallen far behind. Indeed it is the expansion of energy production that is progressing most impressively with the development of irrigable lands lagging, with only 16 percent of the agricultural goals having been realised (MacQuarrie 2004).

As we shall see below, the objectives of GAP have broadened a lot in response to debates about environmental, social and geopolitical issues. To the chagrin of the Turkish government, though, the Kurdish issue keeps figuring prominently in these debates.

3.2 Hitting where it hurts

Turkey's strategy *vis-à-vis* the Kurds should be seen in the context of a strategy of nation-building. Like many states that harbor diverse ethnic groups within their borders, the Turkish state competes for legitimacy with centrifugal actors that have the power to procure vital social services and/or identity (see also e.g. Warner, 1993 on this theme). States are therefore involved in simultaneous struggles for domestic and regional hegemony *vis-à-vis* meaningful contenders. The Turkish stance has been two-pronged: On the one hand, it invested billions into raising the standard of living seemed to promote control of the elusive mountain Kurds. President Özal clearly saw the GAP project as an opportunity to integrate the Kurdish minority. Once wealth comes to the region, the locals will be less likely to provide

GAP as an opportunity to integrate the Kurdish minority?

³ See: www.turkishpress.com/turkishpress/news.asp?ID=17281 and www.fas.usda.gov/pecad2/highlights/2001/08/turkey_gap/pictures/-turkey_gap.htm

sanctuary to the Kurdish Worker's Party PKK. Economic development should also attract Turks from other regions, encouraging ethnic integration in the Kurdish-inhabited regions. This consideration seems even more important than the actual economic profitability of the GAP.

At the same time however a bloody civil war was fought with Kurdish rebels and an enduring state of emergency in the region, which was only lifted in 2002. The internal war against the separatist Kurds, waged since 1984 was stepped up after a 'Kurdish *intifada*' in the early nineties. The Turkish army employed a slash-and-burn-tactic to root out settlements suspected of collaborating with the militant PKK, killing 30,000 and uprooting between 500,000 and 1,000,000 Kurds swelling the numbers of the city of Diyarbakir, and, further afield, Ankara as well as boosting Kurdish migration into Western Europe in the process.

GAP funding: a great problem

NGO furore over the human rights situation in the South East and the opposition from co-riparians have targeted the Achilles heel of a project of this size and scale: funding. Funding the project has been a problem from Day One due to the skepticism of a key external player, the World Bank (IBRD). The Bank now would like to see water-intensive agriculture curbed in favor of industry and urban supply. As the most important donor to the region by far it has proved highly effective in shaping economic policies in recipient states. Its veto on regionally sensitive projects tends to kill off a controversial water project for a considerable time⁴. But in turning off its flow of funds has proved not to kill off project if the initiator is determined enough to find funds elsewhere.

Sensing the Bank would show itself sensitive to protestations on the part of co-riparians Syria and Iraq; the Turks apparently never even formally applied for Bank backing; the veto only reinforced Turkish determination to continue the megaproject, even if it took up to 10 percent of the total annual budget. A mismanaged economy—the Treasury's coffers are chronically bottomless—groaned under the development effort. The lack of multilateral co-operation made itself felt in ever more painful ways when in the early nineties projects started to fall behind schedule further and further. More and more, the GAP seemed to look like the famed 'white elephant': the costly development project that never materializes.

⁴ Moreover, the Bank needs to keep some customers, such as Egypt on board in order to keep moving money; its clout is, to a great degree, a function of its huge budget.

The fact that a temporary lull, the final stage of the Greater Anatolia Project is now on full steam again is only due to a radical institutional move towards privatization. As early as in 1987 the means to fund the Izmit Dam had run out. Instigated by then president Ozal (a civil engineer himself, as was his successor Demirel) a private consortium, Izmit Su, was created to complete the works. Stockholders are the municipality of Izmit, the Japanese conglomerates Sumitomo and Mitsui, Thames Water of Britain and two local companies, Gama and Guris. Thames Water is contracted to run the utility for 15 years before returning it to the municipality of Izmit. Privatization turned out to be a timely move: amazingly, water has developed into a global growth market. French and British giants like Vivendi (formerly Générale des Eaux), Suez Lyonnaise, Northwest Water, Severn Trent and Thames Water now carve up the globe for rich pickings in liberalized water utilities and infrastructural projects.

Privatization ...

Ten years after the abortive start of the Izmit project (dam, storage lake, sewage works and water utility), it was ready to go onstream. Tellingly the key cost factor of project development involved the fee of Turkish lawyers struggling to legally enable the project. There was simply no available legislation for such projects in this sector. While privatization had been advocated by several Turkish governments since the 1950s it is hardly compatible with the prevailing *dirigisme*. The privatization law opposed by the secular and religious right, was finally pushed through Parliament in November 1994 by Tansu Ciller, over Islamist objections, well-timed to coincide with an important Galatasaray-Barcelona football match keeping many MPs glued to the TV screen (Zürcher, 1998).

... against *dirigisme*

Most of the megadams have so far been realized on the Euphrates (in Turkish: *Firat*): so far, Turkey has laid relatively limited claim to its sister river, the Tigris (*Dicle*). The last GAP dams are to change that. In March 1997 the Turkish government granted the contracts for the 182 m long, 135 m high Ilisu Dam, 64 km from the Syrian and Iraqi border, the biggest Turkish hydropower project so far to a Swiss consortium consisting of Sulzer Hydro and Asea Brown Boveri (ABB), a firm with a 25 percent global market share. Funding was to be arranged for by the Swiss federal bank UBS.

Most Turkish dams are on the Euphrates...

The project is only due to come onstream in 2006, but its announcement did not fail to elicit strongly-worded protests. The Ilisu Dam alone will force fifteen to twenty thousand Kurds from 52 villages and 15 towns to resettle. Compensation is linked to land rights, meaning that nothing has been arranged for the countless landless. The town of Hasankeyf, which is on the

... which has changed with the Ilisu Dam on the Tigris

Turkish heritage list, has to disappear to make the Turkish dream a reality. 81 other heritage sites are similarly facing inundation, including several holy Muslim and Christian sites that are still in use today.

GAP united
Syria and Iraq

Amazingly, the GAP united Syria and Iraq (Gulf War adversaries) in an alliance of convenience. In 1975 the two countries were on the brink of a water war themselves, and officially had not been on speaking terms since Syria joined the anti-Saddam coalition in the Gulf War. But after a five-day meeting the states decided jointly to dispatch threatening letter to companies involved in building the *Birecik* dam, itself already under fire for flooding the ancient Roman city of Zeugma and displacing 30,000 people. Syria filed compensation claims and threatened boycotts until a trilateral agreement was signed. The *Ilisu* dam would, again, reduce the amount of freshwater allowed to pass the border, impairing the diluting capacity to purify the wastewater flowing from the region's major cities. Baghdad, on its part, fears its flow to be contaminated by agricultural chemicals and pesticides. It claims a breach of international right and riparian water rights, which does not seem a really ingenious move. True, with some imagination a breach of a 1946 Turco-Syrian treaty stipulating consultation between riparians could be invoked (*Guardian* 1-3-99), but international law only provides only cold comfort for water plaintiffs—there are no agreed principles governing international rivers. Iraq may insist on the international law doctrine of absolute territorial integrity, stipulating that no riparian is allowed to impair the quality and quantity of the water resources flowing within its territory—but Turkey can with equal vigor juxtapose the doctrine of unlimited territorial sovereignty known as the Harmon doctrine: Each state can treat the water within its boundaries any which way it likes. Along with China (upstream on the Mekong) and Burundi (same on the Nile), Turkey is the only state to refuse signing the 1997 UN treaty on non-navigable watercourses claiming it grants downstream states excessive rights.

Turkish politicians conveniently tend to view the entire Euphrates-Tigris-basin as a single Turkish river, thus denying its international character (in Allan, 1995). It is easy to see why: the majority of the catchment may be in Iraq, where it drains into the Persian Gulf through the Shatt al-Arab (disputed by Iran), but the river receives 95 percent of its precipitation within Turkish territory, and the artesian springs just across the Syrian border are fed by Turkish rain, infiltrated into the soil and working its way down to Syria. Turkey also claims that the dams will also benefit its downstream co-riparians as droughts and premature flooding

can be prevented as a result of better regulation. Better timing would lead to more productive farming as well. The snag is, of course, that Turkey is denying its neighbors any real say in the regulatory decisions. The downstream states therefore have been sufficiently 'realist' to agree on a percentage distribution of whatever Turkey leaves them: 42 percent for Syria and 58 percent for Iraq. This was agreed after Turkey closed the Atatürk Dam for a month in 1990 to fill the storage lake.

A degree of opportunism is not alien to both Turkish and Syrian tactics— while Turkey views the Euphrates-Tigris basin as all-Turkish, it takes the reverse position *vis-à-vis* the Orontes (or *Asi*) (Shapland, 1998). Here, there is a strong material linkage to the continuing Syrian claim to the riparian Sanjak of Hatay (province of Alexandretta), which was given to Turkey while still under colonial rule. Syrians have never accepted this decision and continue to see the province as theirs. With respect to post-Saddam Iraq, Turkey and Syrian support Iraq's territorial integrity, meaning that Turkey seems to have abandoned its claim to oil-rich Mosul and Kirkuk for the moment. It is unclear what the Iraqis will do in the current anarchic situation. The Kurds in Northern Iraq depend heavily on Tigris water and will be affected by the *Ilisu* Dam once it gets built (MacQuarrie, 2004).

3.3 Turkey as water hegemon

In the hydrosecurity complex, Turkey is very well endowed with water and premium location. Turkey manages to make much political capital out of its favorable geographical location. It connects three macro-regions Europe, Central Asia and the Middle East, a geopolitical nexus that virtually ensures NATO backing. The country is a member of the Association of Islamic states, keeps knocking on the EU's door and competes with Iran, Russia and China for hegemony in unstable Central-Asia. While Iran can only count on Armenia as its ally, Turkey has natural cultural bonds with the five Turkish-speaking states of Central Asia. As the Americans would rather not see an expansion of the Iranian sphere of influence, they back Turkish inroads in the region. Although Erik Zürcher (1998) reasons that Central Asia is too embedded in the Russian sphere of influence for Turkey to make much chance of pricing it away, that will not stop Turkey from trying.

As Central Asia is so hot and dry, it should not come as a surprise that Turkey has made a water offer to this region (Hillel, 1995). Turkey is conscious of its enviable position as a water-rich state in a water-poor region. Even though the state has great difficulty

Water exports

providing water and sanitation for its own megacities, the Turks recognize the significant political gain in water exports. The most infamous initiative has been the twin Peace Pipeline which was to carry water eastward to Saudi Arabia and westward to Israel, which was universally rejected. While subsequently plans for a mini- and mini-mini-pipeline were developed (Israeli maverick Boaz Wachtel also proposed a Peace Channel in the heady days of the Oslo Accords) none of these initiatives caught on—but now that Turkey has been working closely with Israel in the military area since 1997, the water trade pitch is working decidedly better. Although annoying both Arab neighbors and Turkish fundamentalists, it signed an agreement in early 2004 to transport freshwater in giant, Norwegian-made 'Medusa' bags by sea to Israel from the river Manavgat, with regular water supply now foreseen from 2006. Turkey has also offered to carry water to Israel through pipelines under the sea

But most importantly, its geographical location at the headwaters of the Euphrates and Tigris, the main sources of freshwater of its most troublesome neighbors, Syria and Iraq, is extremely convenient to Turkey. An unmistakable effect of the intensive damming of the two rivers is that it enables the Turkish to turn the tap on or off. Turkey indeed has several bitter historic grievances against both neighbors it may feel could do with some hydraulic backing up. Turkey has historic claims to the oil-rich Mosul province in Iraq. Iraq has needed Turkey to control its own Kurdish problem (PUK and PDK), allowing Turkey the right of 'hot pursuit' on Iraqi territory, but reportedly provides logistic support to the PKK as well. Syria has betted on the same horse: it allowed the Kurdish militants to train in the Syrian-occupied Biqa'a valley in Lebanon, as well as the extreme left Turkish urban guerilla Devsol and other groups. Prior to his arrest, PKK leader Öcalan has lived in an opulent mansion in the Syrian capital of Damascus ever since the Evren coup of 1980. There is also the never resolved downing of MiG fighter planes above Turkish territory.

Fight against the PKK

Domestic and regional security issues are continuously linked. When Syria arrested five PKK activists and expelled Öcalan, there was a strong expectation that Turkey would release more Euphrates water as a *quid pro quo*. The decision to hand over Abdullah Öcalan to Turkey signposted the end of the 'Kurdish card'. It heralded what seems to be a more constructive era, during which the Adana Accords of 1998 were signed and military and economic agreements were initiated (MacQuarrie, 2004). In 2001, the GAP and a Syrian development project,

GOAL, signed a GAP-GOAL agreement, further cementing Turkish-Syrian rapprochement (Kibaroglu, 2002).

Regional alliances are volatile and sometimes fairly inscrutable. It is perhaps not too far fetched to see the Syria-Greece agreement in which the Syrian government granted the use of its air bases to Greece may also be a means for increasing leverage in the resource conflict with Turkey. Jordan, which supported Iraq during the Gulf war, changed its mind, perhaps to facilitate negotiations about water with Israel, yet it spoke on behalf of Iraq in the hullabaloo over *Ilisu*. When in early 1996 Turkey intercepted five Iranian lorries with arms, which Turkey claims were destined for the PKK, another diplomatic row ensued, but when Syria started talking to Israel over the Golan Heights, Syria backed off from friendship with Iran.

Regional alliances

On top of the regional hegemonic game, there is the overlay of superpower interests in the Middle East. American dominance in the Middle East, inspired by a desire to secure access to oil reserves, and expressed in extensive economic and military aid to Israel, Turkey and Egypt. While all states are fairly weak, the Americans can operate in the region as a patron and/or policeman. Hamilton (2003) argues that the desire not to upset regional power balances may well have incited British withdrawal from *Ilisu*.

Superpower interests
in the Middle East

On the one hand Turkey likes to show its most chivalrous side in public: the state solemnly intones it will never use the water weapon and cannot be said to have done so despite an alleged American request during the first Gulf War. It agreed in 1987 to let a minimum of 500 m³/sec through, that is, as a two-month average. So far, the country appears to have kept its promise, if at a pinch: last July the Euphrates discharged just 42 cumecs (*Economist*, 13 November 1999). Turkey tends to politely announce what is going to happen and to call technical meetings to discuss the details—between 1980 and the mid-90s a Turco-Iraqi technical committee convened on average once a year; in 1983 Syria joined the talks. But the parties prove to be very reticent in making available reliable information, and the decision itself is non-negotiable. Turkey clearly likes to remind its southerly neighbors who calls the shots around here. In 1990 the Euphrates was closed off for a month to fill the storage lake at the new Atatürk dam. Skeptics feel that the closure was totally unnecessary: the water could have come from the older Karakaya, upstream. But Syria took the unsubtle hint and made a big noise. There is a vaguely comical ritual side to all this. Another indignant Syrian mobilization reinforces the media-friendly image of the (near-) water war, keeping international interest in the region

alive. Some time later the world then learns that the countries have sat down together and that a cooperative treaty is in the offing, which subsequently never materializes. This ritual dance of near-wars, near-treaties and much verbal abuse have been a repeated phenomenon ever since Turkey has built large dams—starting in the seventies, well before the GAP, when the Karakaya, Keban and Karun dams were built. Still none of the plaintiffs dare try anything. Whoever takes on Turkey can expect NATO to step in, to whom Turkey has been a valuable ally for decades. And even though Iraq warned (in 1988) to start an international legal case, the road to the International Court of Justice has not been used. For a case to be accepted, all parties involved will need to recognize its authority, as did Hungary and Slovakia in their dispute over the Gabčíkovo-Nagymaros dam on the Danube. While that recognition is not forthcoming, a repetition of moves can be expected.

3.4 Images of security—The power of perception and representation

Given the symbolic (though by no means idle) value of many securitizing moves in this area, I would like to see the security speech act within the wider context of strategic representation. Possibilities rather than facts on the ground play an important role in this game. A recognition of representation puts the fear of scarcity-induced ‘water wars’ into perspective. While the ‘Malthusian’ water wars literature sees resource scarcity as the driver for warfare, water is not particularly scarce in the Euphrates-Tigris catchment. Falkenmark’s ‘water barrier’ is a rule of thumb that postulates that a country that has less than 1800 liters per person per year is water stressed. It would seem that the 3000-odd liters *per capita* available to all Euphrates and Tigris riparians should comfortably see them through a reduction—Jordan scrapes by at one-tenth of that amount. Indeed, Syria itself seems to be rather wasteful with its water, creating dustbowls, compounded by salinization and evaporation (*Economist*, 13 November 1999).

Frequently, a GAP-induced 40 percent reduction is predicted for Syria and up to 80 percent less for Iraq; although this latter figure would be a cumulative effect of Turkish and Syrian dam projects. There are reports that two smaller Syrian rivers have run dry as a result of the reduced influx. But more important than the real impact is the **potential** to give the water tap a twist in either direction. If all present dams in the catchment were to be closed stored many times over. A simple sum shows why the downstream riparians are so outraged. The Ilisu storage lake will

The potential to use water as a ‘weapon’

have a total storage capacity of just under 10.5 billion cubic meters and an operating capacity of 7.5 billion m³. Normally, that would leave a buffer capacity of 3 billion cubic meters. As the average annual inflow of the Tigris is 15 billion m³ the reservoir will account for half the total annual flow, while the spare capacity would enable a malevolent Turkey to arrest the river influx for some additional months, such that not a drop of Tigris water flows into Syria and Iraq (Berlin Declaration, 1999). And this is only one out of dozens of megadams built in this catchment.

Not just the closing but also the sudden opening of the floodgates would be disastrous. Several historic battles have been instructive. In 689 BC Sennacherib the Assyrian dammed the Euphrates upstream from Baghdad, only to destroy it after sufficient water had assembled behind the dam. The sudden floodwave flooded the Mesopotamian capital and won Sennacherib the day. North Korea appears to have built a dam with the sole purpose of being able to drain the water should the strategic need for causing flooding in South Korea arise (Gleick, 1993b). Such knowledge teaches the downstream riparians some realism and allows upstream Turkey to be laconic over even the gravest threats.

3.5 The ethics GAP

Given the ritualistic aspect of mud-slinging every time a new dam comes onstream, the controversies over Birecik and Ilisu are unsurprising. What is more interesting is that the privatization in the Turkish water sector brings new actors into play. Until 1994 conflicts over the Euphrates and Tigris remained within a neat realist framework of rivalry between states. However, the 1990s have seen the rise of protest movements against dams and privatization drives—transnational companies (TNCs) and, hot on their heels, international non-governmental organizations (INGOs) as transnational political actors.

As a result of the European commercial involvement, European actors are now subject to sharply worded threats. Non-governmental organizations have seized on the internationalization of water projects to underline their more broadly focussed protest against megadams.

Figure 3: Various transnational actors

Private	TNCs: ABB, Balfour Beatty, Sulzer Hydro, Skanska, Impreglo; major banks back it up
Public	Governments; donor governments insure export (political) risk
Civil society	Civil society: INGOs start campaigning.

International protest against dams since the 90s

Successful campaigns against dams and privatization drives, however temporary, have made donors more cautious. Local protests amplified by NGOs led to the discontinuation of the Narmada dam in India, the Arun-II dam in Nepal and the Bakun dam in Malaysia. Privatization widened access to international funding, but ultimately did not reduce vulnerability to NGO action. Now companies, eager to retain their reputation, were getting jittery, as were the governments backing them: This, after all, is an industry that could barely survive without World Bank support or government export guarantees (Bosshard, 1999). As investment in Turkey carries considerable political and economic risk, the international companies are loath to carry all that risk themselves. Governments of countries where civil engineering is an important export sector have so far turned out surprisingly eager to provide export. Such a credit is no luxury: Anatolia is still under emergency rule, and GAP projects are under constant military surveillance. Reporters and activists visiting the region reportedly were followed by secret police and, in the case of a journalist working for *The Times*, a tank.

International companies are involved

Now that the media, tipped off by human rights and environmental 'watchdogs' are on their trail, some governments that have issued export guarantees started to feel increasingly uncomfortable. In Great Britain, an affair erupted over the Ilisu Dam after its government extended export guarantees to the British construction company Balfour Beatty, another important international player which had been approached by ABB to subcontract the civil engineering works while ABB would take care of the electrical engineering, and Sulzer Escher Wyss to lead the construction consortium which is to realize the dam, the storage lake and hydropower station—further companies involved are Impreglio (Italy), Skanska (Sweden), and the Turkish Trade and Industry (DTI) was quite ready to issue a £200 million export credit, but had failed to confer with the newly ethics-conscious Foreign and Commonwealth Office (FCO), which embarrassingly had to read the news in *The Guardian*. Now DTI's Export Credit Guarantee Department (ECGD) which governs

such export credits, had no ethical or environmental code governing those guarantees, while Foreign Minister Robin Cook prided itself on its ethical standards. But even the Office was ready to defend the project as a fine example of its ethical policy, claiming it would contribute to Middle East peace (*Guardian* 1 March 1999). When the flak became too vehement, the Trade and Industry Minister, Brian Wilson, sought to reassure worried Liberal Democrats in the House of Commons that no final decision had been taken.

This affair, while still minor, was painful to the Labour government which seeks to set itself apart from its Conservative predecessor, which some four years before was embarrassed by a big dam project in Malaysia. The Malaysian Pergau dam project, involving ABB and British company Biwater, turned into a scandal when technical development aid turned out to be tied in with British arms deliveries (the Malaysian government did not have to do much more than retract its Buy British Last-policy) and that Biwater had donated great sums to the then Conservative government.

Other governments have tried to forestall the torrent of criticism in various ways. The Bundesrat, to which the Swiss Central Bank is accountable, justified its export risk guarantee go-ahead for 470 million Swiss francs with a view to new Swiss jobs (1200 full-time man years) (Bosshard, 1999), Turkish development, and Turkish promises to look into expected negative side effects including forced resettlements, conflict over water rights with the downstream riparians, threatened cultural heritage, and malaria vectors associated with nonmoving water in a storage lake. In 1998, the Swiss government attached to its export credit (also covering a project in Ankara) the condition that an independent monitoring mechanism would be established. Sulzer Hydro, also responsible for the largest GAP construction, the Atatürk dam which was finalized in 1992, argues Ilisu's environmental benefits (George, 1999). Turkey itself, too, claims conformity with UNDP environmental sustainability guidelines. Despite repeated NGO requests, the government however long remained reluctant to make the Environmental Impact Assessment for the Ilisu dam public, invoking commercial confidentiality. After the affair became too embarrassing, the government changed its mind on this count too.

However, it was too late already. After questions were raised in the House of Commons, claiming the Ilisu's "security implications could extend far beyond Turkey's borders, and could affect our security interests as a member of NATO and Turkey's

future in the EU”⁵ the Blair government decided to wash its hands of the project. Soon one consortium partner after the other backed out. together with Balfour Beatty, Impregilo withdrew, after which the main financial partner, UBS, decided to pull out⁶. Skanska had already withdrawn in 2000, while ABB—which was leaving hydroelectricity—had ceded its involvement to Alstom.

After several years of standstill, however, the Ilisu Dam project has been quietly resurrected in 2005. A new international consortium led by Siemens formed to revive the Ilisu project, with construction to be started in October 2005. Alstom again is involved, while Cengiz, Celikler and Lider Nurol are the Turkish partners. The Turkish government demands a better resettlement plan and environmental measures. The European Union’ antitrust agency has different concerns: it summoned Siemens to sell the hydel part of its daughter VA-Tech. Asking price assessed at Euro 300 million, including the Ilisu project.⁷

Now that Ilisu is getting a second wind, will Turkey mend the ethics gap? Some would argue that it already has. In the past four decades, the project has seen many environmental, educational and representative reforms including the establishment of Water Users Associations with farmer representation and decentralization of decision-making to mayoral level. The GAP administration prides itself on having turned around from a ‘hydraulic mission-age’ blueprint to a leading example of Integrated Water Resource Management, what it calls a ‘human centered development project’. The project won a Millennium Award from the International Water Research Association. Treatment of the Kurds has improved, in no small part in response to European conditionality for EU membership. Still the Kurdish Human Rights Project claims the lessons of Ilisu have not been learned and European standards are still not being met by the Ilisu project.⁸ International NGOs are keeping a close watch on proceedings, notably Friends of the Earth and the German NGO WEED, which produces a critical weekly Ilisu update (this focus on INGOs of course does not take away from the local Turkish and Kurdish NGOs taking the issue on).

Dams as ‘Human centered development projects’

⁵ www.parliament.the-stationery-office.co.uk/pa/cm199900/cmhansrd/vo000215/halltext/00215h01.htm

⁶ see e.g. http://news.nationalgeographic.com/news/2000/12/-1201_turkey.html

⁷ www.taz.de/pt/2005/09/24/a0152.nf/text.ges,1%20.

⁸ www.globalwomenstrike.net/English2005/PRdamProject.htm

4. Understanding the GAP in security terms

With the help of the five security domains of Buzan et al.'s grid, a story of security and risk trade-offs can be told. In terms of the diagram, Turkey has sought to enhance its national security since the 1920s by laying great stress on **cultural** identity and integrity (the unitary state) as well as economic development (self-actualization, opportunity-seeking), which in turn should provide the government with greater legitimacy (**political** security). As an instrument to achieve both economic growth and integration of the Kurdish minority, the Greater Anatolia Project is legitimized and elevated beyond the realm of debate—in Buzan et al.'s terms, 'securitized'. As the project provides sufficient storing capacity to deprive its downstream neighbors of water for a considerable time, the project has the extra bonus (for Turkey) of enhancing external military security and contributing to the long-term military-political goal of macroregional hegemony.

By denying that the basin is international (in other words, unilaterally declaring sovereignty over the integral basin in the name of integrated management), Turkey seeks to resist internationalization of the water issue, which the downstream parties predictably reject and complicate by linking national and international issues.

Turkey pursues its hegemonic objectives at a considerable price. Domestically, the project has procured sufficient hostility from the Kurds to warrant the conclusion that it has contributed to internal cultural and military insecurity. Internationally, the controversy over the project has proved bad international public relations (reputation), not improving its chances of EU membership, and landed Turkey on the brink of war with Syria on several occasions. Also, the project has deprived Turkey of international funding; burdening a stressed economy with spiraling project costs.

The latter problem has now been partly 'solved' by the liberalization of the water sector, if at the cost of a degree of (temporary) loss of state autonomy over water resources to international companies (political insecurity). For these companies, the projects provide do not just provide opportunity but for several of them it provides much-needed security in terms of long-term income in a competitive market. However, it also brings considerable political and economic risk—not just by investing in a controversial project in a country that is effectively still at war with itself, but also the potential loss of its hardware or people due to attack in a region where the state of emergency is still in force and project workers reportedly experience occasional

‘Active domain linkage’

gunfire and threats. They have sought to alleviate this risk by securing export credits from their governments; in Britain, the Department of Trade and Industry was ‘minded’ to provide this at first. In addition to an export opportunity, the UK government even saw political capital in it, promoting it as a peace-promoting project. However, it had not counted on the well-orchestrated protest on the part of a European NGO coalition, spearheaded in Britain by Friends of the Earth. The project looked a choice opportunity to mobilize its political clout in opposing the Ilisu Dam as a symbol for unethical British investment. Turning what was seen by its initiators and donors as an economic issue into a human rights issue, it allied with the Kurds who, seeing their cultural heritage endangered (symbolized by Hasankeyf), showed themselves unwilling to lose the remaining symbols of cultural identity in exchange for economic opportunity (Kurdish Human Rights Project, 1999)

This latter development seems a good example of active domain linkage. It is interesting that the military and cultural rather than the economic or environmental cards were played. The Ilisu Dam is but one in a series of Turkish megaprojects which have been consistently fought. The Syrian and Iraqi threats and writs against Turkey and its international investors on the basis of expected economic damage and environmental degradation (pollution) have failed to make an impact. NGOs, too, will never be able to win the day on economic arguments. By successfully recasting the issue as a human rights issue, they could play at a concern which to many people is an absolute, existential value at the individual and group level. In Buzan et al.’s phrase, they ‘securitize’ the issue by calling on an existential danger.

FoE may have judged the general public to be increasingly *blasé* over issues of environmental quality which have not grabbed headlines of late. A ‘water war’ however is in a different—military—league, and a much more emotive ‘spin’ than the arguments Turkey and the UK foreign office advanced for the project as promoting regional peace. Moreover, casting the issue as a human rights violation will have struck a chord in Europe.

Whatever the rationale, the move has been relatively successful. The Turkish initiators, sensing the change in international mood, have sought to counter it by casting the project as essentially **humanitarian** and ecologically sound, that is, it sought to defeat the opposition in the same security domain. While the project’s opponents will feel that this ‘spin’ on the project amounts to little more than nominal lip service, the price to be paid was for the project to be at least subjected to international scrutiny and environmental accountability. So, in

order to improve the political strategy, it seems the different domains have indeed been linked or relinked to domains where a more successful outcome was anticipated.

5. Conclusion

The article has shown that despite the war moves, the Euphrates tussle is essentially political maneuvering. Like in so many other daring water projects, the initiators—water engineers and water managers—seem genuinely surprised that their project gets politicized—even with civilized add-ons like stakeholder participation, EIA, and prior notification.

In spite of the apparent anarchy, some kind of regime, in the sense of patterned, predictable state behavior (Puchala and Hopkins, 1987) can be said to be in place. The public posturing and linkage politics around GAP displays a strongly ritualistic pattern of near-wars followed by near- or placeholder agreements. These rituals promote what American geographers John Kolars and William Mitchell (1991) have termed a “*pax aquarum*”, a hydraulic hegemonic configuration under the aegis of Turkey. For this, Turkey basically keeps pursuing the same long-term two-chessboard strategy at home and in the world, unperturbed by the changed dynamics around the ‘balance-of-weakness’ in the region.

Turkish strength in basin and region however is not quite mirrored on the international water scene. The search for funding has forced Turkey to radically privatize its water sector. Because of the political risk involved, the World Bank will not fund controversial dams, while commercial banks will only be involved if given export guarantees by donor governments. This vulnerability has provided a window for Ilisu opponents to successfully attack dam projects in the press, but it looks like the latter have not been able not to take them off the Turkish long-term agenda. It can be argued that broadening the vision of GAP has not only helped Turkey’s hydraulic aspirations, but also been a step on the long road towards the country’s wider hegemonic objectives.

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Turkey's Water Resources, Water Needs and Data Collection Infrastructure

Sevilay Topcu, Burak Sen

1. Land and water resources in Turkey

Population growth, industrialization, urbanization and rising affluence in the 20th century have resulted in a substantial increase in water consumption. While the world's population has grown threefold, water use has increased sixfold during the same period. The problem is further aggravated by the uneven water distribution on earth. Although only approx. 20 percent of the world's cultivable lands are under irrigation, they account for 40 percent of global agricultural production. It is projected that the population will reach 8 billion by the year 2025, necessitating a 40 percent increase in food production. Therefore, it is likely that irrigated agriculture will continue to expand. The demand on water resources will continue to increase during the next twenty-five years (Topcu and Kirda, 2005).

Irrigated
agriculture will
expand

In arid and semi arid regions where precipitation is generally limited to four or five months a year, water resources development projects, especially storage systems and irrigation networks, are indispensable for sustainable socio-economic development. A case in point is the Middle East. Turkey with its semi arid climate has the same problems regarding the natural resources. Table 1 shows land and water resources of Turkey.

The 643 mm average annual precipitation equals to 501 billion m³ water, and 274 billion m³ (54.6%) of this amount are lost due to transpiration and evaporation. The 158 billion m³ form surface water and the remaining 69 billion m³ (14%) of this precipitated water directly feed the underground water aquifer. Forty percent (28 billion m³) of underground water return to the surface via springs and join the rivers. An additional 7 billion m³ come from the neighboring countries, and Turkey's renewable surface water potential in total equals 193 billion m³ (158+28+7). Besides climatic variations (e.g. precipitation anomalies), it is impossible to harness the entire potential of 193 billion m³ due to topographic, geologic and technological limitations. Only 98 billion m³ (45%) of the total surface runoff, in addition to the 12 billion m³ from the underground, which can be economically tapped during the flows to the sea and to the neighboring countries, can be used technically and economically (Figure 1).

Table 1: Land and water resources of Turkey

LAND RESOURCES	(million ha)
Area of Turkey (projection area)	77.95
Agricultural land	28.05
Irrigable land	25.85
Economic	8.50
Irrigation land developed by DSI (net area as of 2001)	2.334
WATER RESOURCES	
Mean (arithmetic) annual precipitation	642.6 mm
Mean annual volume of precipitation	501.0 km ³
SURFACE WATERS	
Annual surface runoff	186.05 km ³
Annual surface / rainfall ratio	0.37
Annual depletable volume	95.00 km ³
Actual annual utilization	33.90 km ³
GROUNDWATERS	
Annual extractable (available) groundwater reserve (Annual safe yield)	13.66 km ³
Annual volume allocated by DSI	10.39 km ³
Actual annual utilization	6.23 km ³

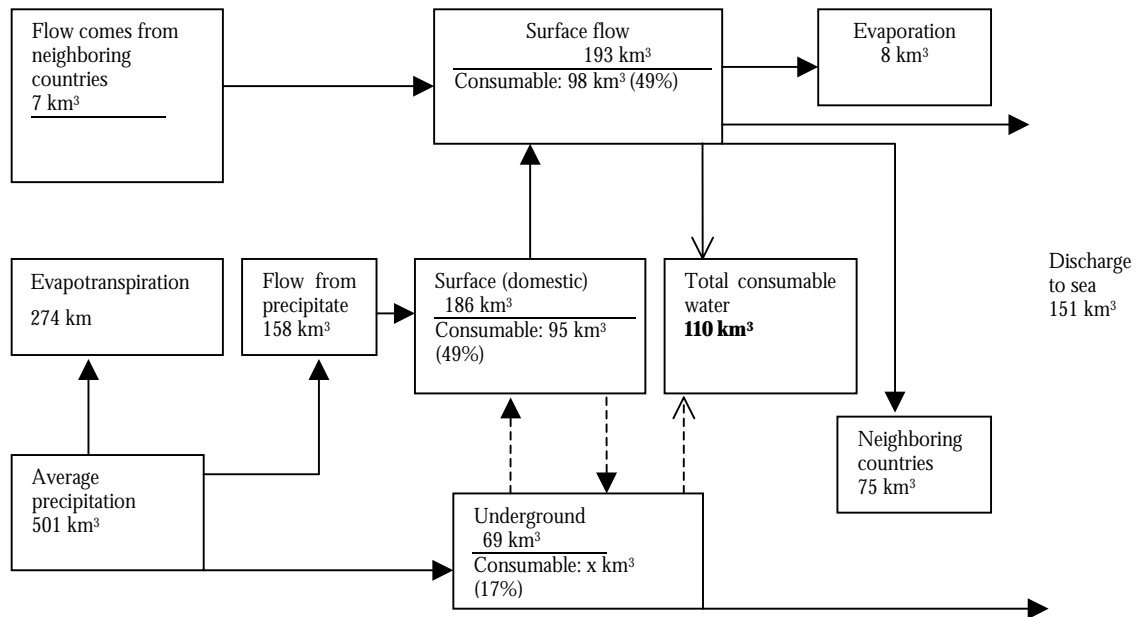
Source: State Hydraulic Service, 2003; 1 km³ = 1 billion m³

A semi-arid
region

Turkey is situated in a semi-arid region, and only about one-fifth of the water is available *per capita* compared to water rich regions such as North America and Western Europe. Water rich countries are defined as countries where 10,000 cubic meters of water *per capita* are available on a yearly average. This is well above the 1615 cubic meters *per capita* in Turkey in 2003. Water quantities *per capita* in some countries and the world average in the year 2000 are given in Table 2.

Another point is that Turkey's water is not always at the right place at the right time to meet present and anticipated needs. In certain regions of Turkey, such as the Black Sea region, there is ample supply of freshwater—which however, is not used—while some of the more heavily populated and industrialized regions, such as the Marmara and the Aegean regions, lack sufficient fresh water.

Figure 1. Turkey's water budget



Source: State Planning Organization, 2001

Table 2: Water quantities per capita in some continents and Middle East Countries (m³)

World (avrg.)	7600
Latin America (avrg.)	23000
Africa (avrg.)	7000
West Europe (avrg.)	5000
Asia (avrg.)	3000
Iraq	2020
Turkey	1735
Syria	1200

Source: State Planning Organization, 2001.

Turkey produces more than 44 000 GWh of hydroelectric power per year, which corresponds to 36.9 percent of its total power generation. Turkey's energy consumption is rising about 5.7 percent a year on average due to rapid urbanization and industrialization. In 2002, the electricity consumption peaked at 126.9 billion kWh. It is estimated to rise to 265 billion kWh in 2010 and to 528 billion kWh in 2020. It should also be

Energy consumption is rising

emphasized that *per capita* energy consumption in Turkey is only one-sixth of that of the EU average, and an increase in the energy consumption means an improvement of the quality of life of the Turkish citizens. Turkey, which is neither oil nor natural gas producer, plans to meet the rising energy need in several ways. Hydro-power is especially appealing in that it is cheap and clean.

As far as the water consumption in different sectors is concerned, it is estimated that a total of the economically irrigable 8.5-mi/ha-land of Turkey will have been available for irrigation by 2030 with the construction of the irrigation network; and that total irrigation water consumption will have reached 71.5 billion m³ by then. Depending on this, it is aimed to decrease the proportion of the irrigation water to the total water consumption, which was 75 percent in 2000, to 65 percent by 2030 via modern irrigation techniques. Considering municipal water consumption, it is estimated that the population will reach 90 million by 2030 if the growth rate, which is approximately 2 percent per year at present, continues to decrease. Depending on the estimate that the social prosperity level of Turkey will be equal to the current European level, the municipal water consumption, which was 250 l/s *per capita* in 1997, is supposed to reach 500 l/s *per capita* by 2030. The water consumption of the tourism sector that is developing rapidly in Turkey is predicted to be 5 billion m³ by 2030. Accordingly, total municipal water need is expected to reach 25.3 billion m³ in 2030. When accepting the assessment that the industrial sector will grow by 4 percent per year on average until 2030, it is expected that industrial water need, which was 3.7 billion m³ in 1997, will be 13.2 billion m³ in 2030. Consequently, it is estimated that the total water, which equals 110 billion m³, is used by all sectors in 2030 (see Table 3).

Prosperity like
in Europe

Table 3: Actual and projected water consumption of different sectors (million m³)

Year	Total Consumption	Development in percent	Water Use					
			Irrigation		Municipal		Industry	
				%		%		%
1990 ¹	30600	28	22016	72	5141	17	3443	11
2002 ²	42000	38	31500	75	6400	15	4100	10
2030 ³ (projected)	110000	100	71500	65	17000	15.5	21500	19.5

Sources: ¹ State Planning Organization, 2001; ² Uzunlu, 2003; ³ Eroglu, 2003.

In recent decades Turkey has made great strides in water resources development for domestic use, irrigation, flood control and power generation. The dams and reservoirs built have enabled Turkey to save water from its brief seasons of rainfall to use throughout the year for various purposes, agriculture in particular. Rain-fed agriculture in Turkey is being implemented almost to the maximum level. As a result, increasing agricultural productivity has become primarily dependent upon irrigation by modern techniques.

Figure 2: Land resources and their uses

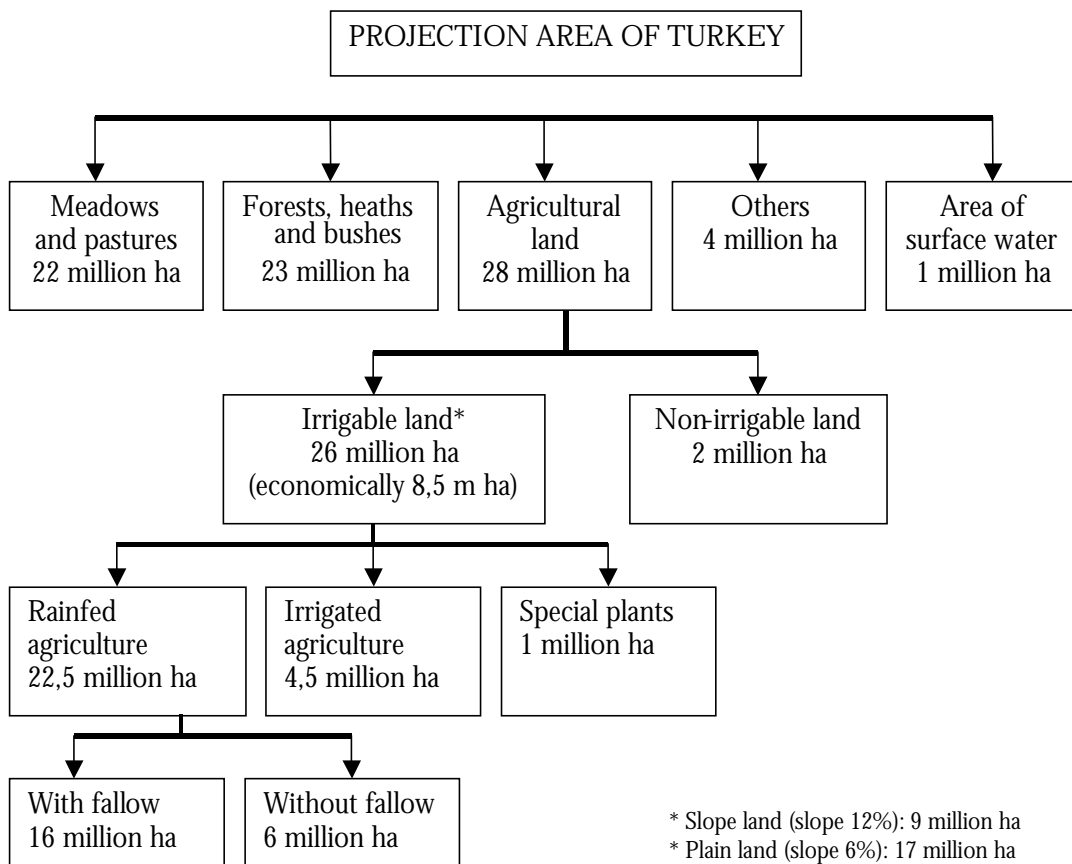
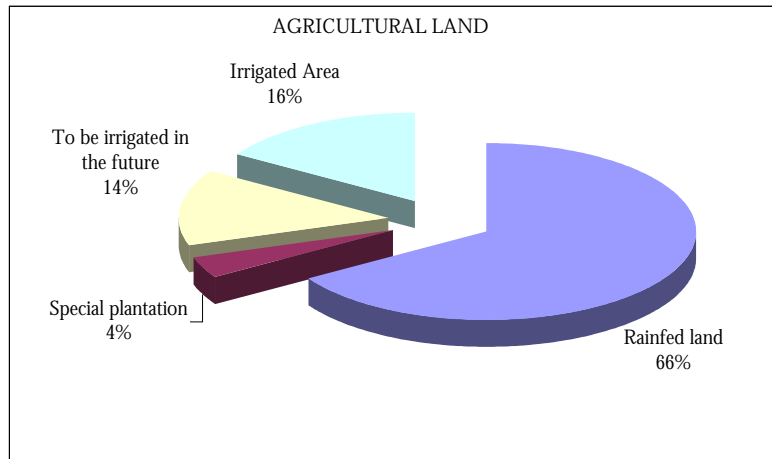


Figure 3: Agricultural land use and potential of Turkey



Source: General Directorate of Rural Services, 2003

Turkey has 26 watersheds

The entire area of Turkey is divided into 26 watersheds (Figure 4) and the development of land and water resources between and within each watershed has been carried out by four main governmental authorities. These authorities, namely the Turkish State Hydraulic Works (DSI), the General Directorate of Electrical Power Resources Survey and Development Administration (EIE), the Turkish State Meteorological Service (DMI) and the General Directorate of Rural Services (KHGM) are also responsible for the observation and assessment of data which are continuously collected by a large web of hydro-meteorological gauging stations around the country.

Figure 4: Turkey's watersheds



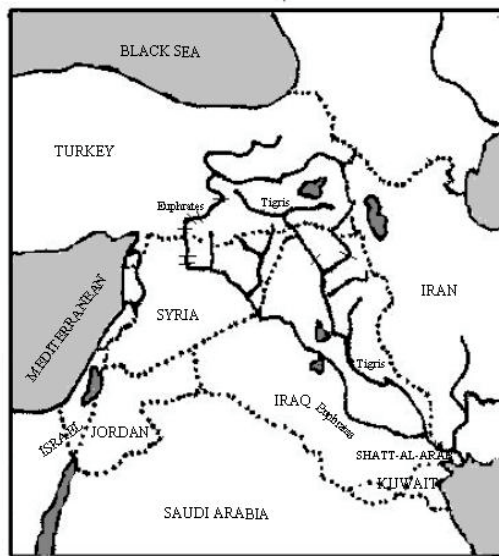
The Euphrates and the Tigris are two of the most famous rivers in the world. Both rise in the high mountains of north-eastern Anatolia and flow down through Turkey, Syria, and Iraq and eventually join to form the Shatt-al-Arab 200 km before they flow into the Gulf. With many of their physical, climatic, hydrologic and geomorphologic characteristics shared, it is common to treat them as a single basin for the purposes of integrated development and management.

Two of the most famous rivers

They account for about one-third of Turkey's water potential. Both rivers cross the southeastern Anatolia region which receives less precipitation compared to the other regions of Turkey. Therefore, during the 1960s and 1970s Turkey launched projects to utilize the rich water potential of these rivers for energy production and agriculture.

Figure 5: Euphrates and Tigris Basin

Rich water potential



Source: Bilal, 2000

The Euphrates is 2990 km long, of which 1220 km (40.8%) lie within Turkey, 710 km (23.7%) within Syria and 1060 km (35.4%) within Iraq. The Tigris is 1900 km long of which 533 km (27.5%) are within Turkey, 40 km (2.1%) within Syria and 1337 km (70.3%) within Iraq (Table 4). Due to geographical, climatic, hydrographic and geological reasons there are not many areas

either in Syria or in Iraq that are suitable for the construction of reservoirs, as Iraq acknowledged in the 1946 agreement.

89% of the Euphrates, 52% of the Tigris

Turkey contributes 31 billion cubic meters or about 89 percent of the annual flow of 35 billion cubic meters of the Euphrates. The remaining 11 percent come from Syria. Iraq makes no contribution to the flow (Figure 6).

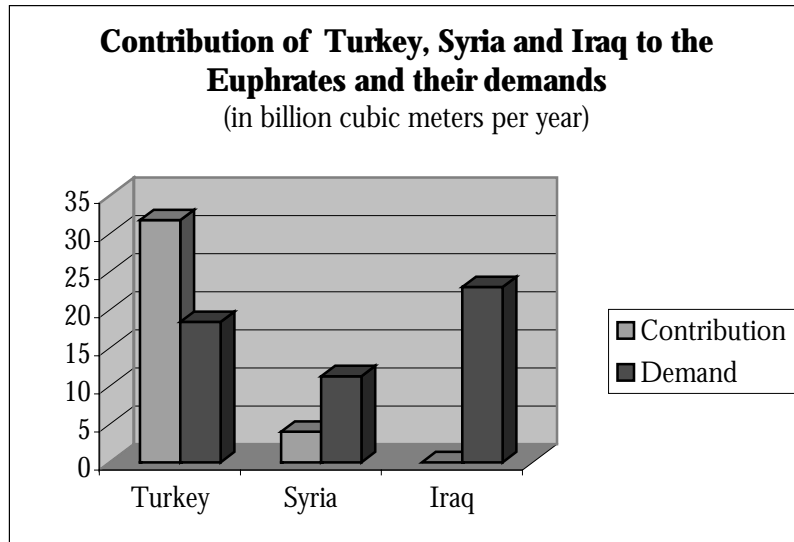
Table 4: Features of Euphrates-Tigris Basin

Countries	Length (km) ¹				Basin area ²	
	Euphrates		Tigris		Euphrates	Tigris
	km	%	km	%	km ²	km ²
Turkey	1220	40.8	523	27.5	124.32	56.59
Syria	710	23.7	40	2.1	75.48	0.94
Iraq	1060	35.4	1337	70.3	177.60	254.67
Total	2990		1900		444.000	471.606

Source: ¹ İnan, 2000; ² Erdem, 2003.

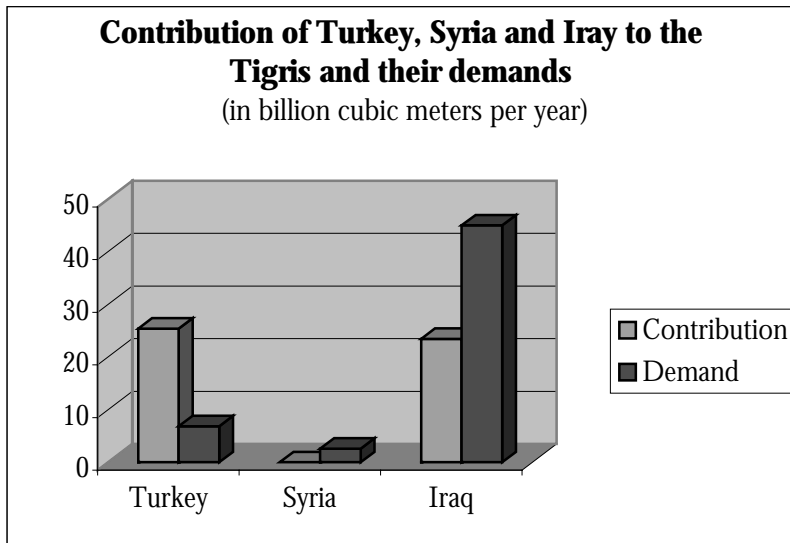
As to the Tigris, the picture is entirely different. 52 percent of the total average flow of 49 billion cubic meters come from Turkey. Iraq contributes all the rest. No Syrian waters drain into the Tigris (Figure 7).

Figure 6: Contribution and demand of the riparian countries to the Euphrates



Source: WWC, 2003.

Figure 7: Contribution and demand of the riparian countries to the Tigris



Source: WWC, 2003.

One of the great water success stories is, of course, the Southeast Anatolia Project (GAP), which is a regional integrated sustainable development project based on harnessing the water resources of the Euphrates and the Tigris rivers and the land resources of “Upper Mesopotamia”, a favorable environment for large-scale and intensive agriculture. This area which used to be the “food basket” of the region was named “fertile crescent”.

GAP is a truly “integrated, multi-sectoral” development project, comprising 13 major projects (seven on the Euphrates and six on the Tigris), designed to generate hydropower and irrigation. The scheme envisages the construction of 22 dams and 19 hydroelectric power plants on the Euphrates and Tigris rivers and their tributaries. On completion, it is hoped to achieve the irrigation of over 1.7 million hectares and the generation of 27 billion kWh of electricity annually with an installed capacity of 7,500 MW. This would account for 19 percent of the economically irrigatable area in Turkey (8.5 million hectares) and 22 percent of its economically viable hydropower potential (118 billion kWh a year).

A water success story

2. Turkey's water management in a transboundary context

According to the Turkish Ministry of Foreign Affairs (2003), Turkey's policy regarding the use of transboundary rivers is based on the following principles:

- Water is a basic human need.

- Each riparian state of a transboundary river system has the sovereign right to make use of the water in its territory.
- Riparian states must make sure that their utilization of such waters does not “significantly harm” others.
- Transboundary waters should be used in an equitable, reasonable and optimum manner.
- Equitable use does not mean the equal distribution of waters of a transboundary river among riparian states.

Turkey is eager to find ways of reaching a basis for cooperation, which will improve the quality of life of the peoples of the three countries. The point of departure should be to identify the real needs of the riparian states. To this end, Turkey has designed a “Three-Staged Plan”. The Three-Staged Plan is based on the fact that the Euphrates and the Tigris make up a single transboundary river system and envisages the preparation of common inventories of water and land resources for a final allocation of water between the riparian states.

Table 5. GAP projects status

PROJECT STATUS	EUPHRATES (FIRAT) RIVER PROJECTS	TIGRIS (DICLE) RIVER PROJECTS	SUM OF GAP PROJECTS
TOTAL			
Installed Capacity	5 304 MW	2 172 MW	7 476 MW
Energy Generation	20 098 GWh	7 247 GWh	27 345 GWh
Irrigation Area	1 091 203 ha	601 824 ha	1 693 027 ha
Number of Dams	14	8	22
Number of HEPPs	11	8	19
IN OPERATION			
Installed Capacity	4 200 MW	94 MW	4 294 MW
Energy Generation	16 254 GWh	146 GWh	16 400 GWh
Irrigation Area	114 330 ha	-	114 330 ha
Number of Dams	3	3	6
Number of HEPPs	2	1	3
UNDER CONSTRUCTION			
Installed Capacity	902 MW	308 MW	1 210 MW
Energy Generation	3 292 GWh	781 GWh	4 073 GWh
Irrigation Area	97 636 ha	61 772 ha	159 408 ha
Number of dams	4	-	4
Number of HEPPs	3	2	5

Source: State Hydraulic Works, 2003

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