An Assessment of Strategic Issues in the Policy Field Relating to Water Resource Management in Southern Africa

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Introduction

The growing literature on water and politics, or what is increasingly being called hydropolitics, is generating a range of new ideas, concepts and management approaches. Yet the literature is also skewed in favour of water and conflict (Turton, 2002a:13). Whilst this has resulted in a reasonably deep knowledge of this aspect of water resource management, our attention has been diverted away from some of the real political issues associated with water in areas where conflict is not endemic. These include, but are not limited to, our understanding of power structures and coalitions for example, particularly when it comes to understanding these in a more profound manner like analysing how they develop, how they change, and how they impact on decision-making at various levels in society. Two levels are particularly important in the context of Integrated Water Resource Management (IWRM) - the national and sub-national scale of management on the one hand versus the international or supra-national level of scale on the other. This paucity of knowledge impacts in turn on the depth of our understanding of the dynamics of water resource management institutions. This paper seeks to present some work that is being done in this regard from a region that has water-scarcity limitations to its future economic growth and development potential. While it is widely accepted that the first region in the world to have reached this constraint is the Middle East and North Africa (MENA) (Allan, 2000:9), it is becoming increasingly apparent that the Southern African region is likely to become the second. This has given rise to deep introspection in the Southern African Development Community (SADC) region because every effort is being made to become reflexive and to generate a management approach that is proactive in nature. This paper will focus on the emergence of a new set of concepts that explain power structures and coalitions as they pertain to the management of international rivers in the SADC region. It will then distil out some strategic issues that arise from this set of concepts in order to make a range of recommendations for consideration by the World Water Council.

The Southern African Hydropolitical Complex as a Concept

A security complex is a set of units (usually states), whose major processes of securitization, desecuritization, or both, are so interlinked that their most important security problems cannot reasonably be analyzed or resolved separately (Buzan *et al.,* 1998:201; Buzan & Wæver, forthcoming). In this regard, securitization is constituted by the inter-subjective establishment of an existential threat within any sector (military, political, economic, societal and environmental) with a saliency sufficient to have substantial political effects (Buzan *et al.,*

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1998:25); whereas desecuritization refers to the shifting of specific, strategically important issues out of the emergency mode and into the formal bargaining processes of the political sphere (Buzan *et al.,* 1998:4). Security complexes thus emphasize the interdependence of both rivalry and shared interests (Buzan, 1991:190), or stated differently, reflect the shifting patterns of amity and enmity over time (Buzan, 1991:198). Security complexes are analytical[3] entities consisting of units displaying distinct patterns of both amity and enmity, characterized by predominantly inward looking national security relationships, surrounded by a zone of relative indifference.

Buzan (1991:194 & 210) has noted the existence of a regional Security Complex in Southern Africa comprising eleven of the twelve mainland SADC states of the Republic of South Africa, Namibia, Botswana, Zimbabwe, Zambia, Lesotho, Swaziland, Mozambique, Angola, Malawi and Tanzania. Given the fact that national security is a relational issue, usually mitigated by geographic proximity, the role of international river basins as an element of a regional security complex becomes an interesting, and as yet, largely unexplored analytical variable. In the case of contemporary SADC for example, there are no less than 16 rivers that cross the political borders of two or more states in the region. As such sovereign control over these rivers is shared when seen from the perspective of any given basin that is being managed as a hydrological entity. These international river basins are presented in Table 1.

Table 1. International River Basins found in the SADC Region.

River Basin	**Riparian States**
Buzi	Mozambique, Zimbabwe.
Cunene	Angola, Namibia
Cuvelai	Angola, Namibia
Incomati	Mozambique, South Africa, Swaziland
Limpopo	Botswana, Mozambique, South Africa, Zimbabwe
Maputo	Mozambique, South Africa, Swaziland
Nata	Botswana, Zimbabwe (a component of the Makgadikgadi System)
Nile	Burundi, Democratic Republic of Congo (formerly Zaire), Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, Uganda
Okavango	Angola, Botswana, Namibia
Orange	Botswana, Lesotho, Namibia, South Africa
Pungué	Mozambique, Zimbabwe
Rovuma	Malawi, Mozambique, Tanzania
Save	Mozambique, Zimbabwe
Umbeluzi	Mozambique, Swaziland
Zaire (Congo)	Angola, Burundi, Cameroon, Central African Republic, Congo, Democratic Republic of Congo (formerly Zaire), Rwanda, Tanzania, Zambia
Zambezi	Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe

Threats to economic security can be seen as a national security issue, because relative economic growth is a major determinant of the power of states within a given system (Buzan, 1991:242). This is particularly pertinent to international river basins that are reaching the point of closure. In this regard, a closed river basin is one with no utilizable outflow of water (Seckler, 1996). A river basin is said to be facing closure when most of the readily available water has been allocated to some productive activity and there is little water left for allocation

[3] It is important to note that this is not an actor defined condition but rather an analyst defined condition. It is known for example that some actors prefer not to define themselves in this way for reasons of strategic negotiation positions being developed. Being a non-actor defined condition assists the analyst by developing an understanding of the clustering of issues, the dynamics of coalition formation and the generation of a likely future trajectory. This is in keeping with the methodology as developed by Buzan *et al* (1998:14).

(Svendsen *et al.,* 2001:184). When this condition is reached, competition for water becomes high, with a resultant increase in conflict potential. This can become an issue of high politics when this water scarcity results in a limitation of the economic growth potential of the state, or stated more accurately, when perceptions that this is possible take root in the ranks of the political elites of a given riparian state. Under such conditions perceptions become reality because they inform the decision-making process (Turton, 2003c:90).

Seen in this light, international river basins form an important element of the Southern African Regional Security Complex - a fact that seems to have gone largely unnoticed by scholars - leaving a significant gap in the International Relations literature of the region. Given that this is largely about the dynamics of power structures and coalitions, this is of major significance to the World Water Council.

A Hydropolitical Security Complex as a Concept

Using the Security Complex Theory articulated by Buzan (1991) and Buzan *et al* (1998), Schulz (1995) has developed the concept of a Hydropolitical Security Complex in the context of the Tigris and Euphrates River Basins. Schultz (1995:97) defines a Hydropolitical Security Complex as "including those states that are geographically part 'owners' and technically 'users' of the [shared] rivers and further, as a consequence, consider the rivers as a major national security issue. In this way Turkey, Syria and Iraq compose a security complex or, rather, form *the Euphrates and Tigris hydropolitical security complex*" (emphasis in original text).

Emerging from this analysis, Schulz isolated what he calls horizontal and vertical relations within the Euphrates and Tigris Hydropolitical Security Complex, and between that complex and other complexes. Vertical linkages include relationships with higher structural levels, such as superpower rivalry, whereas horizontal linkages relate to the same structural levels between complexes, such as the Palestinian-Israeli linkage (Schulz, 1995:97).

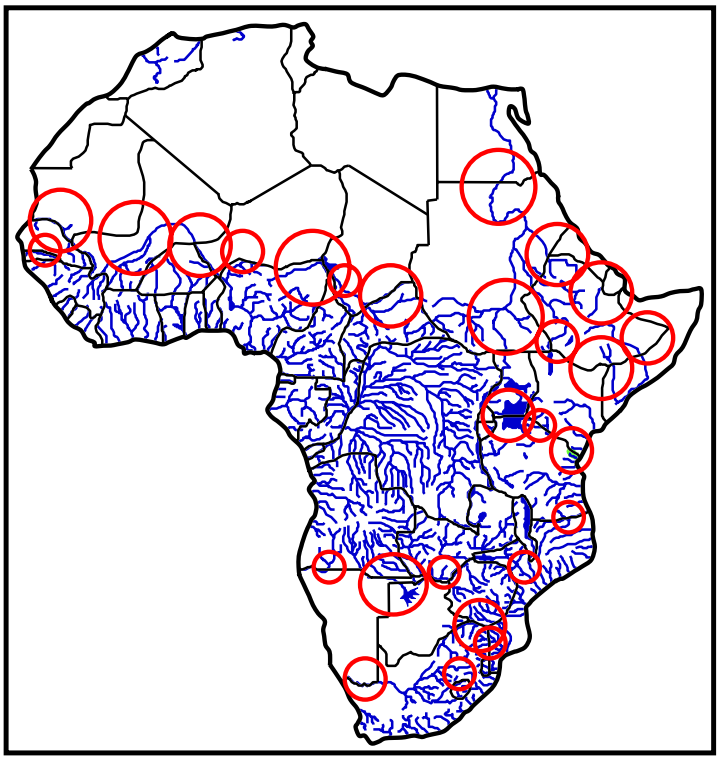
The significance of Schulz' work is that it indicates what can happen in the field of hydropolitics if water resource management becomes linked to national security concerns, or other issues of a high politics nature. This has happened in many parts of the Middle East North Africa (MENA) region, where economically damaging water deficits first arose (Allan, 2000:37). One of the indicators of the securitization of water resource management is the classification of hydrological data as secret, and its consequent removal from the public domain, as has occurred in the MENA region (see Lesch, 1992:148; Warner, 1996). It is therefore instructive to understand the dynamics of this process, and in particular, ways of avoiding the securitization of water resource management. In support of this, it is interesting to note that Allan (2000:245) has found the concept of Security Complexes to be a useful way of describing the hydropolitical dynamics of the MENA region.

The Southern African Hydropolitical Complex

Using the work of Buzan (1991; 1994), Buzan *et al.,* (1998), Buzan & Wæver (forthcoming) and Schulz (1995), Turton has been developing a model that factors in the hydropolitical dimension of international relations within the SADC region (Turton, 2001; 2003a; 2003b; 2003c; 2003d; 2003e). The rationale for this model is based on the fact that a large number of international rivers (refer to Table 1) establish a permanent linkage between different states within the Southern African Security Complex as originally defined by Buzan (1991:210).

The importance of water to any given national economy is self-evident. No state has ever grown economically without developing its national water resources. It can be said that the reliable availability of water is a fundamental determinant of the economic growth potential of

the state. This makes reliable access to sustainable water supply a strategic issue, particularly for developing countries that are situated in arid and semi-arid regions of the world. The full significance of water in the context of Southern Africa is illustrated by the fact that the first protocol that was signed within the SADC region was the Protocol on Shared Watercourse Systems (Ramoeli, 2002:105). Heyns (2002:158) notes that one of the major development challenges in the near future within the context of SADC will be the implementation of large, regional water transfer schemes in order to meet the economic limitations imposed by endemic water scarcity.



Map 1. The distribution of perennial rivers in Africa (Redrawn from Ashton, 2002). The circles indicate areas of existing disputes that have water as an element and also coincide with the transition from perennial to ephemeral river systems (Ashton, 2002; Turton *et al.,* 2003:10).

The SADC region is characterized by significant differences in the distribution of water resources, with large areas of land receiving less than 500 mm of precipitation per annum. In fact, around 60% of the total mean annual runoff (MAR) of South Africa arises from 20% of the land surface area. Coupled with this is an extremely high evaporative demand, which means in effect that what water does fall as rain, is almost immediately lost to evaporation. In South Africa for example, the annual average rainfall is 487 mm, with one of the lowest conversions of rainfall to runoff in the world. In fact, the total average runoff (that portion of rainfall that is not lost to evaporation and which eventually finds its way into rivers) is only some 10% of total annual rainfall (Rabie & Day, 1992:647). Of the resultant runoff that becomes streamflow, a mere 60% (Rabie & Day, 1992:647) to 62% (O'Keefe *et al.,* 1992:278) can be economically exploited, because of the extreme variability of these rainfall events. This natural climatic variability has acted as a stimulus for the construction of dams in attempts to retain as much streamflow as possible. Significantly, the World Commission on Dams report listing the top ten countries by virtue of the number of dams constructed for particular purposes (irrigation, water supply, flood control and hydropower) contains both South Africa and Zimbabwe (WCD, 2000:373). In fact South Africa and Zimbabwe have between them 752 large dams while the SADC region's other nine mainland countries have

only 55 among them. The SADC region's wetter countries (Angola, Malawi, Mozambique, Tanzania and Zambia) have amongst the lowest density of dams in the world for non-karstic regions with annual precipitation in the range of 600-2000 millimetres (Turton, 2003d:76).

The erratic nature of streamflow, particularly in Namibia, Botswana, Zimbabwe and South Africa, has also resulted in a number of ephemeral rivers in the region. A distinguishing feature of the SADC region is that Botswana and Namibia have no permanent rivers flowing on their sovereign soil, other than a short reach of the Okavango, which is difficult to exploit for a variety of reasons. This series of facts is generally left unexplored in the International Relations literature of the region, so the political implications of this are largely unknown at present. This has prompted the authors to develop a series of research projects in Southern Africa, in an effort to determine the role of international river basins as potential drivers of political dynamics within SADC in future, particularly in light of the unpredictability of global climate change as an interceding variable. This has led to the development of a typology of riparian states and international river basins, which appears at first glance to be useful.

As noted earlier, a distinguishing feature of the SADC region is the large number of international river basins. The relevance of this becomes clearer when one realizes that four of the economically most developed states in the region - South Africa, Botswana, Namibia and Zimbabwe - are all water scarce. In fact these four states are approaching the limits of their readily available water resources and water scarcity poses limitations to economic growth potential in the near future. Significantly, these four states are also linked by virtue of their co-riparian status with each other, in the Orange and Limpopo River Basins.

The emerging typology is based on a distinction between two distinct types of riparian state (pivotal state and impacted state), and two distinct types of international river basin (pivotal basin and impacted basin). In this regard, the following definitions have been developed (Turton, 2003d):

- Pivotal States are those riparian states with a high level of economic development that also have a high reliance on shared river basins for strategic sources of water supply. In the context of Southern Africa, there are four states in this category - the Republic of South Africa, Botswana, Namibia and Zimbabwe.

- Impacted States are those riparian states that have a critical need for access to water from international river basins that are shared with a Pivotal State for their own economic and social development, but by virtue of the unequal power relations within the basin concerned, are unable to negotiate what they consider to be an equitable allocation of water. In the context of Southern Africa, there are seven states in this category - Angola, Mozambique, Swaziland, Lesotho, Zambia, Malawi and Tanzania.

- Pivotal Basins are those international river basins facing closure that 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 the context of Southern Africa, there are two basins in this category - Orange and Limpopo.

- Impacted Basins are those international river basins that have at least one (or more) of the Pivotal States as co-riparians, which in turn reduces the freedom of choice for the Impacted States to develop their water resources in a manner that they deem to be fair and equitable. In the context of Southern Africa, there are seven basins in the category - Zambezi, Cunene, Okavango, Incomati, Maputo, Pungué and Save.

Using these key concepts, the authors have developed a model that attempts to show the impact of inherent patterns of amity and enmity within international river basins as a critical component of the Southern African Security Complex as defined by Buzan (1991:194).

Figure 1 shows the authors' rendition of what is visualized as being the structure of the Southern African Hydropolitical Complex.

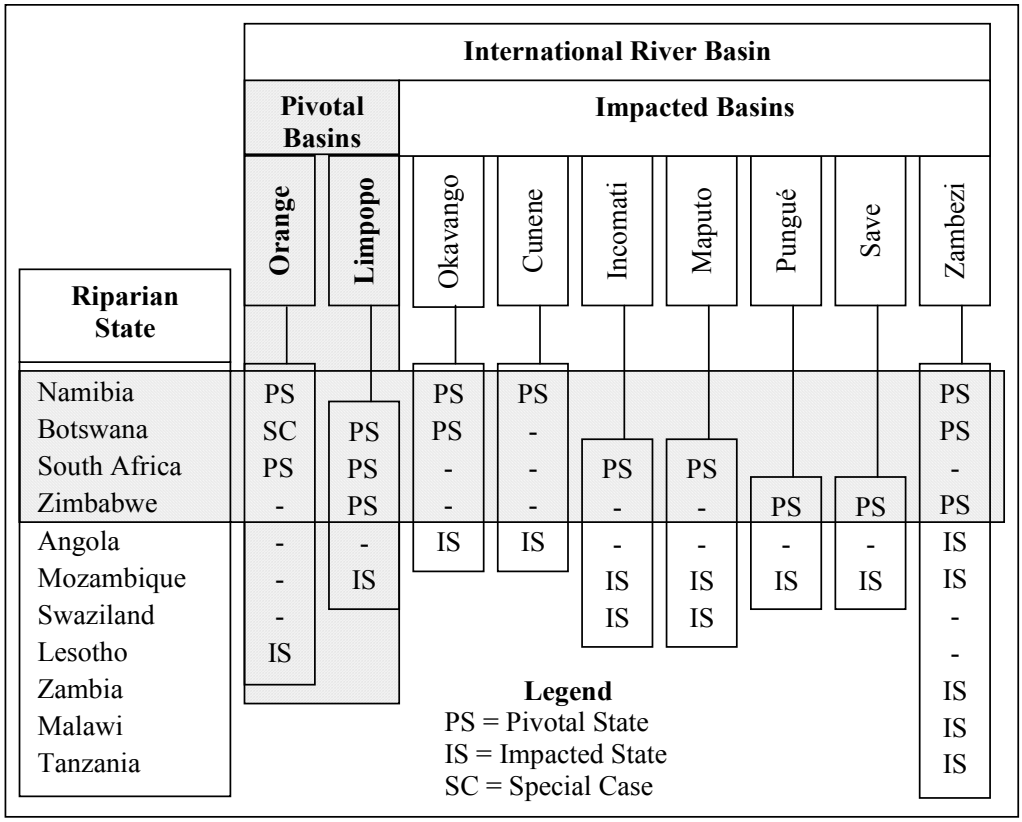


Figure 1. The Southern African Hydropolitical Complex (Turton et al, 2003:13).

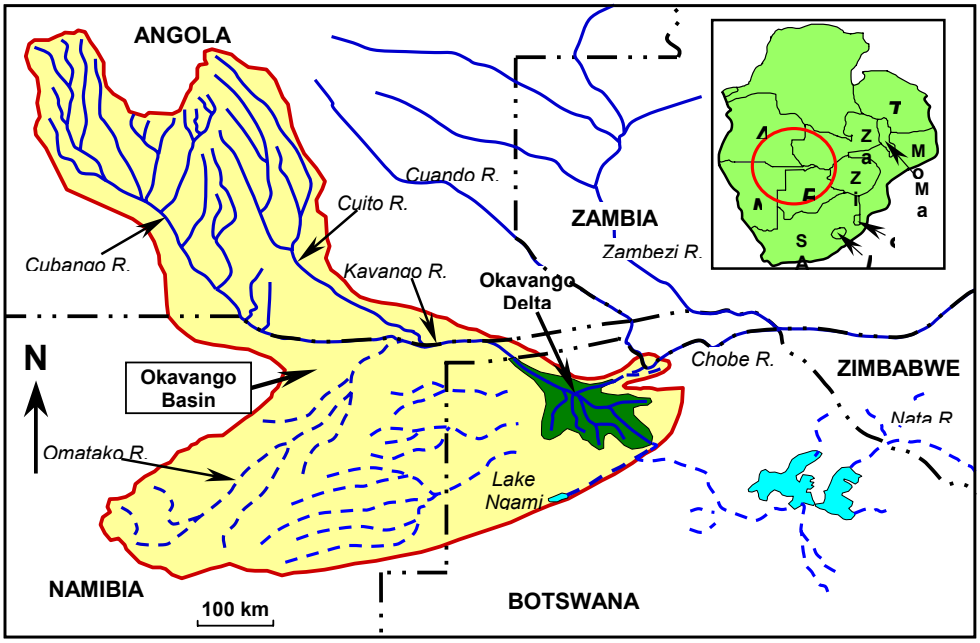
In this regard it must be noted that earlier work used the terminology "Southern African Hydropolitical Security Complex" (Turton, 2001), in keeping with the work by Schulz (1995). Subsequent research has shown that the degree of securitization within the water sector is far less in Southern Africa than is the case in the Euphrates and Tigris Hydropolitical Security Complex, prompting a revaluation of the concepts being used, and removal of the word "security" from the chosen name of the concept. Within the SADC region however, water has a long history of politicization, having played a prominent but subtle role during the conflict years of Superpower overlay and Apartheid's struggle for regional hegemony (Turton, 2003a). In the post-Apartheid era, the overt nature of water politics has changed somewhat in the region, but the underlying drivers remain largely unchanged. The four economically most developed states in the region are the most water scarce, they all share international river basins with other states, and they all face significant limitations to their future economic growth prospects as a result.

By using these conceptual nuances, the facts presented in Table 1 start to take on a new meaning. Clearly all international river basins are not equal in strategic importance or in terms of their inherent conflict potential. The two Pivotal Basins in the SADC region are the Orange and Limpopo, by virtue of three critical criteria: significant portions of the basin fall within Pivotal States; those Pivotal States have a high reliance on the water from those basins; and the basin itself is approaching the point of closure. A deeper analysis of the two Pivotal Basins raises a number of subtle but important facts that are not visible when one uses the Regional Security Complex approach on its own. For example, the larger of the two Pivotal Basins in terms of volume is the Orange River (11,200 Mm^3 per annum, compared

with 5,750 Mm^3 per annum for the Limpopo) (Basson, 1999). The Orange River is extremely important for South Africa, arguably being the strategically most important river it has unfettered access to. Botswana is listed in Table 1 as being a co-riparian, yet the portion of the basin that lies within the geographic area of that country is located within the Kalahari Desert. As such the watercourses within the Orange basin that lie in Botswana are ephemeral in nature, contributing no streamflow 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 it makes no use of the water and it contributes no streamflow.

This prompts one to ask why this should be the case? The answer is revealed when one examines Botswana's potential strategic interests in greater detail. Botswana is a rapidly growing economy and is critically water scarce. The main economic growth hub is located around Gaborone, which is supplied with water via the North-South Carrier, deriving its source of supply from the Limpopo Basin. This supply is supplemented by a small transfer from South Africa via the Molatedi Dam (Conley, 1995:13). Gaborone could be supplied in future from Lesotho, giving it a strategic interest in the Orange River Basin. In addition to this however, Botswana could use its presence in all international negotiations on the Orange River Basin, to leverage advantage for itself in other more strategically important basins such as the Limpopo and Okavango. This could be achieved by offering to support certain parties such as South Africa in return for diplomatic favours in other deliberations on the Limpopo or Okavango River Basin. Conversely, pressure can be placed on South Africa by siding with Namibia when future deliberations about Phase 2 of the Lesotho Highlands Water Project (LWWP) occur. Seen in this light, Botswana is certainly not as powerless as it first seems on the strength of hydrological data alone, and can be seen as the balancer of hydropolitical power in both the Orange and Limpopo River Basins. The significance of this only becomes apparent when one understands the historic relevance of past South African planning to gain access to the waters of the Zambezi River, via either Botswana or Zimbabwe (Blanchon, 2001:123; Borchert & Kemp, 1985; Borchert, 1987; James, 1980; Midgley, 1987:15; Scudder *et al.,* 1993:263 & 268; Turton, 2003a; Williams, 1986). These plans now seem to have been placed on the backburner in the immediate post-Apartheid era, but could conceivably be resurrected in the future as water scarcity becomes more acute in the Pivotal States.

Referring now to the concepts of an Impacted Basin and an Impacted State, again a more nuanced understanding of the international relations of the SADC region can be developed. Figure 1 indicates the existence of no less than seven Impacted Basins and seven Impacted States. What is the significance of this in terms of the international relations of the region? Two clear examples can be used to illustrate this point.



Map 2. The Okavango River Basin as an example of an Impacted Basin in the Southern African Hydropolitical Complex. Inset shows the location of the Okavango River Basin in Southern Africa (Redrawn from Ashton & Neal, 2003).

The first example is found in the Okavango River Basin, which is strategically important for the two Pivotal States (Namibia and Botswana) that lie downstream (refer to Map 2). The Okavango is somewhat of a unique river basin. It is endorheic in nature, meaning that it does not flow into the sea. The water that arises from the relatively water-abundant Angolan highlands, flows into the Kalahari Depression in Botswana and simply disappears, lost largely through evapotranspiration in the Delta (Scudder *et al.,* 1993:290; Turton, 1999). In this case, the two downstream riparians are Pivotal States with a high resource need, but they are held captive in a sense because the upstream riparian (Angola) appears to be reluctant to agree to anything that will ultimately limit its own future economic development potential, which is likely to become more important as post-war reconstruction commences. Therefore, when seen strictly in terms of the Okavango River Basin, both Namibia and Botswana can be considered as being rivals with different development agendas and resource needs. Namibia and Botswana are not entirely equal in terms of hydropolitical power in this basin, however. Namibia is highly dependent on water from the Cunene River Basin, which it shares with Angola. As such, there is a long history of water-sharing and cooperation between Namibia and Angola, whilst Namibia and Botswana have cooperated on joint technical exercises (Ashton & Neal, 2003; Turton, 2003a). Namibia and Botswana are also co-riparians on the Zambezi, but they both share portions of the basin that are unfavourable for the development of the resource. This forces them into a cooperative mode. As such, Namibia and Botswana could be induced to cooperate with Angola in order to develop the water resources of the Zambezi in future, which can also impact on their negotiations regarding the Okavango. Similarly, South Africa could consequently gain future access to Zambezi River water if it is channelled via Botswana, which could be used to the advantage of the latter, illustrating the complexities of future strategic hydropolitical options in greater detail.

The second example relates to the Impacted State of Mozambique, which shares a number of international river basins and on paper ought to be relatively water abundant. The truth is somewhat less optimistic, however. In all six cases presented in Figure 1, Mozambique is a downstream riparian and therefore in a traditionally weak position. In the case of the Limpopo as a Pivotal Basin, Mozambique is downstream of three of the four regional Pivotal States

and negligible volumes of water are left after the strategic needs of those states have been taken care of. Furthermore, any attempts by Mozambique to develop dams on the Limpopo will be opposed by the upstream riparians because this will mean that each will have to relinquish a degree of control over water that they already monopolize. On the other five Impacted Basins, Mozambique is downstream of South Africa (as an historically hegemonic Pivotal State) in two cases (Incomati and Maputo), and downstream of Zimbabwe (as a Pivotal State with a known aggressive posture) in two cases (Pungué and Save), and downstream of seven riparians (three of them being Pivotal States) in the case of the Zambezi. This means that in the overall context of the hydropolitics of Southern Africa, Mozambique always occupies a weaker position than its co-negotiating partners. This is manifest in the relative absence of working agreements involving Mozambique, and which accounts for the extremely cautious approach that Mozambican officials have always adopted when negotiating the SADC Protocol on Shared Watercourse Systems and the various Zambezi River agreements that have been attempted in the past.

Seen in this light, the hydropolitical dimension of the international relations of Southern Africa can be viewed as being a key component of the Regional Security Complex, acting as an interceding variable on occasion. This is shown schematically in Figure 2. Nowhere in contemporary Southern Africa is there hard evidence of the emergence of a Hydropolitical Security Complex along the lines of that found in the Euphrates and Tigris River Basin, and possibly the Nile and Jordan River systems. This has resulted in a revision of the original concepts (Turton, 2001) to those presented subsequently (Turton, 2003a; 2003d; 2003e).

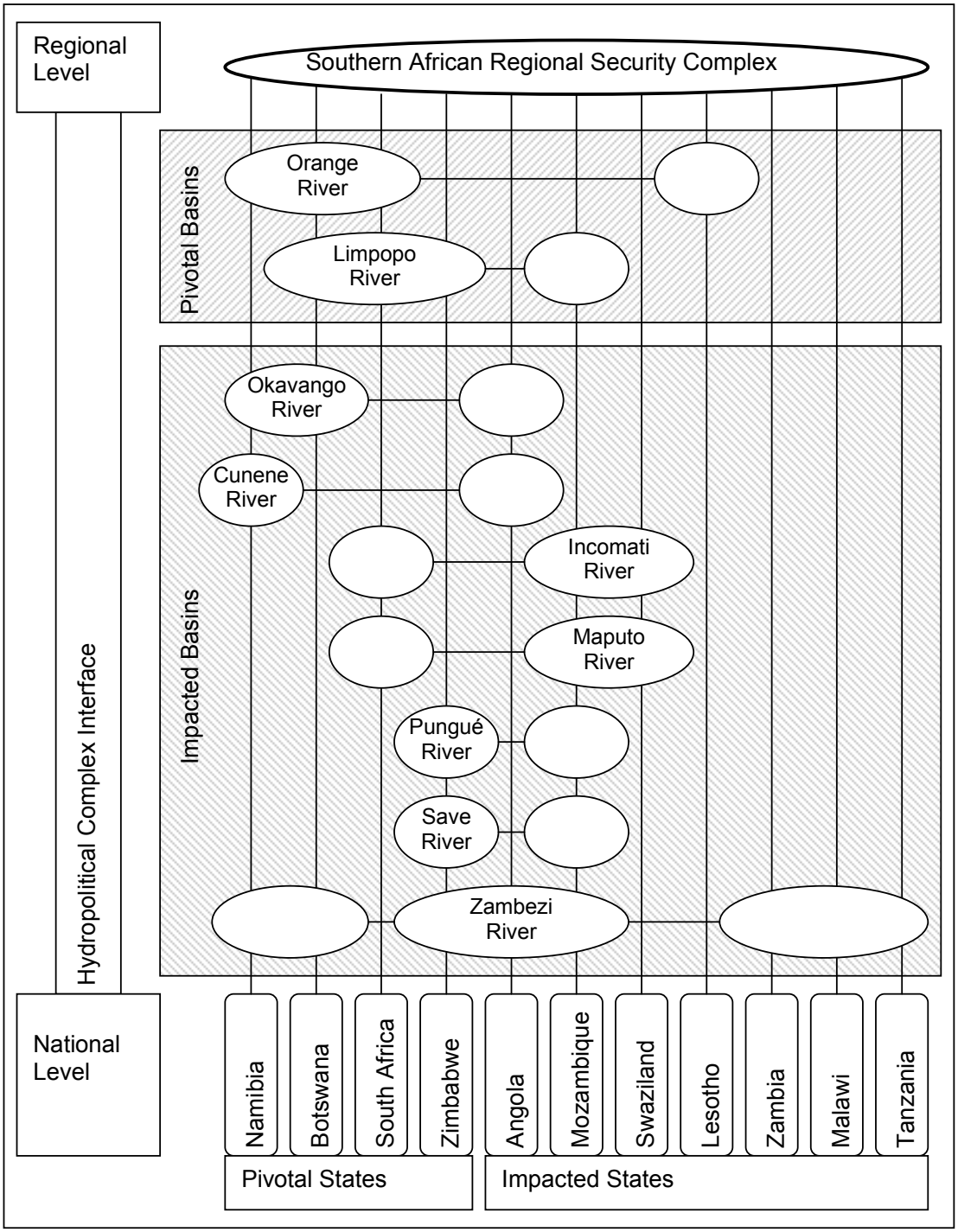


Figure 2. The Southern African Regional Security Complex showing the relationship of the Hydropolitical Complex as an interceding variable (Turton, 2003e:267).

A Hydropolitical Complex as an Element of the Southern African Regional Security Complex

So what are the implications of the development of these theoretical elements?

Firstly, by using these new concepts, a more nuanced understanding can be developed of the international relations dynamics of the Southern African region. This is particularly relevant in the post-Cold War and post-Apartheid era, where the dynamics of regionalism seem to be more strongly manifest than before. Central to the process of regionalization is the formation of coalitions and the transformation of past power structures and relationships into new ones. This means that the political processes of the past are unlikely to resemble the political processes of the future, particularly as the need to secure access to strategic supplies of water at a high assurance of supply level become a necessary pre-condition for future sustained economic growth for the Pivotal States on the one hand, and the SADC region on the other.

Secondly, the current drought and looming famine can be analyzed in a more nuanced context than before. The role of water as an independent variable in the overall political dynamics of the SADC region can now be assessed in greater detail. The implications of this for early-warning capabilities are self-evident. For example, while environmental factors have long been considered by some as being a driver of migration and conflict (Homer-Dixon, 1991; 1994a, b; 1996; 1999), few predictive models have been developed.

If there is any validity to the assertion that a Hydropolitical Complex exists in Southern Africa, and acts as an important interceding variable in the context of the Regional Security Complex that Buzan has identified, then it becomes potentially fruitful to dwell for a few moments on five strategic issues that arise.

The first strategic issue that needs to be unravelled further is the implication of water as 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 general. In this regard is has been suggested by Turton & Warner (2002:67) that the determining variable is the relative availability of so-called Second-Order Resources. This has been defined by Ohlsson (1999:161) as the ability of societies, administrative organizations and managers responsible for dealing with natural resource scarcities, to find the appropriate tools for dealing with the consequences of those natural resource scarcities. This is similar to the logic used by Homer-Dixon (1994c; 1995; 1996; 2000) and Barbier & Homer-Dixon (1996) in developing the case for ingenuity as a resource with which to develop economies. If this is true, then the Pivotal States will need to mobilize significant quantities of what Ohlsson calls “second-order resources”, and what Homer-Dixon calls “ingenuity”, if they are to avoid the consequences of water scarcity as a limiting factor to their future economic growth potential. In other words, if a Hydropolitical Security Complex along the same lines as that found in the Euphrates and Tigris River Basins is to be avoided in Southern Africa, special emphasis will have to be placed on the mobilization of so-called “second-order resources” by the relevant Pivotal States. What are the necessary conditions for this to occur in a sustainable manner? The answer to this is as yet unknown.

The second strategic issue relates to what can be considered to be the great unknown of our modern times - the political impact of global climate change in the developing world. In all likelihood, climate change will create more variability in what is already a highly variable and unpredictable precipitation pattern. This is likely to result in more extreme events such as floods, droughts and famines, with a series of secondary effects that are not yet fully understood. From an early warning perspective, this has major ramifications for the SADC region and its international trading partners.

The third strategic issue relates to the conflict potential of water scarcity. This is not well understood at present, despite the work that has already been done by Homer-Dixon (1991; 1994a, b, c; 1996; 1999) and others (Molvaer, 1989; Porter, 1998; Turton, 2003d; Warner, 2000; Westing, 1991). A significant component of this issue-area relates to the impact of famine and drought as manifest in the SADC region. To what extent can this food security issue have a politically destabilizing effect? How will this impact on the economic growth potential of both Pivotal and Impacted States in the SADC region? The answers to these questions are as yet largely unknown.

This leads directly into the fourth strategic issue, which relates to the trade of virtual water as a mitigator of the conflict potential inherent in water scarcity. Virtual water is the volume of water used to produce a commodity such as wheat, which has been identified as one of the fundamental reasons why war over water has not erupted in the water scarce economies of the MENA region (Allan, 1997; 1998a, b; 1999; 2000; 2002). Basically, it is easier to meet national water deficits via the importation of water-rich cereals, but this raises a series of downstream political issues that are not yet fully understood. For example, what level of economic activity is needed in a given Pivotal State before it can rely on the importation of virtual water as a strategic solution to the problem of endemic water scarcity? What new dependencies arise from this situation, particularly in terms of a global economy that is characterized by a playing field that is skewed in favour of the industrial nations of the world? How can this trade in virtual water be used to balance out the skewed intra-regional trade patterns within SADC, with scarce foreign exchange being directed to water-rich but economically weak economies such as Zambia, Angola, Mozambique and the Democratic Republic of Congo, rather than being sent to the already rich United States of America, Canada and the European Union? The definitive answers to these vexing questions are as yet largely unknown.

The fifth strategic issue is a crosscutting one and is based on the need to achieve a degree of regional developmental equity within the SADC family of member states. At present development is highly skewed in the region, mostly concentrated in the hands of the Republic of South Africa, but also generally concentrated in the four1 Pivotal States. The water resource component of this becomes evident when one views the distribution of large dams and related hydraulic infrastructure, most of which is in South Africa, but a large portion of it is under the direct control of the Pivotal States2. The linkage between dams and development is thus acute in the SADC region and if any viable regional development plans are ever formulated they will have to take this inequity into consideration. One important component of the spatial maldistribution of development in the region that is likely to become increasingly visible is the link between areas of high HIV/AIDS prevalence, poor water and sanitation infrastructure and underdevelopment. The strategic significance of poor water and sanitation infrastructure in a region where a substantial portion of the population has a compromised immune system has yet to be unravelled, although initial attempts are being made (see Ashton & Ramasar, 2002). At the strategic level of water resource management in the SADC region, the concept of virtual water as a tool to stimulate intra-regional trade between water-rich but economically underdeveloped states and water-scarce but industrialized states can become a driver of regional integration. However, this will place a

1 As always, Zimbabwe is a special case. Zimbabwe is a regional economic power but this advantage has been systematically lost under the demagogic leadership of President Robert Mugabe. It is anticipated that his fall from power is imminent, driven by rampant hyper-inflation, the technical insolvency of a number of the banks in the country, the critical shortage of foreign exchange and the famine that is growing in response to the loss of production caused by illegal land redistribution and a regional drought. In the post-Mugabe era Zimbabwe is likely to regain its position of regional economic importance once again.

2 South Africa and Zimbabwe have between them 752 large dams while the SADC region's other nine countries have only 55 among them. The SADC region's wetter countries (Angola, Malawi, Mozambique, Tanzania and Zambia) have amongst the lowest density of dams in the world for non-karstic regions with annual precipitation in the range of 600-2000 millimetres (Turton, 2003d:76).

high level of demand on institutional and policy development at the supra-national level if it is to succeed.

The Reform of Water Institutions in the SADC Region

Effective institutions are an important factor that mitigates conflict potential (Turton, 2003e). This is particularly important in the context of Pivotal States as the condition of basin closure is being approached. Basin closure can result in a heightened probability of conflict potential, but this is linked to cases where institutional development is stunted or inadequate. Stated differently, basin closure places an increased demand on institutional development, which if managed effectively, can mitigate the conflict potential by reducing the range of uncertainty left open to other riparian states (Turton, 2003c). In short, institutions build trust, but they also enable a strategically-important aspect of river basin management under conditions of closure to be executed – the shift in paradigm away from water sharing to benefit sharing instead - which simply increases the range of potential solutions to a given problem that is sourced from outside the stressed river basin (Earle, 2003).

The SADC region has undergone a period of rapid institutional development in the water sector. Significantly, the four Pivotal States all have a high level of institutional development in their shared river basins, and all have embarked on ambitious legal and policy reforms. South Africa, as the regional power, has a basin-wide agreement in all of the four international river basins on its sovereign soil. Namibia has a basin-wide agreement[3] on four of the five international river basins it relies on (Orange, Okavango, Cuvelai and Cunene) and is working towards an agreement on the Zambezi. Botswana has a basin-wide agreement[4] on three of the five international river basins it relies on (Orange, Okavango and Limpopo) and is working towards an agreement on the Zambezi. Zimbabwe has a basin-wide agreement on the Limpopo River and is working towards a similar arrangement on the Zambezi. In the other four international river basins it shares with other riparian states there is no visible sign that a basin-wide agreement[5] is being explored.

Coalition Formation: The Parallel National Action Approach

The emergence of a Hydropolitical Complex in Southern Africa has started to impact on the international relations of the SADC region, with the formation of coalitions starting to become evident for the first time. One of the elements of this is the way that states engage one another in the field of water resource management. The most appropriate model to describe this process is what is known as Parallel National Action (PNA). Originally described by Nielsson (1990) as it applied to Scandinavia prior to the inclusion of the respective Nordic countries into the EU, PNA has been applied to an analysis of the Southern African water sector by Turton (2002b), to an analysis of the Okavango River Basin by Turton & Earle (2003), and to the environmental sector in Central Africa by Braid (2003). In essence PNA as an approach seeks to develop and apply policy that is appropriate and sustainable in a multi-

[3] The Cuvelai River is shared between Namibia and Angola but it is an ephemeral endoreic system that has limited capacity for the development of dams. This means that it is not a major river in terms of international cooperation. The Cuvelai River system is extremely important for the rural community in Northern Namibia however (Marsh & Seeley, 1992). See Jacobsen *et al* (1995) for more information about ephemeral rivers in general.

[4] The Nata River is an ephemeral or episodic river that flows from Zimbabwe to Botswana. Some authors (incorrectly) name this is part of the Okavango River Basin. The Nata River is too episodic to be dammed to any great extent although it is used in rural Botswana as an important water source for communities in the Kalahari area.

[5] The Nata River shared with Botswana is too small and episodic to be commercially exploited to any large extent. The Buzi, Pungué and Save are all shared with Mozambique and there is a considerable history of tension between these two states over the management of these rivers. Zimbabwe has shown no real interest in negotiating a bilateral agreement with Mozambique despite the loyal political support of the latter during the period of protracted Cold War-related localized conflicts (see Turton, 2003a).

country setting. As such it is a way that states can structure the anarchy in which they find themselves when it comes to dealing with neighbouring (co-riparian) states.

In essence PNA strives to achieve four core objectives (Turton, 2004):

- Institutional strengthening is achieved through the commitment to understanding policy-making processes in order that support can be given by developing appropriate institutional arrangements. In many developing countries such as those found in Southern Africa, institutions are weak with this aspect becoming a major stumbling block to the development of coherent and viable policy.

- Encouragement of communication both vertically and horizontally within institutions. Vertical communication refers to the way that policy is developed within the national borders of the sovereign state concerned. As such it seeks to harmonize local grass-roots structures with provincial and national-level structures in an attempt to improve the coherence of the policy by marrying the bottom-up needs with what are often top-down technocratic solutions. Horizontal communication has two distinct sub-components to it. At the national and sub-national level horizontal communication focuses on establishing linkages with other government departments, special interest groups and governance structures as appropriate to the integrated management of a fugitive resource like water. This seeks to link for example the Department of Agriculture to the Departments of the Environment, Water, Industry and Tourism in a way that makes the management of water more streamlined and effective. At the international level horizontal communication focuses on establishing linkages with similar government departments in neighbouring co-riparian states.

- Harmonization of policy is the stated objective of these initiatives. The word harmonization is very important in this regard because it recognizes that each state has the right to make policy and legislation in response to the specific mandate given by the electorate within that country. Harmonization therefore seeks to make the policy as compatible as possible without making it totally seamless or homogenous. This allows for differences where appropriate while striving to reduce those differences as much as possible. PNA therefore tries to establish the lowest common denominator first and then roll this out progressively over time by increasing the area of overlap and by reducing the area of incompatibility.

- State sovereignty is recognized at all times and is never challenged. This is a core principle of the PNA approach so there is never any stated attempt to fuse together national departments or to promote regional integration to the point of merging two (or more) countries into one new sovereign entity. This is an important aspect for the newly-independent states of Southern Africa, many of which have paid for that independence with a high blood price and all of which jealously guard their newfound sovereignty (see Turton, 2002b; Turton & Earle, 2003).

So much for theory; how is this achieved in practice, and more importantly, how does this approach impact on our understanding of coalition formation? There are a number of interesting examples from the Southern African Hydropolitical Complex that suggest a PNA approach is potentially applicable to policy-making.

- The Permanent Okavango River Basin Water Commission (OKACOM) is currently being presented with the possibility of using a PNA approach (Turton & Earle, 2003) in light of the joint management imperatives arising from the United Nations Convention on Biological Diversity (UNCBD), the Ramsar Convention on Wetlands of International Importance (Ramsar), the United Nations Convention to Combat Desertification (UNCCD), the United Nations Framework Convention on Climate

Change (UNFCCC) and the United Nations Convention on the Non-navigational Uses of International Watercourses (see Ashton & Neal, 2003).

- During the negotiations that led to the revival of the Limpopo Basin Permanent Technical Committee (LBPTC) and its recent upgrade to a Commission, contact was made between the various government departments involved in the process at levels lower than the Minister at a time when talks were bogged down. This sustained communications horizontally across international borders, which in turn facilitated the vertical communication within each government department, to the extent that negotiations could resume once the specific issues had been resolved internally. This contact was mostly informal and served to gain consensus around contentious issues while keeping alive the desire to seek cooperative solutions to seemingly intractable problems.

- The SADC Secretariat has recently completed a major regional water policy review. This involved a number of consultants and donor agencies that combined forces to produce the first draft of a regional water policy that will be presented to the Heads of State later in 2004 for their debate, acceptance and hopeful signature. This will foster communication and debate over specific issues, which in turn will probably mean that policy harmonization will take place at a regional level to the benefit of all SADC member states. The Pivotal States have a specific interest in this regard because it develops a normative framework that in turn reduces uncertainty and fosters a cooperative approach to problem-solving.

Actions to be considered by the World Water Council

An assessment of the above enables the authors to distil out a number of actions that can be considered by the World Water Council. These are as follows:

- A research agenda should be drawn up that serves to focus the combined attention of scientists, practitioners and water resource managers. This agenda should be linked with, and supported by, appropriate financial instruments that aim to further the research on the one hand, while fostering regional and international cooperation.
    - Increased emphasis should be placed on the role of water resource management in international river basins as a driver of regional integration and a catalyst of cooperation.
    - The role of the Water Cooperation Facility, consisting of the World Water Council, UNESCO, the International Court of Arbitration and the Universities Partnership for Transboundary Waters needs to be strengthened.

- Particular attention needs to be paid to unravelling the complexity surrounding the linkage between national and international levels of scale.
    - The role of PNA in this regard needs to be given greater prominence in an attempt to determine its usefulness and applicability to the developing parts of the world.
    - The way in which the existing obligations that arise from multilateral agreements to which states are signatories, should be linked to IWRM principles and used to strengthen the efforts already being made to implement policy and institutional reform.
    - The relationship between these processes and existing regional integration efforts that are underway in SADC needs to be made more explicit.

- The concept of a Hydropolitical Complex needs to be assessed independently in order to determine its value as an analytical tool to understand the dynamics of coalition formation, power structures and negotiations over shared water resources.

- Particular attention needs to be given to an exploration of the vertical and horizontal linkages that can inform the negotiating positions of respective co-riparian states in the context of international river basins.
- Attention needs to be given to an understanding of the dynamics of institutional development, particularly as it pertains to the fostering of trust between riparian states, the development of institutional learning and the capacity of the negotiating parties to develop new paradigms in which water management problems can be re-formulated.
- A deeper understanding is needed of the role and function of second-order resources in the process of institutional development and coalition formation, in order that it may be fostered by honest brokers and third parties such as donor agencies, the Water Cooperation Facility and the World Bank.

- The dams and development debate needs to be taken to a new level, beyond that achieved by the World Commission on Dams, in an attempt to understand the need for major water infrastructure projects on the one hand, while mainstreaming the normative elements of the WCD report as a benchmark for best practices.
    - The role of dams and inter-basin water transfers in the context of semi-arid and arid regions needs to be better understood.
    - The water/poverty nexus needs to be nested within this "dams and development" debate.
    - The implications of poor water supply and sanitation infrastructure in regions where a significant portion of the population have compromised immune systems needs to be better understood.
    - The importance and limitations to the utility of Inter-Basin Transfers of water, particularly in places like the Southern African Hydropolitical Complex, needs to be better understood in order to inform policy-making processes in areas where water scarcity is becoming a limiting factor to the economic growth potential of the state.
    - The role and function of virtual water trade, as one of the possible solutions should be better understood. This should specifically aim to mainstream virtual water as a viable policy option while assessing the opportunities that such a policy creates, without ignoring the vulnerabilities that inevitably arise from such a policy.

- The whole issue of global climate change needs to be better understood, particularly as it pertains to an increase in the vulnerability of states that are already facing water scarcity constraints to their future economic growth potential.
    - Specific emphasis needs to be placed on the role of institutional development and second-order resources in developing appropriate solutions through policy, coalition formation and cooperation.

Conclusion

Water scarcity is becoming a key driver of political dynamics in Southern Africa. More acutely felt by the most economically developed countries in the region - South Africa, Botswana, Namibia and Zimbabwe - water scarcity is increasingly becoming a limiting factor to the future economic growth potential of these states. Yet the SADC region as a whole is not water scarce. The spatial maldistribution of water resources, particularly those found in international river basins, is one of the most strategically significant challenges facing SADC as a regional structure that has been formed along the lines of the EU. Analysis has shown that a Hydropolitical Complex is emerging in Southern Africa, clustered around key international river basins and driven by differing interests in these river basins by the respective riparian states. The theoretical concept of a Hydropolitical Complex provides a simple and robust classification system that takes the differing strategic interests of the respective co-riparian

states into consideration. When viewed through the lens of this theoretical construct, explanation, analysis and possibly even prediction is possible, because it enables the analyst to tease out the processes and dynamics of power structures, coalitions and decision-making in a more nuanced fashion than before. Two levels of analysis are important - the sub-national and the international - both of which are captured in the concept of a Southern African Hydropolitical Complex. Superimposed on this is the potential value of the PNA model of inter-state engagement, which is highly appropriate to water resource management in international river basins, specifically in a region where newly-independent states jealously guard their sovereignty and view any attempt at an erosion of that sovereignty with a jaundiced eye. State sovereignty can become a stumbling block to regional cooperation, but by defining challenges to that sovereignty out of the overall hydropolitical equation by using a model similar to the PNA approach, this can, and already is, a significant feature in the process of coalition formation in Southern Africa. The World Water Council can play an important role in fostering a new understanding of the drivers of, and factors influencing, this process.

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Contending Approaches to Water Disputes in Transboundary Rivers: What can International Relations Discipline Offer? [1]

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Abstract

The vital role of water for human beings and development has received worldwide attention. Through the activities of intergovernmental and nongovernmental organisations since the beginning of the 1970s, much emphasis was placed on the global status of water, namely water scarcity in absolute terms, and a lack of access to clean water and sanitation. Later on, some specific regions of the world were identified as the scarcest regions with shared surface and groundwater resources between two or more countries, which received much more attention than other parts of the globe. Under such striking developments, water was picked up as a sensational issue by the popular press. And, scholarly interest joined them. Hence, there has arisen an ongoing debate among scholars on the issue of management and utilisation of water resources, as well as on the likelihood of a conflict that would be a result of the worsening situation of water supply and demand. In the debate one can delineate basically three groups of scholars and experts whose views can be associated with any of the three leading schools of thought in international relations theory: the realists, the political economists, and the institutionalists. The paper will discuss these contending approaches to water disputes in transboundary river basins with particular references to the international relations theory.

Global Water Predicament and Transboundary Water Resources Management

The Earth has 1,386,000,000 km^3 of water total, but only 2.5% of that is freshwater. Less than 1% of the world freshwater is usable in a renewable fashion. During the past century, the world population has tripled, and water use has increased seven folds. All water management is multi-objective. There are various conflicting interests embedded in water resources management. Hence, conflicts over water resources occur at multiple scales, from sets of individual irrigators, to urban versus rural uses, to nations that straddle international waterways. Transboundary water disputes occur whenever demand for water is shared by any sets of interests, be they political, economic, environmental, or legal. Thus, transboundary waters share certain characteristics that make their management especially complicated, most notable of which is that these basins require a more complete appreciation of the political, cultural, and social aspects of water (Wolf, 2002).

There are 263 watersheds that cross the political boundaries of two or more countries. The Cold War terminating in the 1990s marked a significant increase in the number of transboundary rivers. These international basins cover 45.3% of the land surface of the earth, contain about 40% of the world's population, and account for approximately 60% of global river flow. A total of 145 nations include territory within international basins (Wolf, 2002).

International Relations Theory: Contending Approaches to the Water Dispute in the Transboundary River Basins

Under such striking developments, water was picked up as a sensational issue by the popular press.[2] And, scholarly interest joined them. Hence, there has arisen an ongoing

[1] Some of the discussions in this article are drawn from A. Kibaroglu, *Building a Regime for the Waters of the Euphrates-Tigris River Basin,* Kluwer Law International, London, The Hague, New York, 2002.

[2] In the headlines of daily papers and in certain columns of some outstanding magazines and journals, there were

debate among scholars from various fields of science on the issue of management and utilisation of water resources, as well as on the likelihood of a conflict that would be a result of the worsening situation of water supply and demand of the water resources of the Middle East. In the debate one can delineate basically three groups of scholars and experts whose views can be associated with any of the three leading schools of thought in *International Relations Theory*: the realists, the political economists, and the institutionalists.

In the course of the twentieth century International Relations (IR) as a discipline has developed and refined perspectives for the investigation of political behaviour at the international level. IR emerged as a subject in its own right at the end of the First World War, when political thinkers questioned the nature of a system that had allowed such destruction to happen. They sought to create a better one framed in the values of liberal internationalism and buttressed by laws and institutions (Muir, 1997). Hence, IR is not only busy with what it occurs, but also what ought to take place in the international system.

Realism and Reflections on Water

As the prevalent school of thought in the IR theory, political realists argue that power and capabilities define relations in the international system.[3] The anarchic structure of the international system and the notion of unified and rational states as the principal actors within this anarchic environment constituted the major premises of classical realism. Hence, they argue that the political-structural condition of anarchy, and the absence of a common government in the international system have an impact on the (un)willingness of states to engage in cooperation. Given this condition, states are motivated by fear and distrust, and their principal concern is their security and survival. Since ensuring their security is their chief objective, states are preoccupied with their power and capabilities. Indeed, capabilities, in the form of economic, military, and political resources, are 'the ultimate basis for state security and independence in the self-help context of international anarchy'. In other words, according to realists, states have to rely on their own means, that they can generate, and the arrangements that they can make for themselves. Before all else, states must make provisions for their security in the power struggle among states. The preoccupation with autonomy, power and security predisposes states toward conflict and competition.

Likewise, during the 1980s and the early 1990s the spectre of armed conflict over water was argued as the logical outcome of the resource scarcity by realists inspired by dangerous persuasiveness of unquestioned environmental determinism. Accordingly, in regard to the water dispute in the Middle East, realists assert that as the water in the region is becoming a more and more scarce resource, it will become a major source of a conflict that might escalate to an armed struggle. This school of thought includes scholars from political science and history, as well as experts on the Middle Eastern geography, with their rather timely interest in the emerging situation in the region.[4] In advocating their standpoint, these analysts

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many references to water as a potential source of conflict with special references to the situation in the Middle East. See for example, G. Moffet III, 'By the Year 2000 Water, not Oil, will be the Dominant Resource Issue' *Christian Science Monitor,* 8 March 1990, p. 10; A. Alexander, 'Ever-Deepening Water Crisis could Fuel Conflicts in the Middle East' *Atlanta Journal & Constitution*, 19 March 1989, p. 1A; A. Gowers, 'Water War in the Middle East' *Financial Times*, May 1989, p. 57; C. A. Robbins, 'Bridge Over Troubled Waters' *U.S. News & World Report*, 27 Aug. - 3 Sept. 1990, p. 26; C. Murphy, 'Middle East Faces Major Water Woes' The *Washington Post*, 10 March 1990, p. A20; A. Cowell, 'Now a Little Steam Later may be a Water War' *The New York Times*, 7 February 1990, p. A21; - 'More Precious Than Oil, and may be as Volatile' *The New York Times*, 17 March 1991.

[3] For a comprehensive discussion about realism see H. Morgenthau, *Politics Among Nations* (4th edn, Knopf, New York, 1966); K. Waltz, *Man, the State and War* (Columbia University Press, New York, 1959); R. Gilpin, *War and Change in World Politics* (Cambridge University Press, Cambridge, 1981); J. M. Grieco, *Cooperation Among Nations: Europe, America and Non-Tariff Barriers to Trade* (Cornell University Press, Ithaca, 1990).

[4] See, for instance, T. Naff and R. Matson, *Water in the Middle East: Conflict or Cooperation* (Westview Press, Boulder, 1985); J. Starr and D. Stoll, *US Foreign Policy on Water Resources in the Middle East* (CSIS, Washington, D.C., 1987); J. Starr and D. Stoll (eds), *The Politics of Scarcity* (Westview Press, Boulder, 1988); J. Bulloch and A. Darwish, *Water Wars: Coming Conflicts in the Middle East* (Victor Gollancz, London, 1993); M.

basically use the statements that are made by political leaders of the concerned countries for internal political reasons, which in fact appear to contradict their actual policies of adjustment. In their writings, the water issue has been elevated from low politics to high politics. These studies are rather descriptive and they embody political slogans like 'water wars'.

This literature describes water both as an historic and a future cause of interstate warfare. A. T. Wolf categorises these studies as 'water wars' literature and asserts that the main problem with these theories is a complete lack of evidence (Wolf, 2000). The examples most widely cited by this literature are wars between Israel and its neighbours.[5] They described water as a causal factor in both the 1967 War and the 1982 Israeli invasion of Lebanon. Conversely, through his empirical work A. T. Wolf concludes that water was neither a cause nor a goal of any Arab–Israeli warfare (Wolf, 1999). Thus, A. T. Wolf charges that much of the writing on water wars is anecdotal. With an aim to base research on firm empirical ground, he and his team investigated those cases of international conflict in which armed exchange was threatened or took place over water resources *per se*. They used the most systematically collected information available on international conflict -the International Crisis Behavior data set, collected by J. Wilkenfeld and M. Brecher.[6] Their systematic work demonstrated that the historic reality has been quite different from what the water wars literature would have one believe. In modern history, only seven minor skirmishes have occurred over international waters -invariably, other interrelated issues also factor in (Wolf, 1999).

Realists also share the view that 'when a riparian dispute in an arid region unfolds within the context of a more comprehensive political conflict, the former can neither be effectively isolated from the latter, nor be resolved as such'. To illustrate, M. Lowi focused on the dispute over the waters of the Jordan river basin, namely a dispute that co-exists with a larger political conflict among the states in question. Thus, she claimed that the riparian dispute in a protracted conflict setting is not simply about water, but that it takes on many of the attributes of inter-state conflict (Lowi, 1993). Others also emphasised that water conflicts develop between countries which have already had prolonged conflicts that have severely strained mutual relations, and many of which are yet to be resolved (Kolars & Bakour, 1999). In the same manner that realists adopt in examining the behaviour of states, this latter group of scholars largely limits their analysis to power and interest orientations of the riparians. In other words, they primarily focus on the water as a scarce and essential resource and more importantly support their ideas with deeper analysis on power relations and structures of the riparians of a particular river basin.

Realists stress certain conditions for cooperation, such as the presence and acceptance of a dominant power (a riparian acting as a hegemon) in taking the lead to reach a basin-wide cooperation. That is to say, cooperation is likely only when the dominant power in the basin is induced to cooperate for one reason or another. By drawing sharp distinctions among the endowments of the riparians in political, military, economic and geographic terms, upstream riparians are thought to be in the most advantageous position. Hence, realists see almost no possibility for a negotiated order, and argue that if negotiations could be initiated, the mid-stream and downstream riparians would sit at the bargaining table with an unfavourable position. They do not see any prospects for any fruitful outcome through a negotiation process either, largely because the least needy and/or most powerful riparian will derive little benefit from cooperating and relinquishing its most favourable position. However, realists equally argue that certain states which could act as a hegemon, relying on their military and economic power, might neither be sufficiently powerful to take on the role of a hegemon, nor would have any incentive to do so (Waterbury, 1999). Such an outcome would certainly

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Lowi, *Water and Power* (OUP, Oxford, 1993).

[5] See A. H. Westing (ed.), *Global Resources and International Conflict: Environmental Factors in Strategic Policy and Action* (OUP, New York, 1986) and N. Myers, *Ultimate Security: The Environmental Basis of Political Stability* (Norton, New York, 1993).

[6] M. Brecher and J. Wilkenfeld, *A Study of Crisis* (University of Michigan Press, Ann Arbor, 1997).

complicate the situation even further in river basins and would impair the likelihood of cooperation. Nonetheless, realists admit that the benefits of cooperation are numerous: for instance through cooperation it would be possible to recognise the rights of each riparian that would in turn enhance predictability in use; similarly, an infrastructural integration could be built which would rule out the option of resorting to force among the riparians over water or any other issue.

Studying the likelihood of cooperation solely within the theoretical limits of political realism impedes researchers in proceeding further with producing more cooperative frameworks, which could avoid the emergence of water conflicts, that they often claim to be very likely to take place in the major river basins of the Middle East. The major drawback of the realist approach is that, it is short of proposing substantial cooperative solutions though they truly admit that water scarcity could lead to further tensions in this volatile region of the world. Hence, realists identify potential trouble areas related to the water issue, but do little good in the name of providing tools for mitigating the problem. Their theoretical discussion stays at a rather abstract level and in isolation from the real-world practices of the riparians of the major catchments in the Middle East.

Moreover, these analysts continue disregarding the recent shifts in the 1990s in the stance of each riparian within the framework of Middle East Peace Talks. For instance, J. A. Allan gives the example of two very important shifts in the approach to the allocation and management of water in Israel: first a remarkable amount of water that was previously allocated for agricultural practices is diverted to industrial and domestic uses, and secondly demand management principles are adopted, recommended for the region (Allan, 1996). J. A. Allan adds that realists did not devote any section to these striking developments in the region in their well-informed studies. He, therefore, argues that the international relations setting, which this community of scholars addresses, has been subject to very dynamic changes in international politics over the last few years in the Jordan Basin in particular, and in the Middle East region and the global system in general.

Realist arguments proved to be less insightful for the other two major river systems, namely the Nile and the Euphrates-Tigris as well. That is, even the most ‘powerful’ riparians in these two river systems, Egypt and Turkey, respectively, did not engage in any kind of coercive practices to date. Quite to the contrary, they tend to ameliorate their cooperative postures, which are in accordance with the rising necessity for efficient, and equitable allocation and management practices in the water sector both at national and basin-wide levels. Water wars literature is proved to be short-sighted in its analysis pertaining to the sustained cooperation in the Nile basin. The on-going success story of cooperation in the Nile basin, namely the Nile Basin Initiative, which has become a formal cooperation process grew out of six years of intense technical and scientific cooperation, and has been supported by high-level political commitment. The realists disregard this process.

International Political Economy and Reflections on Water

In international relations literature, international political economy is defined as an integrated field that encompasses a number of specialised disciplines such as political science, economics and international relations. Liberal theory ultimately rests upon the belief that economic specialisation produces gains in productive efficiency and national income. Liberal theory also posits that trade enlarges consumption possibilities, thus international trade has beneficial effects on both the demand and supply sides of the economy. The liberal theory maintains that a nation’s comparative advantage is determined by the relative abundance and most profitable combination of its several factors of production such as capital, labour, resources, management, and technology. More specifically, a country will export (import) those commodities, which are intensive in the use of its abundant (scarce) factor (Gilpin,

1987). With these in mind, one group of scholars adopts a political economist approach while dealing with the water-related tensions.

Political economists who are involved in the water issue presuppose that agriculture is the major consumer of water resources in economies even in circumstances in which the water-scarce countries do not have comparative advantage in growing agricultural products. International trade in food staples between the water-scarce countries and the countries having a comparative advantage in food, is seen by the political economists as the primary remedy to ease the tension over water resources. Prominent members of this school of thought assert that almost all countries in arid or semi-arid regions, particularly for those where water scarcity is a genuine concern, should reallocate their water resources by shifting the major emphasis from irrigation to domestic and industrial uses. They argue that, to compensate the overall deficiencies in agricultural production, such states could import foodstuffs as 'virtual water'.

Water has been and will be a potential source of tension in the Middle East. However, there is an increasingly persuasive group of political economists who argue that the past 25 years of the hydropolitical history of the Middle East in particular has been remarkable for the absence of overt, hot conflict over water. They also point to the remarkable degree of economic adjustment to the tensions deriving from the mismatch of current water demand and supply.[7] Thus, the priority assigned to the water issue has not led to greater conflict so far. Rather, it has tended to focus attention on the need to adjust. Political economists argue that realists would mislead those wanting to understand the current water management options and provide no signposts at all for those wishing to predict future opportunities. They emphasise that those analysing the water problems of the region should tighten up their economic analysis so that they can track the political economy of water effectively and thereby understand apparently contradictory public and private statements and decisions.

The most important way the region has been able to meet its increasing water needs since the 1970s is with 'virtual water', a term adopted by J. A. Allan of School of Oriental and African Studies (SOAS).[8] According to J. A. Allan, virtual water is the water imported to the Middle East in terms of products, especially wheat, that have been produced with water in farming sectors in the United States and Europe. He comments that the international trading system has enabled the economies of the region to escape being trapped in the closed hydrological systems to which they have access. Hence, despite the dramatically worsening regional water balance there have not been any incidents of hot conflict over water, and that has prevented all but the most obsessive sensation mongers to recognise that the governments in the region have been very effectively solving their water problems.[9] Accordingly, J. A. Allan describes the economies of the major Middle Eastern countries as open political economies whose governments have been quite successful in avoiding conflicts over water through international trade. To recall, the realists built their conflict-prone disposition on the assumption that each riparian performs in the geopolitical limitations of closed hydrological systems, which impose them to act solely by power and interest calculations.

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[7] Prof. J. A. Allan is a leading figure in this school of thought. He published extensively on regional water issues and is the founder of the Water Issues Group at the School of Oriental and African Studies (SOAS) in London. The Water Issues Group focuses on freshwater as a key global renewable natural resource; their attention was first devoted to the Middle East as the region, which has experienced the world's most serious, and accelerating water deficits since the early 1970s. Through their analysis they concluded that the region's governments had been able to achieve remarkable economic adjustments to the apparently conflict-loaded water challenge in the region, and the emphasis has shifted to viewing the problem globally.

[8] The Water Issues Group at SOAS has contributed to facilitating this concept, namely 'virtual water' which is a term already used in the literature and the media; it featured in an internet conference on water scarcity and river basin management convened by FAO (Interview with J. A. Allan, October 1996).

[9] J. A. Allan, 'Escaping Water Constraints in the Middle East: Water, "Virtual Water", Some Promising Initiatives and the Peace Process' (1995) 4 *Middle East and African Water Review (MEWREW)* 1.

In fact, realists did not give any weight to the interdisciplinary nature of water, which may enable the researcher to be acquainted with the various constructive and cooperative proposals of social sciences as in political economy. Political economists evidently give significant place to the works of those scholars and scientists, which make an overall assessment of the water disputes of the Middle East region in a comprehensive manner and produce a number of propositions for cooperative outcomes. They argue that this body of work is quite useful in providing a better analysis of the numerous sources of the realists who have suggested that resource deficits will lead to hot conflict. Indeed, the arguments presented in those studies are cautious and generally utilise the tools of political analysis in an attempt to analyse the place of water in the international politics of the region.

However, political economists claim that almost all of these studies ignore crucial concepts deployed by the political economy approach. In their reasoning, without such perspectives the past forty years of water management in the region cannot be explained since the solution to water shortages was linked more to the capacity of the region's economies to import 'virtual water' than to agreements for sharing inadequate indigenous resources. Political economists assert that there are indeed incontestable signs of the reassessment of regional governments in the allocation of water resources among the competing sectors.

Political economists emphasise the need for urgent reconsiderations of water allocation and management practices primarily at the national level and subsequently at the basin-wide level. In their reasoning, local water remains to be an important element in national economies but it is of less and less significance as governments solve their water problems in international markets. Accordingly, this group of scientists, especially within the framework of the Water Issues Group at SOAS, have scrutinised the recent trends in world food markets by placing special emphasis on the need to determine the capacity of the global systems to enable the development and use of freshwater. Thus, between 1970 and 1995, regional hydropolitics were stabilised by the availability of unlimited subsidised quantities of food staples except with regard to Iraq. However, with the emergence of the World Trade Organisation (WTO) in spring 1995, there has been a rapid increase in grain prices. With these developments, the Middle East started to face new circumstances in the political economy of global trade in food, and local governments would soon have to take these changes into account in their regional and international relations. These analysts proposed that increased trade within the region could be one of the principal means of tackling the wider problem of higher world food prices and tighter world supplies.

In the political economist perspective, major problems with successful development of water resources lie in the refinement of economic analysis (Rogers, 1992). In their opinion, to fully appreciate water policy options and how they are evaluated, it is necessary to understand how economics is used and misused in the water area. Political economists acknowledge that politics ultimately control water resource planning, however, the ability to understand and manipulate the economic analysis may significantly improve the final outcome. Meanwhile, they state that the major attention paid to economics in their studies should not be taken to mean that the institutional and technological dimensions are unimportant, but rather the pay-offs from improving the economic dimensions are currently larger than those from other areas of concern.

In sum, political economists view water as part of the complex national and international political economies of the Middle East, and draw an optimistic picture of the region by utilising the powerful explanatory economic models, namely the advantages of international trade. They also support their arguments with the view that water entering the region through trade in food staples is a major reason for the past absence of conflict. Accordingly, they suggest that this will ensure the future absence of conflict, at least in the short and medium terms.

Institutionalists and Reflections on Water

Neoliberal institutionalism has emerged as a prominent field of study in international relations over the last couple of decades. Proponents of this school of thought attempt to make a synthesis of the realist and liberal approaches to international relations.[10] Therefore, neoliberal institutionalism is characterised by an approval and adoption of the key realist assumptions such as the anarchic nature of the international system, states being the principal actors in world politics, and the importance of self-interest and relative capabilities. Nevertheless, neoliberal institutionalists maintain that although realists are correct in so far as the condition of anarchy impedes cooperation, in their view, states in non-zero-sum situations can cooperate with the assistance of institutions. International institutions are considered by neoliberal institutionalists as organisational bodies that regularise and facilitate interaction between states and improve the proliferation of cooperative processes. By means of international institutions, actors sharing common interests within the system can be motivated toward collaboration since the existence of such institutions increases the rate and scope of information exchange, and they serve as promoters of compatible state interests by coordinating negotiations. Institutions decrease uncertainty and reduce costs while enhancing cooperative elements such as predictability, harmony and convergence of interests, stability and transparency in the realm of international politics.

Neoliberal institutionalism, as an intellectual construction, takes the regulating functions of international institutions within this anarchic system as the basis of its interpretation while attempting to explain the interactions of the world system. If these institutions are established appropriately, according to institutionalists, they can generate policy coordination among states and open the way to advanced institutional arrangements for water resources management and allocation. Yet, neoliberal institutionalists do not assume that international institutions are easy to build up or to maintain. However, like functionalists, they are more optimistic about the potential for cooperation in economic and welfare matters than in military and security affairs. Institutionalists involved in the water issue argue that realists focus much on the role of water in international relations giving water a degree of strategic prominence, which it does not necessitate. Thus, in the institutionalist viewpoint, water is regarded rather as a part of economic welfare matters.

Institutionalists assume that water-related disputes are more likely to lead to political confrontations and negotiations short of violent conflict. In their reasoning, water wars are highly unlikely in the region, while there are still real concerns over the equitability of distribution. In their contention, the core of the Middle East water crisis is clearly national water-planning policy, which is a potential cause of instability but also the basis for solutions. They emphasise that water-related disputes are a consequence of, rather than a catalyst for, deteriorating relations between states. Moreover, institutionalists insist on the point that it would be too simplistic a scenario to argue that an upstream riparian, being the sole hegemon, would engage in unilateral appropriation or diversion of a shared watercourse without consultation, because such an argument does not take into account the complex political and economic interrelationships among the riparian states. Institutionalists point out that there has been a significant trend towards collaboration, even though this is largely confined to technical matters, such as cooperation on the exchange of hydrological data, flood forecasting, joint hydroelectric power and water-recovery ventures. Thus, they assert that it is these small-scale confidence-building measures combined with re-evaluation of national water allocation that are of interest to, and indeed are encouraged by, international financial and development institutions. Further, institutionalists claim that water war scenarios are misleading and mask the complexity of water resource management at the national as well as international level.

[10] R. O. Keohane, 'Institutional Theory and the Realist Challenge after the Cold War' in D. Baldwin (ed.), *Neorealism and Neoliberalism: The Contemporary Debate* (Columbia University Press, New York, 1993), p. 271.

Indeed, institutionalists emphasise the interdisciplinary nature of water, and determine some coordinated tasks for scientists, scholars and policy-makers in creating alternative cooperative models for the disputed waters of the Middle East. Further, they argue that the pressing problems of environmental degradation, regional and global poverty, and political tension and conflict are fundamentally interrelated, and that long-term solutions must consider these issues in an interdisciplinary manner.

Institutions Derived from International Law

After giving an account of the physical, historical and political setting of the disputes, institutionalists suggest that institutional frameworks and particularly international law have significant roles to play in reducing the risks of water-related conflicts and supplying the universal guidelines for better management and allocation of international water resources. Accordingly, international law experts principally work on three sources of international law: the bilateral and multilateral treaties concerning international watercourses; the customary international law which evolves through the efforts of the international organisations in the codification of the water law, namely the works of International Law Association (ILA) and International Law Commission of the UN; and the legal framework doctrines which develop through a process of claim and counter-claim between riparians along a transboundary river.[11]

Based on their experience with the legal aspect of the water issue, these experts conclude that international water law with its inherent peculiarities could provide major principles and norms that can guide the states to build effective institutions for transboundary relations. However, as one commentator argues that while practitioners of international law have formulated doctrinal schemes of considerable sophistication about the water issue, in many instances they have not been able to translate those schemes into effective institutions for the management of transboundary relations. And he emphasises that institution builders, namely politicians and diplomats, must combine the sophisticated insights of international law experts with practical structures created by the political actors. Similarly, S. C. McCaffrey comments that international law in general, being a decentralised system which relies for its enforcement principally on self-help, lacks such features as compulsory jurisdiction and centralised enforcement that are characteristic of domestic legal systems. However, almost all nations observe almost all principles of international law (McCaffrey, 1993). The above general argument is practically valid for international water law as well. That is, most principles of international water law derive from one of two categories of sources: treaties or international custom. Treaty-based rules are relatively easy to ascertain, although there is always the possibility of differing interpretations of individual provisions. FAO has identified more than 3 600 treaties relating to international water resources dating between 805 and 1984.[12] Additionally, the full text of 149 treaties dealing with water per se, excluding those which focus on boundaries or fishing rights have been collected in the Transboundary Freshwater Dispute Database as a systematic compilation.[13] These systematic collections of

[11] A. H. Garretson, R. D. Hayton and C. Olmstead (eds), *The Law of International Drainage Basin* (Oceana Publications, Dobbs Ferry, 1967); D. A. Caponera, 'Patterns of Cooperation in International Water Law: Principles and Institutions' (1985) 25 *Natural Resources Journal* 563-88; G. J. Cano, 'The Development of the Law of International Water Resources and the Work of the International Law Commission' (1989) 14 *Water International* 167-171; J. W. Dellapenna, 'Building International Water Management Institutions: The Role Of Treaties And Other Legal Arrangements' in J. A. Allan and C. Mallat (eds), *Water in the Middle East: Legal and Commercial Implications* (Tairus, London, 1994), pp. 55-93; S. C. McCaffrey, 'The Evolution of the Law of Transboundary Rivers' paper presented at the conference on *Transboundary Waters in the Middle East: Prospects for Regional Cooperation,* Bilkent University, Ankara, Turkey, 2-3 September 1991; S. C. McCaffrey, 'International Organizations and the Holistic Approach to Water Problems' (1991) 31 *Natural Resources Journal* 139-165.

[12] United Nations Food and Agriculture Organisation, *Systematic Index of International Water Resources Treaties, Declarations, Acts and Cases by Basin*: Vol. II, Legislative Study #34, 1984.

[13] See the website <http://www.transboundarywaters.orst.edu>.

treaties can be used by the researchers to make a point about specific conflicts, areas of cooperation, or larger issues of water law (Wolf, 1999).

Yet, norms of customary international law are somewhat more difficult to establish, but efforts at codification of those rules by organisations of high repute greatly assist the process. While the role of law in major international water controversies differs from case to case, states have rarely shown a disposition to defy generally accepted principles of international law. Indeed, they usually rely on those principles in their diplomatic exchanges. S. C. McCaffrey adds that the more concrete and generally accepted the applicable legal principles become, the more likely is that they will play a major role in the resolution of international water controversies. Thus, international law experts contend that, the adoption of the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Watercourses Convention, hereinafter) is a remarkable achievement in the codification and progressive development of rules of international law which would, in turn, assist the countries in building institutions to tackle the problems of mismanagement and misallocation in major international water controversies.

However, international water law could only go as far as providing some universal principles and major guidelines, namely the 'principles' and 'norms' of the institutions which are to be built for effective management and allocation of troubled waters.[14] For instance, among the *general principles* set forth in the UN Watercourses Convention are those of *equitable utilisation*, the *obligation not to cause significant harm*, the general *obligation to cooperate*, and the *obligation to exchange hydrologic and other relevant data and information on a regular basis*. Those principles certainly provide useful references for the riparians of the disputed regions striving to conclude agreements, yet they have to be operationalised and institutionalised through the 'rules' (rights and obligations) of specific regimes.[15] Thus, for instance, the foremost principle of international water law, equitable and reasonable utilisation and participation, defines the equitable and reasonable use, development and protection of an international watercourse in rather general terms; and it just draws the framework of the actions to be pursued. States should make these principles operational, measurable and verifiable through the rules and 'decision-making procedures', which are evidently more specific, and are often established by international treaties that relate to the specific circumstances of the concerned watercourses.

International law and international institutions have important roles to play to develop a satisfactory water law that is acceptable to all nations. The codification efforts of the ILA and the ILC have played an important role in developing guidelines and principles for international watercourses, but legal experts should continue to press for the adoption and application of the principles in water-tense regions such as the Middle East. An overview of bilateral or multilateral river treaties proves that they have been effective in the past, however they should consistently include all affected parties, they should include a joint management committee empowered to negotiate disputes, and they should be flexible enough to adapt to long-term changes in hydrologic conditions.

Institutions derived from International Organizations

International governance or international organisation has traditionally been one of the central problems in international relations theory. As part of IR theory: functionalists, neofunctionalists, and integration theorists have all dealt with the question of organising and

[14] The principles of an international regime (institutions) reflect the aims and the premises of the members of the regime, and the purposes the members are expected to pursue whereas the norms of an institutional setting indicate what is legitimate or illegitimate. See T. Bernauer, *The Chemistry of Regime Formation* (UNIDIR, Dartmouth, 1993), p. 55.

[15] The rules of an international regime are prescriptions and guidelines for actions the member states are expected to perform or refrain from performing.

governing the anarchic relations among states as their principal theoretical concern. These theorists refuted the realist contention that states are disinclined to cooperate. For them, cooperation is the norm, and states are becoming increasingly interdependent. As a result, they argue, states rightly consider each other as partners in growth and development.

Water has certainly become a high priority issue in the strategies of key international agencies such as the World Bank, FAO and UNDP. The approach of international agencies to water resources took a significant turn at the beginning of the decade. The Organisation for Economic Co-operation and Development (OECD) in the late 1980s focused on the need for policy integration and institutions for water and was amongst the first to draw attention to the urgency of improved water demand management (OECD, 1989). The World Bank has benefited from this early initiative and also provided initially a policy paper, which is an invaluable compression of a wide range of studies, papers, reports and its own conferences and discussions of the 1990s (World Bank, 1993). Later on, a rather voluminous work prepared jointly by the World Bank, FAO and UNDP came on the agenda (World Bank, FAO, 1995). These publications set new directions for the large and diverse community concerned with water allocation and management. They provide a lead for interested parties, namely national water resource authorities, the founders of water projects, as well as users of domestic, industrial and agricultural water. The works of these international agencies are very authoritative, founded on lengthy and deeply researched reviews of the water management policies and practices prevailing worldwide. These papers summarise the status of the resources and outline the policies and measures, which will have to be adopted in the coming decades to allocate and manage scarce water to gain maximum benefits.

The material accrued by the key figures of these agencies reflects the transition from the ‘old agenda’ of providing household water and sanitation services to large numbers of people to a ‘new agenda’ that requires sustainable, environmentally sensitive use of water resources. Moreover the shift from supply to demand management and the adoption of economic principles are emphasised in those studies. In their contention, stretching existing water supplies can help satisfy new water needs within countries as well as relieve tensions between countries. Accordingly, in line with the institutionalist approach, the works of these agencies point to the importance of reducing the demand for water through investments in conservation, recycling and increased efficiency. The large subsidies to water users in agriculture continue unchecked, discouraging efficient investments and conveying a false message about water’s scarcity and value. As a remedy, institutionalists advise applying demand management techniques such as water pricing, water marketing, and application of efficiency standards, which offer potential for water savings in domestic, agricultural, industrial, and other municipal uses as well (Postel, 1997). Thus, the World Bank policy has moved away from an emphasis on developing new water supplies toward a focus on comprehensive management, economic behaviour, and policies to overcome government and market failures, incentives to promote users with better services, and technologies to increase the efficiency of water use (Serageldin, 1995).

All these developments during the 1990s initiated a new paradigm in the last years of the decade, that of Integrated Water Resource Management (IWRM) which has become a concept and strategy for policy change in the water sector, taking over from the traditional understanding and practice of water resources development mainly directed at policy and institutional changes on a national and sub-national level. Although IWRM is bringing forward approaches, which include participation, consultation and inclusive political institutions, it still remains as a vague concept received much reluctance from the developing world. Some principles of IWRM remain subject to continued debate in the international discussion context, particularly along the North-South line, while others receive redefinition and different emphasis by individual states or other actors.

IWRM requires a new holistic approach and an unprecedented level of political cooperation. A logical implication of the importance of holistic management was the need for integration among the many agencies and organisations involved in water management, and for a shared understanding of problems and challenges. Two institutional responses to the need for integrated action were the establishment of the Global Water Partnership (GWP) and World Water Council (WWC) in 1996. The concept 'water security' was introduced by these two leading water organisations as the central goal for future action, a term that captures the complex concept of holistic water management and the balance between water resources protection and resource use. Both GWP and WWC are organised, as networks with multi-sectoral and multi-institutional membership, are active in producing reports and organising the World Water Forum (WWF) meetings. Subscribing to the policy consensus is a quasi-requirement for membership: the water experts of the World Water Commission of the World Water Council wrote a report on water security which contains a section strongly supporting IWRM, including a strong commitment to river basin management. WWC prepared the World Water Vision in 2000 (Cosgrove&Rijsberman, 2000). The Vision process is the first major attempt to construct knowledge about global and local water since 1992, and the most serious attempt yet to include all interested stakeholders in a worldwide consultation process. Its goal is to provide the pressure that leads to changed attitudes and changed and most importantly -funded- water policy priorities.

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Dam Debates Challenging French River-Basin Participatory Planning: a "Negotiated Public Action" Perspective

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Conflicts over dams have heightened in the last two decades all over the world, due largely to political dimensions that were disregarded. As the World Commission on Dams (WCD) emphasized, the issue of dams "is not confined to the design, construction and operation of dams themselves" (2000, p.xxvii), but "is about the very meaning, purpose and pathways for achieving development" (*Ib.*, p.xxxiii), and therefore about fundamental issues of justice and governance. In order to embrace the social, environmental and economic dimensions linked to dams all together, the WCD developed recommendations for a new policy framework based on a negotiation principle: "Only decision-making processes based on the pursuit of negotiated outcomes, conducted in an open and transparent manner and inclusive of all legitimate actors involved in the issue are likely to resolve the complex issues surrounding water, dams and development" (*Ib.*, p.xxxiv). The Commission explained that such a recommendation can be implemented by embracing the entire planning and project process and by reaching an agreement at each key-stage. During the upstream planning process more precisely, this orientation means: firstly, assess and validate the needs for water and energy services; secondly, select the preferred development plan among the full range of options, conducting either to dam option, either to non dam options. Participatory planning is clearly recommended for both steps, which should respectively rely on "an appropriate consultation process" (*Ib.*, p.262) and on a "participatory multi-criteria assessment" (*Ib.*, p.262).

France developed river-basin participatory planning by enforcement of the 1992 Water Law. To what extent do such procedures represent an appropriate political framework for dam debates? How can political science help to understand and improve such public decision-making? To answer those issues, we will rely on two case studies: the projects of building respectively a dam on the *Trézence* River (Charente-Maritime *Département*) and a reservoir at *Charlas* (Haute-Garonne *Département*) taking water from the Garonne River[2]. Furthermore, we shall present a new theoretical perspective in terms of "Negotiated Public Action" (Allain, 2002a), and show how it can be implemented.

1. – Dam debates within the framework of French river-basin participatory planning: the institutional framework and some empirical findings

Before presenting some empirical findings concerning our two case studies, we shall begin by presenting the French institutional context shortly.

1.1. - The French institutional framework

It is necessary to examine the French system of river-basin participatory planning, but also some specific legal elements concerning dam debates.

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- The French institutional framework for river-basin participatory planning

The French institutional framework for river-basin participatory planning relies on two kinds of instruments.

* Two regulation instruments

The 1992 Water Law created two procedures for river-basin participatory planning:

- The Master Water Management Plan (SDAGE3) aiming to determine fundamental orientations likely to guarantee a "balanced" management of water resources at the level of the large "river-basins" delimited by the 1964 Water Law and corresponding to the Agences de l'Eau territories. More precisely, these plans had to define quantitative and qualitative objectives for water resources, and the main operations necessary to be conducted in order to meet these objectives. The SDAGE had to be initiated by the Prefect chosen to have authority on such river-basins, and drawn up by the River-Basin Committees (Comités de Bassin), who steer the Agences de l'Eau's financial policy, and which are multipartite bodies, composed of 1/3 elected people from local authorities, 1/3 users and non-profit associations, and 1/3 representatives from the State at the local level). All the SDAGE were completed by 1997, enforcing therefore the law, which let five years to define such plans.
- The Local Water Management Plan (SAGE4), aiming to define rules for the use, development and protection of water resources at the level of smaller river-basins presenting hydrographical consistency. Such plans had to be drawn up by a multipartite entity created for that purpose, the Local Water Commission (CLE5), gathering 1/2 elected people from local authorities, 1/4 users and non-profit associations, and 1/4 representatives from the State at the local level. A first step in the planning process therefore consists in establishing the CLE, namely in delimiting the geographical perimeter, which will determine the CLE domain, and in defining precisely its composition. Contrary to the SDAGE, the law did not fix who is responsible for initiating a SAGE, which is supposed to rely on "local initiative", nor any deadline to define such plans; therefore, most of them are still on the process.

* A kind of voluntary agreement specific to Adour-Garonne river-basin

Concerning Adour-Garonne river-basin, where both dam debates studied take place, the SDAGE furthermore created a specific kind of plan called *Drought Management Plan* (PGE)[6], aiming to manage water shortage situations at the level of hydrographical units defined by the SDAGE. In this large region located in the South-West of France, where irrigation expanded a lot to mainly develop corn production, such issues of quantitative management indeed represent the main water management problem. The PGE were therefore expected to be defined very quickly (less than two years after the approval of the SDAGE).

Indeed, it seems that, in this region, priority has been given to the PGE in comparison with the SAGE. Besides, the rules adopted to define such plans have been modelled on the SAGE one: indeed, PGE have to be defined by the same kind of multipartite body than a CLE and in a participatory way. However, it is worth noticing that PGE rather correspond to voluntary agreements than to regulation instruments to the extent that they do not have legal value, unlike the SDAGE and SAGE.

Concerning the dam plans, PGE are expected to play an important role, as the granting of financial public subsidies for building dams justified by such quantitative purpose is

[3]. SDAGE stands for Schéma Directeur d'Aménagement et de Gestion des Eaux.
[4]. SAGE stands for Schéma d'Aménagement et de Gestion des Eaux.
[5]. CLE stands for Commission Locale de l'Eau.
[6]. PGE stands for Plan de Gestion des Etiages.

conditioned by the previous definition of a PGE. In that way, these plans are recommended to be initiated by the actors responsible for dam management.

- The French legal procedures for dam debate

As the French system of river-basin participatory planning is quite recent compared to dam decision-making processes, which can last for many years, it is also necessary to take a look to the French legal procedures for dam debates.

** The Public Inquiry procedure*

For a long time, the only legal procedure allowing public participation to dam planning has been the Public Inquiry: in that direction, the concerned population may peruse the dam file in each town hall of the geographical area and give their opinion about the project. On the basis of the different opinions expressed, the commission inquiry gives its own final opinion (positive, negative, or conditioned by some improvements). The State authorization necessary to build the dam can then be given or refused.

* The Public Debate procedure

As many critics have been directed to this procedure occurring too late in the dam decision-making, a new procedure was created in 1995, giving the possibility to organize a public debate much more "upstream". Only important equipments such as dams, railways, airports can be submitted to such a debate, controlled by an independent national commission. However, a recent law (2002) provides for an extension of the field of such public debates.

- Conclusion

This short presentation conducts us to raise the following questions:

- How are dam plans discussed in the framework of the SDAGE, SAGE and PGE drawing up process?
- When a dam plan is already on the process, how do these river-basin participatory planning processes intervene in dam debates? Such a question is also relevant, since the WCD pointed out that its recommendations may also be applied to "dams in the pipeline", namely to projects already at an advanced stage of development.

1.2. - An analysis of two recent dam debates

Both dam plans studied here were initiated much before 1992 and the development of river-basin participatory planning. Let us examine how both processes met.

- The Trézence dam debate

The idea of building a dam on the Trézence River, affluent of the Boutonne River which flows into the Charente River, was initiated in the seventies because of the important development of irrigation for corn production and of unsalted water needs in the estuary for oyster production. The project, which was strongly supported by a local authority, the General Council (*Conseil Général*) of the Charente-Maritime *Département*, however met hard oppositions from local ecologist associations and from the Ministry of the Environment. Therefore, it was modified twice. To the extent that both new versions were designed after 1992, we shall examine how these ones met the river-basin planning process concerning this site, namely the Boutonne SAGE and the Charente PGE.

Although the idea of defining a SAGE on the Boutonne river-basin appeared from the very start of the SDAGE drawing up in 1992, and although the process aiming to establish the

CLE itself began in 1994, *the preparation of both last versions of the project was quite disconnected from the planning process*:

- The second version (25 millions cubic meters) was defined in 1993-1994, at the moment when the local authorities of both Départements concerned by the SAGE (Charente-Maritime and Deux-Sèvres) examined juridical solutions to collaborate in the framework of this procedure. No links were yet established between both processes. Anyhow, because of the opposition of the Ministry of the Environment, this version did not reach the regulation stage of the public inquiry.
- The third version (39 millions cubic meters) was defined in 1996-1997, at the moment when the CLE itself was established and when public meetings were held in the river-basin to inform people about water resources management and to promote informal discussions among stakeholders. No more links were yet established. Even after the SAGE definition started in 1998, the dam plan followed up its own path.

Let us however examine to what extent the SAGE and PGE planning processes took the dam into account:

- In the framework of the SAGE planning process, the CLE President first explained that it was not relevant to debate about the dam, because it was then the moment to assess the present situation (1999-2001), whereas the dam was concerning the future. During that period, however, the project was confronted to increasing disputes: the public inquiry (1999) as well as the State authorization (2001) took place in a climate of conflicts escalation conducting to juridical litigation about the authorization given.

During the second step of the planning process (2001-2002), when the subject was to discuss about the needs trends and orientations for water management, there was no more debate about the dam: the CLE President indeed began by stating that irrigation needs could not be a debate topic to the extent that irrigation was a key-element to secure local crop-production. Such a declaration conducted the ecologist associations, who were members of the CLE, to stop attending the CLE meetings until the moment of the final vote, when they came back only to vote against the plan. No decision was yet made concerning the Trézence dam: while the SAGE points out that it is necessary to abide by the minimal summer flows allowing the reach of the quantitative objectives defined by the SDAGE, and that new water reserves should be created, the Trézence dam is only evoked to emphasize that if it is built, it should respect the qualitative objectives determined by the SDAGE. Furthermore, the precise assessment of the water needs justifying the dam is rejected at the PGE level.

Therefore, it appears that the Trézence dam was a political issue avoided in the Boutonne SAGE.

- The *PGE planning process* was launched in 2000. This plan concerns a larger territory than the Boutonne SAGE, which is the encompassing Charente river-basin. It had become necessary to draw up this PGE, to the extent that, relying on the SDAGE, the commission of inquiry conditioned a positive opinion on the Trézence dam at the definition of the Charente PGE, at the end of the Public Inquiry process (2001).

In 2003, the PGE Committee was yet still analyzing the water needs. To a question concerning the Trézence dam, I was answered that the purpose of the PGE was not to make a decision about the opportunity of such a project, and that the different options concerning the dam plan should probably be presented “diplomatically”, namely not with the two traditional options, “with the dam” and “without the dam”, but rather “before the dam” and “after the dam”.

Then, it is looking like the Trézence dam was going to be an issue subject to manipulation in the Charente PGE.

However, at the autumn 2003, the State Council (*Conseil d'Etat*) gave its verdict concerning the Trézence dam at the end of a long juridical process: this dam does not present a public usefulness; consequently, the State approval was nullified.

- The Charlas reservoir debate

The idea of building a new reserve of water along the Garonne River appeared in the seventies too, there also because of the strong development of irrigation for corn production. However, the project has really begun to progress since 1989, when Charlas site was acknowledged as the most relevant to satisfy the needs of a large territory: indeed, this site presents the feature to allow the building of a huge reservoir (110 millions cubic meters) filled with water stemming from the Garonne River, which may supply water to both the Valley of the Garonne and the neighboring western Gascogne territory, very poor in natural water resources. A study was then conducted to examine both technical and environmental dimensions of the project (1992-1996). Its results made the River-Basin Committee claim that he was favorable to the building of the reservoir (1996) and that it was now necessary to examine financial and operational aspects. However, this decision made the opposition become harder: the local association of riparian against this project called for help from a stronger association, a regional ecologist association. This one decided to resort to the recently created Public Debate procedure. Applied in 1997 for, this Public Debate could not take place before 2003 yet, because of both local and national intricacies.

In the meanwhile, the PGE planning process concerning Charlas reservoir was quickly initiated (it began in 1997-1998, just after the approval of the SDAGE Adour-Garonne). Because of the extension of the territory likely to be supplied by the Charlas reservoir, two PGE were at stake: the Garonne-Ariège PGE, covering the territory where the Charlas site is located, and the western Neste-Gascogne PGE.

Let us examine how those both PGE, which have been now approved, - the first one early 2004 and the second one in 2002 -, took the reservoir into account. While both plans emphasize the necessity to abide by the minimal summer flows allowing the reach of the quantitative objectives fixed by the SDAGE, and therefore to both save water and create new reserves of water, it appears that they however diverge on several main points:

- Firstly, the assessment of the water needs: The Garonne-Ariège PGE considers that the main use of water, the irrigation, must be controlled and therefore give several precision to do it, such as: stopping the irrigation at the present level; organizing a collective management of the water used for irrigation; introducing a payment system for the users, in order to finance the operations aiming to supply added water in the rivers. In contrast, the Neste-Gascogne PGE states that it is necessary to supply water to farmers, who are waiting for irrigation rights (more than 700). Furthermore, this plan claims that the level of certain quantitative objectives should be increased because of qualitative reasons (reducing pollution).
- Secondly, the ways of reaching the objectives: In the first step of its two-stages program, the Garonne-Ariège PGE concentrates on measures aiming to save water and to mobilize water stemming from other reserves of water (mainly from dams managed by the National Company of Electricity). In contrast, in this same first step, the Neste-Gascogne PGE states that the creation of small reservoirs (16 millions cubic meters) should be added at the saving water solution. Furthermore, while both plans present their second step directed to the creation of new resources of water in a similar way relying on two options (the building of the Charlas reservoir or the mobilization of reserves initially created for hydroelectric production), and while both plans consider that the second option cannot be sufficient to satisfy the water needs,

they differ in their conclusions: the Charlas reservoir is presented as the "preferred option" in the Garonne-Ariège PGE, but as the "necessary option" in the Neste-Gascogne PGE.

Therefore, while the Charlas reservoir project was here debated in both PGE, *the planning process did not give the possibility to orient clearly the decision-making process concerning the project: indeed, both PGE assess the water needs and the options differently, and furthermore, the Garonne-Ariège PGE does not choose between the two options concerning the mobilization of new reserves of water*. Besides, the Public Debate about Charlas reservoir, which occurred at the autumn 2003, revealed how the agreements reached in the PGE were fragile and how the conflicts about this project were still violent.

- Conclusion

This first analysis shows that the creation of an institutional framework favoring the participation of the stakeholders such as the French system of river-basin participatory planning does not guarantee dam debates and negotiated outcomes about such projects. Let us now examine why.

2. – Shedding new light on empirical findings within a "Negotiated Public Action" perspective

We are now going to show that, in order to shed new light on our empirical findings, it is necessary to adopt a new theoretical framework, likely to grasp the political dimensions of negotiation. Then, we shall be able to understand the reasons of the stalemate that occurred in our both dam cases.

2.1. - The need for a new theoretical framework likely to grasp the political dimensions of negotiation

- The idea of negotiation in a political approach

In the WCD approach, the idea of negotiation is applied to a basic instrumental decision-making process, which means:

- Firstly, that the key-issue is to select a good solution to handle problems along a linear and sequential process and that such a solution represents the right agreement.
- Secondly, that the gap between divergent points of view is assumed to be bridged by technical rationality.

In contrast, a political standpoint requires considering the treatment of public affairs like a collective action:

- Firstly, which involves a variety of stakeholders at different steps or levels of the process, and therefore which presents a social "thickness".
- Secondly, which assumes the definition of responsibility (at least for the management of the action itself, but also as regards the results), as well as acceptable justification (in order to gain legitimacy), both aspects implying institutional dimensions.

Taking those dimensions into account while using the idea of negotiation conducts to lay down two principles (Allain, 2002a, 2003b):

- Firstly, the treatment of any public affairs (such as a planning process, a project development…) must be regarded as a negotiation process embedded in a social environment and interacting with an institutional context.

- Secondly, the justification process as well as the responsibility definition process must be placed at the heart of the negotiation process.

Let us now examine how we made those principles operational.

- A "Negotiated Public Action" perspective

Those principles conducted us to define a set of interrelated unitary concepts likely to guide the analysis (Allain, 2002a, 2003b). We just sum up them here:

- A negotiation process can be viewed as a joint process of "framing" and "organizing": the idea of "framing" aims to grasp the symbolic dimensions which shape the definition of a content and which crystallize reciprocal commitments, while the concept of "organizing" refers to the establishment of concrete links among actors and to the organization of the activity itself.
- A negotiation has to be analyzed from the "situation of tense interdependency" from which it emerges until the "negotiated order" to which it leads: indeed, it is a matter of discovering the interdependency relations likely to provoke conflicts of interests but also to incite to cooperate; besides, it is a matter of taking the results of the negotiation into account not only in their instrumental and instantaneous dimension but also as regards the implementation of the agreement and the institutionalization of the outcomes.
- A negotiation progresses through a set of interactions among the stakeholders, which can be analyzed in terms of "games" and "argumentation": the idea of "games" refers to the observable concrete behavior aiming to orient the negotiation in a specific direction, while the concept of "argumentation" aims to qualify the discursive techniques and the modes of justification involved in the negotiation. It is necessary to pay attention to the specific "sequences of direct interactions" occurring in the process.
- Finally, a negotiation is expected to be influenced by a "negotiation context", which is a portion of the encompassing institutional context likely to bear directly on the course of the negotiation, by determining some regulative, normative or cultural-cognitive aspects. While this "negotiation context" is assumed to be more stable than the negotiation process, it may also evolve in the course of the negotiation and therefore modify some of the rules of the negotiation.

We argue that such a theoretical framework above all presents a heuristic value useful both to explain and improve the negotiation process.

2.2. - Coming back to our dam case studies: the reasons of the stalemate

We are here going to use our theoretical framework in two specific directions, in order to show that it is relevant to explain the reasons of the stalemate that occurred in our both dam case studies7:

- The first direction of research aims to reveal how an analysis of the justification process occurring in "specific sequences of interactions" and conducted in terms of "argumentation" and "framing" may help to identify the "closing" points stopping dam debate too early.
- The second direction of investigation intends to underscore how an examination of the responsibility definition process occurring in the course of the negotiation process, which will be grasped through both the "games" among local institutions as regards the control of the "organizing" process and the evolution of the "negotiation context" may allow the discovering of an uncontrolled shaping of the negotiation process.

[7]. See also Allain (2001; 2002b; 2003a); Allain and Emerit (2003).

Then, it may conduct to discover gaps or on the contrary nubs of tension likely to provoke further conflicts or at least prevent dam debate.

- Analyzing argumentation and framing in the justification process to identify the "closing" points stopping dam debate too early

In both dam cases studied, the assessment of the project appropriateness during the river-basin participatory planning process relies on the assessment of three main interrelated basic elements: the minimal summer flows that must be kept in the rivers, the water needs for irrigation and the ability to mobilize other kinds of water reserves than dams. Therefore, it is important to examine how each of these elements was debated.

The analysis of the planning files, as well as inquiries held with participants reveal that those technical elements were yet not really debated:

- The minimal summer flows to preserve were considered as already defined by the quantitative objectives fixed by the SDAGE;
- Irrigation was regarded firstly as a water use necessary for the development of local agricultures and not likely to lose its economic significance in the future, even if participants were aware of the damages that it causes to the rivers;
- The mobilization of other kinds of water reserves than dams was not really considered as possible alternative options, but rather only as possible additional solutions.

Therefore, the issue of dams was framed in a way which did not really allow a debate.

The explanation of such a situation mainly lies in the participants' beliefs, which frame what they consider as matters of fact not likely to be questioned, or, on the contrary, as issues subject to controversies or deserving some further investigation, and therefore which fix the realm of possibility. These beliefs are revealed by the argumentation appearing in the planning files:

- The quantitative objectives determined by the SDAGE are considered as *legal constraints,* which are imperative.
- The argumentation concerning irrigation is directed to justify this water use: along these lines, it therefore refers either explicitly to a register of *economic security* (maintaining crop-production), either implicitly to a register of *social justice* (allowing every farmer to get access to water rights, like in the PGE Neste-Gascogne). In both cases, it is a *civic argument*, which is basically at stake: the solidarity with the farmers.
- Finally, the argumentation concerning the mobilization of other kinds of water reserves than dams de facto intends to prove that these options are not reliable. Consequently, *risk arguments* are put forward, especially as regards the mobilization of water reserves initially created for electricity production.

It is important to notice that such arguments do not stem from a debate allowing the emergence and the recognition of arguments grounded on rationality. On the contrary, they are stated so, without further investigation or debate, because they implicitly refer to *authority arguments,* which are not expected to be questioned, such as*: the law* (the legal value of the SDAGE, or the concessions granted to the National Company of Electricity for the exploitation of dams) or *moral principles* (the solidarity with farmers).

This aspect particularly appears when stakeholders are asked to justify their arguments further, by questions pertaining to other possible futures concerning the water needs or the mobilization of new reserves of water, such as: what would happen if lower water needs due to a decreasing of the irrigation were assumed? Or, if reserves of water initially created for electricity production were really used? Some typical answers then run as follows: "The Garonne should not be a wadi!" Do you want a France without peasants?" Or, "do you prefer nuclear plants?" Such answers reveal that other possible futures are not really taken into

account by the stakeholders, who firstly put forward threatening images of the future to justify their position. When such symbolic arguments are used in a situation of interaction between stakeholders, they make however switch the communication from rationale to emotion, impeding any further debate.

- Analyzing games and organizing in the responsibility definition process to identify gaps or nubs of tension preventing dam debate

Let us now analyze the responsibility definition process in both cases. We shall therefore examine the progression of each project in its interrelations with the institutional context over years, with the purpose of understanding how the steering of the project has been established and what it implies for dam debate.

** The responsibility definition process concerning the Trézence dam*

When the Trézence dam was designed, it was one element of an encompassing dam program at the level of the Charente river-basin. This program was steered by the Charente River Institution *(Institution de la Charente)*: this a local authority gathering the different General Councils *(Conseils Généraux),* whose area is included in the Charente River-Basin, namely mainly the upstream Charente *Département* and the dowstream Charente-Maritime one; such an authority aims to finance operations concerning the entire river-basin.

Because of a political clash among the Charente and the Charente-Maritime *Départements* in the 80's, the agreement concerning this program was broken off and each *Département* decided to steer independently the dam planned on its own area. Therefore, the Charente-Maritime General Council became the only authority responsible for the Trézence dam.

The consequence of such a change in the responsibility definition is that the Trézence dam issue was not handled anymore in the framework of water management institutions. Such a situation explains that the dam was not really debated in the framework of the SAGE planning process: the project was clearly considered as the Charente-Maritime General Council business.

The Trézence dam debate had yet to come back in the domain of water management institutions, when the commission of inquiry conditioned a positive opinion on the project at the definition of the Charente PGE in the framework of the Public Inquiry. While the drawing up of the PGE Charente had to be steered by the Charente River Institution, it is worth noticing that the presidency of that institution had changed betweentimes: it was now presided by the Charente-Maritime General Council and not anymore by the Charente General Council; therefore, the Charente-Maritime General Council had more power within the institution than before and could expect to better control the PGE drawing up. We saw that such an expectation was not a dream, since the PGE Committee was ready to work in the direction hoped by the General Council, and that the dam development was stopped only because of juridical decisions made elsewhere.

** The responsibility definition process concerning the Charlas reservoir*

As we already explained, the large territory likely to be covered by the supply of water stemming from the Charlas reservoir made that two PGE were concerned by the project: the Garonne-Ariège PGE and the Neste-Gascogne PGE. The first one was placed under the authority of a river-basin institution, the SMEAG *(Syndicat Mixte d'Etudes et d'Aménagement de la Garonne)*, whose area spreads along the linear of the Garonne River; the second one was steered by a kind of regional rural planning institution, the CACG *(Compagnie d'Aménagement des Côteaux de Gascogne)*, who carries on two kinds of activities: engineering, concerning mainly the designing of dams and irrigation systems, and the

management of such systems. In particular, this institution is the manager of the huge irrigation system concerning the Gascogne area (called Neste system), which is supplied by the Neste River, affluent of the Garonne River.

Such a situation explains why the Neste-Gascogne PGE was framed differently from the Garonne-Ariège PGE, as regards the Charlas reservoir: for the CACG, who has to organize the supply of water to the farmers in the region of Gascogne and who is confronted with unsatisfied demands, the aim is to be able to supply more water to the farmers. Therefore, this institution mainly put forward the creation of new water reserves, the Charlas reservoir but also smaller reservoirs, during the planning process.

The separation of the responsibilities concerning the PGE also explains that while both areas are interdependent as regards the supply of water (firstly, through the Neste system, and, if the case arises, through the Charlas reservoir), such an interdependency was not really analyzed. Therefore, while the building of the Charlas reservoir is generally presented as an issue of "solidarity" between both regions of Garonne and Gascogne, such a political issue has never been debated (neither approved).

Finally, a further investigation of the roles of each institution as regards the Charlas reservoir lets appear latent conflicts, still not handled: indeed, the CACG was the company who designed the technical draft of the Charlas reservoir, and who expected to build it and manage the supply of water. However, while the SMEAG was the institution responsible for the project, it expected to recover the control of the project after the technical studies conducted by the CACG. The conflict which arose between both institutions could only find a temporary solution, which was necessary for allowing the unfolding of the Public Debate. Nevertheless, the issue of the authority responsible for the project is not yet definitively clarified, since several questions have not been the subject of an agreement, such as: who will be the owner? Who will be the project manager?

Conclusion

After having shown that institutional solutions such as river-basin participatory planning do not guarantee negotiated outcomes as regards dam issues, we proposed an analysis in terms of "Negotiated Public Action" giving the possibility to grasp the political dimensions of dam decision-making processes and, therefore, to understand why such processes may reach deadlock and how they may be improved. This approach lays the justification and the responsibility definition processes at the heart of the analysis of the negotiation process and offers a set of interrelated unitary concepts to organize this analysis.

In the cases studied here, we then saw that dam debates taking place in the framework of river-basin participatory planning were restricted and channeled in a specific way because of two main reasons:

- Firstly, the confinement of the debate within a narrow frame because of the use of authority arguments impeding basic elements to be questioned during the planning process;
- Secondly, the difficulties in establishing a consistent system of authority on the overall negotiation process, especially in the case of a changing institutional context like the French one, where river-basin institutions have to assert their power against traditional local authorities.

Such kinds of problems suggest the development of *mediation skills*, but in a new way in comparison to what has been done until now: mediation indeed generally focuses on the assistance of negotiations taking place "around a table", and mainly proposes techniques aiming to manage conflicts and to facilitate the communication between the stakeholders (Susskind and Cruikshank, 1987; Susskind and alii, 1999). In contrast, our analysis invites to

conceive of a mediation system likely to intervene not only during direct moments of interactions, but also among institutions; likely not only to facilitate the communication but also to organize a widened investigation and to build new rules and relationships at the institutional level (Allain, 2003c).

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