

Post-Apartheid Institutional Development in South African International River Basins¹

Anthony Richard Turton
African Water Issues Research Unit (AWIRU)
Centre for International Political Studies (CIPS)
University of Pretoria
0002 Pretoria, Republic of South Africa

Abstract.

Contrary to the findings by Wolf *et al.*, (2003) and UNEP (2002), the transboundary river basins in Southern Africa have a high degree of institutional development. The reason for this can be traced back to the Cold War era where water resource management became linked to the overall security dimension of the Apartheid state. The outcome of this is the existence of some of the most sophisticated institutional arrangements in any transboundary river basin on the Southern African sub-continent, a fact that is not evident in Wolf *et al.*, (2003) and UNEP (2002). This chapter outlines some of the key drivers of this process, and introduces the notion of a Hydropolitical Complex that is clustered on two of the main transboundary river basins - Orange and Limpopo - that are shared by the four most economically developed states in Southern Africa - the Republic of South Africa, Botswana, Namibia and Zimbabwe.

Introduction

The story of Apartheid is well documented. What remains relatively unexplored however, is the connection between Apartheid and water resource management. This chapter summarizes work that has been done by the author over the last decade, and shows how the South African state sought to mobilize water resources as an element of its economic growth potential for more than half a century. It introduces the reader to the notion of a Hydropolitical Complex in Southern Africa, clustered around specific states and specific transboundary river basins, and it shows that institutional development in those basins is very sophisticated. In a supreme twist of irony, the evolution of institutions in South African transboundary rivers is a legacy of the Apartheid-era policy that sought to develop what became known as a Total National Strategy in response to the prevailing threat perception of the time, which was defined officially as being a Total Onslaught. This chapter concludes with an assessment of institutional development by mapping out the fundamental dynamics of a win-win and a win-lose outcome as they pertained to the South African experience. This chapter challenges the work by Wolf *et al.*, (2003) and UNEP (2002), which both fail to recognize the full extent of regime

¹ Based on a DPhil thesis in International Politics completed in the Department of Political Sciences at the University of Pretoria under the supervision and co-supervision of Prof ME Muller and A du Plessis respectively, during 2003.

creation and institutional development that exists in South Africa's four international river basins, and consequently incorrectly identify them as basins at risk.

The Southern African Hydropolitical Complex

The patterns of political interaction that occurred within the Southern African region were closely associated with Cold War rivalries. An analysis of the specific patterns of amity and enmity between states, factions, interest groups and other important actors over the last half-century reflects a predictable pattern of Cold War rivalry between America and the former Soviet Union, enacted through their respective surrogate forces. This is an element of what has been called 'overlay', which is defined as that condition when great power interests transcend mere political penetration, and come to dominate a region so heavily that the local pattern of security relations virtually ceases to operate, such as occurred with the European colonization of Africa (Buzan, 1991:188; Buzan & Wæver, forthcoming). It can therefore be argued that three distinct levels of overlay existed in Southern Africa. Colonialism was the first and most written about; the Cold War was the second and probably the least written about; while Apartheid was the third, with considerable literature on this subject in general, but nothing on this subject as it pertains to water resource management. These three levels of overlay consequently had a marked impact on the politics of Southern Africa.

Building on to this notion, Buzan (1991:210) has noted the existence of a set of what he calls "regional security complexes" in the developing world, with one of these being the Southern African Regional Security Complex consisting of the Republic of South Africa, Namibia, Botswana, Zimbabwe, Angola, Zambia, Malawi, Mozambique, Lesotho and Swaziland. Buzan defines a security complex as being "a set of units (typically states) whose major processes of securitization, desecuritization, or both are so interlinked that their security problems cannot reasonably be analyzed or resolved apart from one another" (Buzan *et al.*, 1998:201). 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.*, 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 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.

This definition evolved from the earlier work by Buzan (1991:190) that was cited by Schultz (1995:97) in the context of what he calls the "Tigris and Euphrates Hydropolitical Security Complex". Schultz' work is the first to have linked Buzan's views on security

complex theory to the study of hydropolitics. In his seminal work on the hydropolitics of the Middle East and North Africa (MENA) region, Allan (2000:245) notes the value of security complex theory, but concludes that while it explains what has happened, it does not predict what will happen in the future (Allan, 2000:248). There is consequently the need for the improvement of theory if it is to have both explanatory and predicative capabilities.

Encouraged by this, the author decided to develop a deeper understanding of how security complex theory could be applied to Southern African hydropolitics. Buzan (1991:187) notes that security is relational, meaning that one cannot understand the security of one state without understanding the international pattern of security interdependence in which it is embedded. This means that two things are relevant to a study of hydropolitics at the international level in the context of Southern Africa. Firstly, overlay is a key factor as it has shaped those patterns of amity and enmity over time. Secondly, states are locked together by virtue of their co-riparian status in any given international river basin. This has prompted the author to explore the linkage between these two aspects further (Turton, 2003a; 2003b; 2003c), which has resulted in the development of a set of concepts that serve to explain some of the institutional developments in transboundary river basins that are shared between South Africa and her respective neighbours. The author has concluded that a “Hydropolitical Complex” is emerging as a distinct component of what Buzan (1991:210) has described as the “Southern African Security Complex” (Turton, 2003a; 2003b; 2003c). This Southern African Hydropolitical Complex consists of the political interaction between states that are clustered on various international river basins and comprises four key concepts:

Pivotal States: There are four pivotal states within the Southern African Hydropolitical Complex - the Republic of South Africa, Botswana, Namibia, and Zimbabwe. The hydropolitical criteria for the pivotal state label relate to two critical variables, and in order to qualify as being pivotal, a country needs to meet both of these criteria:

- A high level of economic development within each countryⁱ;
- A high reliance on shared river basins for strategic sources of water supply as a critical element of its national economic development.

Pivotal Basins: There are two pivotal river basins within the Southern African Hydropolitical Complex - the Orange and the Limpopo. The hydropolitical criteria for the pivotal basin label relate to two critical variables, with both criteria needing to be met in order to qualify. These are:

- The strategic importance of the river basin to any one (or all) of the four pivotal states in terms of the economic development that it supports;
- The extent to which the river basin is closed, with “closure” referring to a river basin with no utilizable outflow of water (Seckler, 1996) or with no more water left to be allocated to productive activities (Svendsen *et al.*, 2001:184).

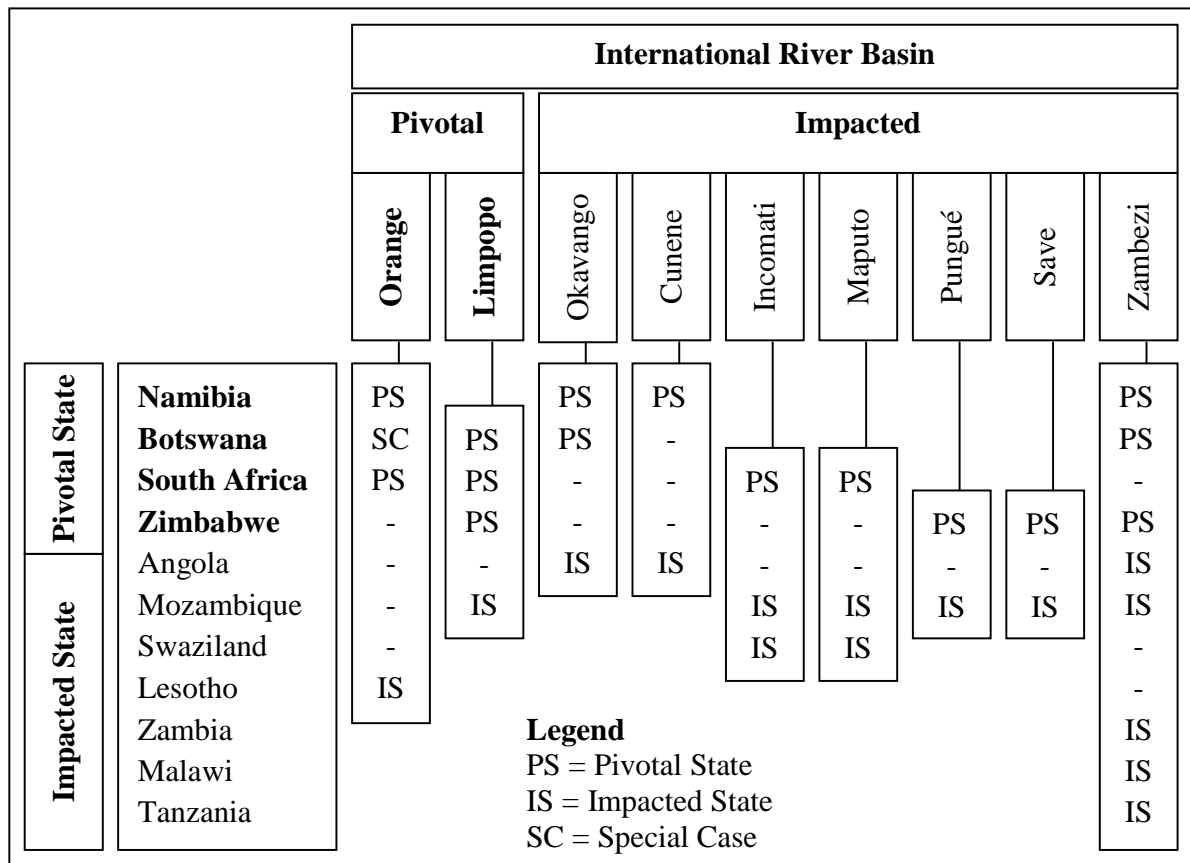
Impacted States: There are at least seven impacted states in the Southern African Hydropolitical Complex - Angola, Mozambique, Swaziland, Lesotho, Zambia, Malawi, and Tanzania. The hydropolitical criteria for the “impacted state” label relate to two critical variables, with both criteria needing to be met in order to qualify. These are:

- The level of need for water from either a pivotal basin or an impacted basin as a foundation for the economic development of the impacted state;
- The degree to which current (or future) economic development in an impacted state has, or is likely to be, limited by a pivotal state by virtue of the co-riparian status of the two (or more) states within a given river basin.

Impacted Basins: There are at least seven impacted basins in the Southern African Hydropolitical Complex - Zambezi, Kunene, Okavango, Incomati, Maputo, Pungué, and Save. The hydropolitical criteria for the “impacted basin” label relate to two critical variables, with both criteria needing to be met in order to qualify. These are:

- The extent to which a pivotal state relies on the water from the impacted basin for current (or future) economic development;
- The degree to which the development options of the impacted state within the impacted basin have been, or are likely to be, limited by the actions or plans of the pivotal state.

Figure 1: The Southern African Hydropolitical Complex (Turton, 2003a:288).



Both Impacted States and Impacted Basins can be considered as being dependent variables, presenting as symptoms in the cause-effect linkage of the overall hydropolitical equation; while Pivotal States and Pivotal Basins can be considered as being independent variables, acting as fundamental drivers or foci of hydropolitical dynamics. This is a useful way of understanding the patterns of amity and enmity between various states in Southern Africa, and as such it becomes a way of providing a more nuanced analysis of international relations as they pertain to the water sector. Stated differently then, if international relations is how states behave under conditions of structural anarchy, and if transboundary river basins link states in a physical relationship, what can we learn from studying institutional development in those basins from a hydropolitical perspective?

History of Development in the South African Water Sector

The Southern African region as a whole is characterized by significant maldistribution of water resources, with large swathes of land receiving less than 500 mm of precipitation per annum. In fact, around 60% of the total mean annual runoff (MAR) of the entire Southern African region arises from just 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 become a stimulus for the construction of dams in an attempt to retain as much streamflow as possible. 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 South Africa and Zimbabwe (WCD, 2000:373), both of which are Pivotal States.

South Africa is the most industrialized state in Southern Africa. It is also one of the most water stressed countries, with water availability acting as a possible limiting factor to its long-term economic growth potential. This makes water resource management a strategic issue. For this reason, early reconnaissance work was done with a view to assessing the future viability of sourcing water outside of the areas of need, and if necessary in neighbouring states. There are many examples of this. A start was made in 1956 to study the hydrology of Basutoland (pre-independence Lesotho) as a possible future strategic supply of water for the South African Goldfields and related industrial complex (Ninham Shand, 1956). This subsequently became the foundation of the Lesotho Highlands Water Project (LHWP) (Carter, 1965; Young, 1961), which is one of the largest water transfer schemes in Africa.

The water, economic development and energy nexus can be traced back to early agreements between South Africa (in its capacity as the most economically developed state in the region, but also partially in its capacity as the UN Mandated trustee of what was to become Namibia), and Portugal (in its capacity as the colonial power in both Mozambique and Angola). In this regard, an agreement was reached in 1926 for the study of the potential for hydroelectric power in the Cunene River (Treaty, 1926), which is the border between what was then the Portuguese colony of Angola and the UN Mandated Territory of South West Africa under South African control. The construction of the Kariba Damⁱⁱ in the 1950's as a cornerstone of the economic development of Rhodesia, which at that time was seen to be a bastion of European (meaning White) rule in what was then the Federation of Rhodesia and Nyasalandⁱⁱⁱ, provided renewed impetus to this water, economic development and energy nexus. The thinking at the time was that if Kariba Dam could be so successful in launching an aggressive policy of economic development in Rhodesia, then similar developments could be used to launch the economic development of South Africa and Mozambique. Consequently, an agreement was reached in 1964 to explore these issues in greater detail. This resulted in a specific agreement being finalized in 1969 on the development of the Cabora Bassa Project in Mozambique downstream of Kariba Dam (Treaty, 1969a), with a similar specific agreement being reached simultaneously on the development of the Cunene River (Treaty, 1969b).

Other grandiose water transfer schemes were also developed. An early study on the transfer of water from the Zambezi/Chobe confluence via Botswana to South Africa (Borchert & Kempe, 1985; Conley, 1995; Williams, 1986) was refined to a plan involving the construction of a 1,116-km concrete structure feeding $2,500 \times 10^6 \text{m}^3$ of water into the Vaal River Supply Area (Borchert, 1987; Scudder *et al.*, 1993:268). A feasibility study of this proposal found that the cost of water delivered to Pretoria was competitive with existing water supply schemes (Scudder *et al.*, 1993:263; Midgley, 1987). Contemporary literature refers to this as the mooted Zambezi/Limpopo link (Heyns, 2002:167). It can therefore be seen that considerable energy was spent on developing plans for the sourcing of water outside of the areas of need as a future strategic supply on which the economic growth and development of the South African economy could be based.

Returning back to the notion of overlay that was introduced earlier on, three things happened that impacted on these grandiose schemes. The first was the demise of colonialism, the second was the cessation of Cold War hostilities, and with that the collapse of the Apartheid State. Let us examine the buildup up of these in some detail, in order to assess the impact of their subsequent demise.

Colonialism had a major impact on the politics of Africa in general, and South Africa in particular. British Prime Minister Harold Macmillan made his now famous 'Winds of Change' speech in the Cape Town Parliament in which he spelled out the strong desire for independence that was emerging in the colonies (Geldenhuys, 1984:11). This desire

for independence was being felt acutely in Southern Africa. The Portuguese colonies of Angola and Mozambique were both theatres for a war of liberation. The British colonies of Southern Rhodesia^{iv}, Northern Rhodesia^v, Nyasaland and South Africa also saw various forms of anti-colonial struggle taking place. Significantly, South Africa had strong independence sentiments based on the deep-seated anger that was still being harbored by the Afrikaners at the humiliation of the Boer War defeat half a century earlier, and still in the living memory of many a survivor of the British concentration camps. The three British Protectorates in the region, Bechuanaland^{vi}, Basutoland^{vii} and Swaziland were never colonies, but were functioning monarchies that had appealed for the protection of the British Monarch during the time of Zulu national expansion and Boer settler land invasions a century earlier.

The domino effect of what subsequently occurred can be traced back to two distinct trigger events. The first trigger event was undoubtedly the British withdrawal from the various colonies in the 1960's. This was partly because Britain had been financially ruined by World War II and was no longer in any state to maintain the colonies. This served to reduce the impact of colonial overlay, striking deep-seated fear into the hearts of various white minority governments who saw themselves as being bastions of European styled "civilization" in the far flung outreaches of Africa. The spate of newly-independent countries also gave new impetus to the various liberation movements operating at the time, and in particular gave them access to safe bases from which they could train their guerilla fighters, and generally regroup. The second trigger event was the Sharpeville Massacre inside South Africa, which occurred on 21 March 1960 and resulted in the death of 69 people and the wounding of a further 180 (Spitz & Chaskalson, 2000:7). This event resulted in a declaration of a State of Emergency, the banning of the various liberation movements^{viii} and the subsequent launch of what became known as the "armed struggle". Central to this armed struggle was the search for safe rear bases, many of which were made available in the newly independent countries of the region, from which guerilla attacks could be launched.

If these were the two trigger events then a whole series of consequences flowed from them. One of these took the form of a deep-seated fear of independence - a sentiment that was expressed mostly by the White minority, who increasingly felt insecure in the face of the so-called "Winds of Change". A dramatic manifestation of this fear was the Unilateral Declaration of Independence (UDI) for Rhodesia by Prime Minister Ian Smith, which resulted almost immediately in a repressive bush war. Afraid as they were of the political consequences of independence in the face of the events surrounding the Sharpeville Massacre, South Africa was quick to support Smith's UDI from Britain. This polarized the Southern African region, and set out the battle lines for the next quarter century of struggle. South Africa deployed paramilitary units in support of Smith. This gained momentum in 1966 when the guerilla war was launched in Namibia (Frankel, 1984:102), making the Caprivi Strip a theatre of war in which South Africa and Rhodesia had a strategic interest. Both South Africa and Rhodesia deployed forces in support of the Portuguese army in Angola and Mozambique. The Portuguese forces were taking a battering however, and similar to the American experience in Vietnam, the trickle of dead

and wounded back to Portugal was met by growing public resentment. In 1975 a *coup d'état* took place in Portugal, overthrowing the military regime and changing the balance of power in Southern Africa overnight. Portugal decided to withdraw from all of its former colonies, leaving no transitional governments in place, and in some cases leaving different factions to fight it out in order to determine who would become the new legitimate government of the now independent colony. The effects of this was startling, coming as it did on top of already heightened fears about Black majority rule. In Rhodesia, a second military front was opened up, with guerilla forces finding a safe haven in the now liberated Mozambique. From that moment on, a military solution was no longer possible in Rhodesia even with increased South African support. In Angola, three factions that had been united in their struggle against Portuguese colonial oppression, turned against each other in a bitter civil war that was to last until 2002. This sudden turn of events saw South African military forces being deployed in Angola, where they would stay until their eventual defeat at the Battle of Cuito Cuanavale in 1988 (Simon, 1991:187).

So how is this all relevant to institutional development in the water sector?

The two trigger events noted above, and in particular the deteriorating security situation that arose from these two events, gave birth over time to a specific threat perception in South Africa that was based on the “carrot” of development cooperation as an inducement to the non-support of the various liberation movements, and the “stick” of military retaliation in the event that this positive inducement was not heeded. The first discernable elements of this can be traced back to the 1973 White Paper on Defence, which introduced the concept of a “total strategy” into the South African political psyche for the first time (Geldenhuys, 1984:140). The 1977 Defence White Paper was largely devoted to refining the concept of a total national strategy, first mooted in 1973, as an official policy. This defined a “total national strategy” as being “the comprehensive plan to utilize all the means available to a state according to an integrated pattern in order to achieve the national aims within the framework of specific policies” (Geldenhuys, 1984:140). This total strategy had its roots in the counter-revolutionary experiences of the Americans in Vietnam, the British in Malaya, and the French in Algeria and Indo-China. The term ‘total strategy’ is derived directly from André Beaufre’s work *An Introduction to Strategy* (Frankel, 1984:46). As such it resonated well with the security elites in the emerging South African garrison state, with its peculiar threat perception that interpreted the Cuban and East German support of the African liberation movements in Southern Africa, as being evidence of a ‘total onslaught’, driven by Soviet imperialism (Frankel, 1984:55).

This saw the subsequent development of a two-pronged approach to security-related issues, and heralded the start of the gradual securitization of water resource management. The one element was based on a strong military response to any threat, supported by destabilization via economic means (Gutteridge, 1983:38). The olive branch of economic development thus became securitized, with far-reaching ramifications that are being felt

today. This was given greater structure when P.W. Botha^{ix} produced a 12-point plan for survival at the Nationalist Party^x Congress in 1979 (Gutteridge, 1985a:93). Central to this total strategy was economic development and the resultant dependencies that would emerge from this. The foundation for this thinking can be traced to the speech made by Prime Minister John Vorster in 1974, in which he spoke of a “power block” of states (Geldenhuys, 1984:39). This was subsequently refined when he spoke of a constellation of politically independent states maintaining close economic ties. When P.W. Botha came to power, he used what he called a Constellation of Southern African States (CONSAS) as the basis of his policy (Geldenhuys, 1984:41). Foreign Minister Pik Botha subsequently announced in 1979 that this vision embraced some 40 million people south of the Cunene and Zambezi Rivers all joining forces to design a common approach to the security, economic and political field. The grandiose water transfer schemes from the Zambezi noted above (Scudder *et al.*, 1993:263; Midgley, 1987:15), should consequently be evaluated in this light, because the water, economic development and state security nexus was a fundamental driver of that process - a fact that is totally ignored in all of the contemporary literature on South African institutional development in the water sector.

At the Lancaster House Conference in late 1979, the foundation was laid for the cessation of hostilities in Rhodesia. Bishop Abel Muzorewa was widely tipped to win the elections, so it came as a great shock to the security elites in Pretoria when Robert Mugabe swept to victory in 1980. Mugabe immediately announced that he had no intention of joining the proposed CONSAS. Instead Zimbabwe, along with Botswana, Lesotho, Swaziland, Mozambique, Angola, Zambia, Malawi and Tanzania, joined forces in the Southern African Development Coordination Conference (SADCC), which was formally launched in Lusaka during 1980. This new grouping was specifically designed to reduce their combined dependence on South Africa (Baynham, 1989:88; Conley & van Niekerk, 1998:145), and was quickly dubbed the ‘counter-constellation’ (Geldenhuys, 1984:41). The establishment of SADCC was thus a direct response to South Africa’s policy of destabilization. The linkage between water and development became manifest at the 4th SADCC consultative conference which was held in Lusaka during 1984. Opening the conference, President Kenneth Kaunda of Zambia said that the effects of water scarcity and drought had resulted in food deficits and poor prospects for agricultural development in Southern Africa (Africa, 1984).

The emergence of this total strategy approach saw South African foreign policy becoming captive to the State Security Council (SSC) (Frankel, 1984:149), which had an all-consuming security focus to it. Seen in this light, every aspect of foreign relations became securitized, including cooperation over water resources. An example of the impact of the so-called total strategy in the water sector can be found in a paper that was written by the Chief Engineer of the Rand Water Board, who used the concept to contextualize the need for the South African economic heartland to gain access to secure supplies of water (James, 1980). Listed in this document are inter-basin transfer (IBT) schemes such as the Lesotho Highlands Water Project (LHWP), the Tugela-Vaal link and the mooted Okavango development. Significantly, gaining access to the Okavango is

referred to in the context of CONSAS (Blanchon, 2001:123), thereby establishing water as a strategic element of this overall policy.

The first active military retaliation was launched in 1981 (Geldenhuis, 1984:140), with a South African Defence Force (SADF) Special Forces raid on guerilla bases at Matola near Maputo in Mozambique (Gutteridge, 1981:14). This was followed in 1982 with retaliatory attacks against guerilla targets in Maseru, Lesotho (Gutteridge, 1983:35). These signaled that South Africa was not prepared to countenance what they perceived as being terrorist or guerilla bases in neighbouring states (Geldenhuis, 1983:47) using rhetoric that resembles the contemporary American-led “War on Terror”. This was manifest in subsequent attacks on targets in Angola, Mozambique, Lesotho, Botswana and Zimbabwe. A Southern African Defence Zone was conceived embracing Namibia, Botswana, Swaziland and Zimbabwe to counter the presence of East German troops in Angola and Mozambique (Gutteridge, 1981:19). This marked an escalation in South African destabilization tactics, involving both military action and economic pressure (Geldenhuis, 1983:43), which simply strengthened SADC resolve to liberate their members from the stranglehold of South African economic power (Geldenhuis, 1983:47). South Africa increasingly became isolated (Geldenhuis, 1990:206) as a pariah state, associating closely with the experiences of Taiwan and Israel (Frankel, 1984:65). Central to this was the deeply held belief by government decision-making elites that these three states were strategic pillars against a global Marxist onslaught that the Free World would not be able to ignore in the long-term (Geldenhuis, 1984:116), so the actions were designed to buy time until that realization was made.

On the “carrot” side of this strategic equation, significant peace inducements were offered. A security agreement between South Africa and Swaziland was reached which was immediately supported by an economic cooperation agreement (Treaty, 1983a). This was followed shortly afterwards when the Nkomati Peace Accords (Treaty, 1984a) were signed by President Samora Machel of Mozambique and Prime Minister P.W. Botha of South Africa, during March 1984 (Gutteridge, 1985a:94). Water was intimately linked to the Nkomati Accord process when an agreement was signed during May in Cape Town between Mozambique, Portugal and South Africa on the revival of the Cabora Bassa Project (Treaty, 1984b). Similar security agreements were mooted between South Africa and Botswana, where economic cooperation and possible access to the Okavango River was discussed; and Lesotho, where access to water was also a feature (Gutteridge, 1985a:100).

The need for such security agreements was underscored by unrest within South Africa that was escalating uncontrollably, with the SADF being committed to internal riot control. The African National Congress (ANC) held a high-level meeting in Kabwe, Zambia during June 1985 at which time a decision was taken to allow attacks on soft targets (Gutteridge, 1985b:129). Special Forces reprisal was launched in Kabwe a few days later. A State of Emergency was announced in 1985, giving security forces wider powers (Gutteridge, 1985b:124). The ANC leadership started to regard the internal

situation as a 'peoples' war' from this moment onwards (Gutteridge, 1985b:130). The situation deteriorated rapidly with a flight of foreign capital threatening a total collapse of the economy, so all foreign currency trading was suspended in South Africa on 27 August 1985 (Gutteridge, 1985b:144). The security problems were grave indeed, with South Africa literally teetering on the very brink of financial collapse.

During 1986 violence erupted in Natal between *comrades* from the ANC and Zulu *impis* from Chief Mangosuthu Buthelezi's Inkatha Freedom Party (IFP) (Gutteridge, 1990:168). This degenerated into a localized low-intensity civil war, which endured until after the election of Nelson Mandela as the first democratic President of South Africa (Percival & Homer-Dixon, 1995:3). In neighbouring Lesotho, Major General Justin Lekhanya overthrew Chief Leabua Jonathan during a military *coup d'état* on 20 January 1986 (Lawrence, 1986). Shortly after this the Treaty on the Lesotho Highlands Water Project was signed on 24 October 1986 between 'Pik' Botha of South Africa and Col. Thaabe Letsie of Lesotho (Treaty, 1986a), fuelling speculation about possible South African involvement (Homer-Dixon, 1994:19). Commentary on this project from that time reflects the socio-economic benefit angle that was central to the total strategy approach (Vorster, 1988:95). It is against this background that the feasibility of transferring water from the Zambezi via Botswana to Pretoria (Scudder *et al.*, 1993:263; Midgley, 1987:15) should be evaluated. The existing transboundary water supply from the Molatedi Dam in South Africa to Gaborone should also be seen in light of this total strategy approach.

An Assessment of Post-Apartheid Institutional Development

Having noted the fundamental driving forces at work in Southern Africa, it now remains to determine how these have impacted on institutional development in the South African water sector. A detailed assessment of the four international river basins to which South Africa is a riparian state has shown that two distinct categories of outcome have emerged as a result of the political dynamics noted above (Turton, 2003a). For ease of assessment these can be called plus-sum (win-win) outcomes and zero-sum (win-lose) outcomes.

If international relations refer to the way that sovereign states interact in an overall system of structural anarchy, then it is encouraging to note that anarchy is what states choose to make of it. Regimes are a recognized way of ordering that anarchy, by reducing uncertainty and institutionalizing relationships between states. In short, a regime is a key element in the desecuritization of issues such as water resource management in transboundary rivers. A regime is defined as a set of implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations (Krasner, 1982:186; 1983:2). Regimes differ from institutions because they lack enforceability, but they are a specific form of institution (Turton, 2003a).

Plus-Sum Outcomes.

Plus-sum outcomes occurred in the Orange and Limpopo River (Pivotal Basins), and in the Incomati and Maputo River (Impacted Basins). In this regard, South Africa as the regional hegemonic power that was driven by a deep-seated sense of insecurity, sought to limit the range of actions left open to various neighbouring states in terms of the Total National Strategy approach of the Apartheid years. The one element of this two-pronged approach was to offer the inducement of economic development as an incentive to the respective co-riparian states not to harbor guerilla forces on their territory. This “carrot” of development took the form of major dam construction along with the necessary support infrastructure such as roads, bridges, hospitals, schools and communication networks. Available evidence suggests that when two specific sets of conditions were met by the non-hegemonic state when they were offered the incentive of economic cooperation by South Africa, then the outcome became plus-sum in configuration. These two conditions were:

- When the co-riparian state viewed the incentive that was offered by South Africa purely in terms of national self-interest. Stated simplistically, this means that the negotiators asked themselves what their country could gain from the deal being offered and acted accordingly.
- When the co-riparian states chose to frame the problem being confronted in non-ideological terms.

This set of conditions was met by Lesotho in the Orange River, which gave rise to a series of agreements. In 1978 a Joint Technical Committee (JTC) was established between South Africa and Lesotho to investigate the feasibility of the Lesotho Highlands Water Project (LHWP). This led to the formal signing of an agreement in 1986 to establish the LHWP, along with various parastatal bodies needed to complete the project, under the overall management of the Joint Permanent Technical Commission (JPTC) (Treaty, 1986a). This was upgraded later to accommodate the closer cooperation between the two countries in the immediate post-Apartheid period (Treaty 1999).

Namibia was a special case because it was administered as a *de facto* province of South Africa during the Apartheid era. Formal regime development between the two countries started with the establishment of a Joint Technical Committee (JTC) just prior to Namibian independence (Treaty, 1987). This was upgraded immediately after Namibian independence but before the first democratic elections in South Africa when the Permanent Water Commission (PWC) was established (Treaty, 1992a). Simultaneously, an agreement was signed establishing the Joint Irrigation Authority (JIA) to implement the Treaty on the Vioolsdrift and Noordoewer Joint Irrigation Scheme (VNJIS) (Treaty, 1992b).

These two separate sets of bilateral arrangements were amalgamated in the post-Apartheid era with the establishment of the Orange-Senqu River Commission

(ORASECOM) (Treaty, 2000). The Orange River Basin is therefore managed jointly by all riparians, including Botswana, which is a really interesting case that deserves special mention. Botswana is a riparian to the Orange River by virtue of the Molopo River, which is endoreic and contributes no streamflow to the main stem of the river. Botswana also uses none of the water from the Orange River. Yet by virtue of its *de facto* riparian status, Botswana has opened up a wider range of strategic choices for itself in future, including the strengthening of bargaining positions in other river basins that are more strategically important to Botswana (Okavango and Limpopo). Significantly, Botswana is using its upstream status in the Limpopo, combined with the known strategic interest that South Africa has in possibly gaining access to the Zambezi River, as a bargaining tool. In short Botswana is offering South Africa the possibility of becoming a joint partner in any future scheme to mobilize Zambezi River water and transfer it to Gaborone in Botswana, or to Bulawayo in Zimbabwe. This strengthens the case for an emerging Hydropolitical Complex in Southern Africa as it is impacting on the international relations between states in a way that was not previously relevant.

This set of conditions was also met by Botswana in the Limpopo River Basin, which gave rise to the establishment of the Joint Permanent Technical Committee (JPTC) in 1983 (Treaty, 1983b). This functioned well from its inception and was consequently upgraded to a Joint Permanent Technical Commission (JPTC) on the Limpopo River Basin as far as it constitutes the borders between the two countries (Treaty, 1989). This is functioning well and has been responsible for the Joint Upper Limpopo Basin Study (JULBS) (JPTC, 1991), which is investigating a range of issues including the construction of three new dams. Bilateral relations were further strengthened in the immediate post-Apartheid period with the establishment of the Joint Permanent Commission for Cooperation (JPCC) (Treaty, 1997). This is a broad inter-governmental agreement aimed at fostering better relations in a variety of fields, and not just water.

Similarly, this set of conditions was met by Swaziland on the Incomati River. During the height of the political instability a basin-wide agreement was attempted between South Africa, Swaziland and Mozambique when the Tripartite Permanent Technical Committee (TPTC) was launched (Treaty, 1983c). When this failed (for reasons to be discussed under the zero-sum outcome heading below) South Africa offered Swaziland a bilateral agreement in the form of a Joint Water Commission (JWC) (Treaty, 1992c). This saw the establishment of the Komati Basin Water Authority (KOBWA) (Treaty, 1992d), which was responsible for the development of the Maguga and Driekoppies Dam complex - a smaller version of the LHWP without the major transboundary water transfer pipelines.

Zero-Sum Outcomes.

Zero-sum outcomes occurred in the Limpopo (Pivotal Basin), and in the Incomati and Maputo River (Impacted Basins). In this regard, South Africa's desire to limit the range of actions left open to various neighbouring states in terms of the Total National Strategy approach of the Apartheid years was frustrated by the non-interest in the agreement being

offered by specific co-riparian states. This zero-sum configuration occurred when two specific conditions were met by co-riparian states:

- When the co-riparian state did not view the incentive that was offered by South Africa purely in terms of national self-interest. Stated simplistically, this means that the negotiators chose to view the offer in terms of factors other than direct material benefits to be gained by their countries if agreement were to be reached and acted accordingly.
- When the co-riparian states chose to frame the problem being confronted in ideological terms, thereby linking the narrowly defined economic benefits to a broader defined ideological struggle between capitalism and communism.

This set of conditions was met by Zimbabwe in the Limpopo River, and by Mozambique in the Limpopo, Incomati and Maputo River basins. The TPTC agreement (Treaty, 1983c) was used to manage the Limpopo, Incomati and Maputo River Basins, but Zimbabwe was left out of the negotiation process because of the high level of hostility that accompanied Zimbabwean independence as noted earlier. Mozambique, on the other hand, chose to support Zimbabwe in the so-called liberation struggle, which was against racism, colonialism and capitalism. The decision to offer this support was thus motivated almost totally by ideology, which clouded the vision of the negotiators and caused them not to view any offer of development as a legitimate offer. A few years' later attempts were made to revive the process in the form of the Limpopo Basin Permanent Technical Committee (LBPTC) involving Botswana, South Africa, Zimbabwe and Mozambique (Treaty 1986b), making this the first basin-wide agreement to be reached in Southern Africa. It failed however, and the bilateral route was followed with Botswana (refer to the Plus-Sum Outcome noted above); with Mozambique in the form of the revived TPTC in 1989; and with no agreements ever reached between South Africa and Zimbabwe.

In both of these cases - Zimbabwe and Mozambique - the co-riparian state was effectively ignored after they failed to buy into the regime being offered, and once that happened bilateral arrangements were made with the other riparian states that were willing to cooperate. The implications of this were severe for both countries, as they have been marginalized in the process, and in the post-Apartheid era at least one of these states (Mozambique) has decided to re-engage itself, but this has been from a position of gross disadvantage. This took the form of the so-called Incomaputo Agreement (Treaty, 2002) that was signed during the World Summit on Sustainable Development (WSSD) in Johannesburg. To date there is no functioning agreement with Zimbabwe, and ironically relations are strained between Zimbabwe and Mozambique - its former ally in the ideological struggle - over a number of shared rivers in which Zimbabwe is acting as a typical upstream riparian with Mozambique being impacted negatively like any typical downstream riparian where no regime is in place to regulate inter-state behavior.

Conclusion

International relations between sovereign states occur in a condition of structured anarchy. One of the manifestations of this is in transboundary river basins. Regimes are useful institutions that serve to regulate inter-state behavior, and consequently provide some structure to that anarchy. In the case of South Africa, the impetus to regime creation was provided by insecurity in the face of a liberation struggle, which gave rise to an official government policy that chose to offer the “carrot” of cooperation in all spheres (with water resource management being one of these spheres) and the “stick” of military action. This resulted in a relatively sophisticated series of water management institutions in transboundary river basins, which has a positive impact in the post-Apartheid era of reconstruction and economic revitalization. This has given rise to the notion of a Hydropolitical Complex as a distinct component of the Southern African Regional Security Complex. These nuances have not been considered by Wolf *et al.*, (2003) when isolating their so-called basins at risk, because they were working off an incomplete dataset, which is encapsulated in UNEP (2002).

Bibliography

- Africa.** 1984. SADCC Moves to Tackle Drought. In *Africa*, No. 153; 74-75.
- Allan, J.A.** 2000. *The Middle East Water Question: Hydropolitics and the Global Economy*. London: IB Tauris.
- Baynham, S.** 1989. SADCC Security Issues, in *Africa Insight*, Vol. 19, No. 2; 88-95.
- Blanchon, D.** 2001. Les nouveaux enjeux géopolitiques de l'eau en Afrique Australe, in *Hérodote Revue de Géographie et de Géopolitique*. Troisième Trimestre. No. 102; 113-137.
- Borchert, G. & Kemp, S.** 1985. A Zambezi Aqueduct. *SCOPE/UNEP Sonderband Heft*. No. 58; 443-457.
- Borchert, G.** 1987. *Zambezi-Aqueduct*. Institute of Geography and Economic Geography, University of Hamburg, Hamburg.
- Buzan, B.** 1991. *People, States and Fear. An Agenda for International Security Studies in the Post-Cold War Era*. London: Harvester Wheatsheaf.
- Buzan, B., Wæver, O. & de Wilde, J.** 1998. *Security: A New Framework for Analysis*. London: Lynne Rienner.
- Buzan, B. & Wæver, O.** (Forthcoming). *Regions and Powers: The Structure of International Security*. London: Oxford University Press.
- Carter, C.A.** 1965. Basutoland as a Source of Water for the Vaal Basin, in *The Civil Engineer in South Africa*. Vol.7, No.10; 217-228.
- Conley, A.H.** 1995. A Synoptic View of Water Resources in Southern Africa. Paper presented at the Conference of Southern Africa Foundation for Economic Research on Integrated Development of Regional Water Resources, Nyanga, Zimbabwe, November 1995.

- Conley, A. & van Niekerk, P.** 1998. Sustainable Management of International Waters: The Orange River Case, in **Savenije, H. & van der Zaag, P.** (Eds.) *The Management of Shared River Basins: Experiences from SADC and EU*. Page 142-159. The Hague: Netherlands Ministry of Foreign Affairs.
- Frankel, P.H.** 1984. *Pretoria's Praetorians: Civil-Military Relations in South Africa*. London: Cambridge University Press.
- Geldenhuis, D.** 1983. The Destabilization Controversy: An Analysis of a High-Risk Foreign Policy Option for South Africa, in *Conflict Studies*, No. 148; 11-26. In **Gutteridge, W.** (Ed.) 1995. *South Africa: From Apartheid to National Unity, 1981-1994*. Page 42-57. Aldershot, Hants & Brookfield, VT: Dartmouth Publishing.
- Geldenhuis, D.** 1984. *The Diplomacy of Isolation: South African Foreign Policy Making*. Johannesburg: Macmillan South Africa.
- Gutteridge, W.** 1981. South Africa: Strategy for Survival? In *Conflict Studies*, No. 131; 1-33. Reprinted in **Gutteridge, W.** (Ed.) 1995. *South Africa: From Apartheid to National Unity, 1981-1994*. Page 1-32. Aldershot, Hants & Brookfield, VT: Dartmouth Publishing.
- Gutteridge, W.** 1983. South Africa's National Strategy: Implications for Regional Security, in *Conflict Studies*, No. 148; 3-9. Reprinted in **Gutteridge, W.** (Ed.) 1995. *South Africa: From Apartheid to National Unity, 1981-1994*. Page 35-41. Aldershot, Hants & Brookfield, VT: Dartmouth Publishing.
- Geldenhuis, D.** 1990. *Isolated States: A Comparative Analysis*. Johannesburg: Jonathan Ball Publishers.
- Gutteridge, W.** 1985(a). South Africa: Evolution or Revolution? In *Conflict Studies*, No. 171; 3-39. Reprinted in **Gutteridge, W.** (Ed.) 1995. *South Africa: From Apartheid to National Unity, 1981-1994*. Page 85-120. Aldershot, Hants & Brookfield, VT: Dartmouth Publishing.
- Gutteridge, W.** 1985(b). The South Africa Crisis: Time for International Action. In *Conflict Studies*, No. 179; 1-23. Reprinted in **Gutteridge, W.** (Ed.) 1995. *South Africa: From Apartheid to National Unity, 1981-1994*. Page 123-144. Aldershot, Hants & Brookfield, VT: Dartmouth Publishing.
- Gutteridge, W.** 1990. South Africa: Apartheid's Endgame, in *Conflict Studies*, No. 228; 1-37. Reprinted in **Gutteridge, W.** (Ed.) 1995. *South Africa: From Apartheid to National Unity, 1981-1994*. Page 147-182. Aldershot, Hants & Brookfield, VT: Dartmouth Publishing.
- Heyns, P.** 2002. Interbasin Transfer of Water Between SADC Countries: A Development Challenge for the Future. In **Turton, A.R. & Henwood, R.** (Eds.) *Hydropolitics in the Developing World: A Southern African Perspective*. Pretoria: African Water Issues Research Unit (AWIRU).
- Homer-Dixon, T.F.** 1994. Environmental Scarcities and Violent Conflict: Evidence from Cases, in *International Security*, Vol. 19, No. 1; 5-40.
- James, L.H.** 1980. Total Water Strategy Needed for the Vaal Triangle: Meeting the Challenge of the Eighties. In *Construction in Southern Africa*, May, 1980; 103-111.

- JPTC.** 1991. *Joint Upper Limpopo Basin Study. Stage 1. Main Report.* Botswana and South Africa: Joint Permanent Technical Committee on Water Affairs.
- Krasner, S.D.** 1982. Structural Causes and Regime Consequences: Regimes as Intervening Variables. In *International Organization*, Vol. 36, No. 2 (Spring); 185-205.
- Krasner, S.D.** 1983. Structural Causes and Regime Consequences: Regimes as Intervening Variables. In **Krasner, S.D.** (Ed.) *International Regimes*. Ithaca: Cornell University Press.
- Lawrence, P.** 1986. Pretoria has its way in Lesotho, in *Africa Report*, March-April 1986; 50-51.
- Midgley, D.C.** 1987. *Inter-State Water Links for the Future.* The South African Academy of Science and Arts Symposium: Water for Survival. August.
- Ninham Shand.** 1956. *Report on the Regional Development of the Water Resources of Basutoland.* Report Commissioned for the Government of Basutoland by the Director of Public Works under Terms of Reference 1290/W30 dated 11 October 1955. Cape Town: Ninham Shand.
- O'Keeffe, J., Uys, M. & Bruton, M.N.** 1992. Freshwater Systems, in **Fuggle, R.F. & Rabie, M.A.** (Eds.) 1992. *Environmental Management in South Africa.* Johannesburg: Juta & Co.
- Percival, V. & Homer-Dixon, T.** 1995. *Environmental Scarcity and Violent Conflict: The Case of South Africa.* Washington: American Association for the Advancement of Science.
- Rabie, M.A. & Day, J.A.** 1992. Rivers, in **Fuggle, R.F. & Rabie, M.A.** (Eds.) 1992. *Environmental Management in South Africa.* Johannesburg: Juta & Co.
- Schulz, M.** 1995. Turkey, Syria and Iraq: A Hydropolitical Security Complex, in **Ohlsson, L.** (Ed.) *Hydropolitics: Conflicts over Water as a Development Constraint.* London: Zed Books.
- Scudder, T., Manley, R.E., Coley, R.W., Davis, R.K., Green, J., Howard, G.W., Lawry, S.W., Martz, P.P., Rogers, P.P., Taylor, A.R.D., Turner, S.D., White, G.F. & Wright, E.P.** 1993. *The IUCN Review of the Southern Okavango Integrated Water Development Project.* Gland: IUCN Communications Division.
- Seckler, D.** 1996. The New Era of Water Resources Management: From "Dry" to "Wet" Water Savings. *IIMI Research Report No. 1.* Colombo, Sri Lanka: International Irrigation Management Institute (IIMI).
- Simon, D.** 1991. Independent Namibia One Year On, in *Conflict Studies*, No. 239; 1-27. Reprinted in **Gutteridge, W.** (Ed.) 1995. *South Africa: From Apartheid to National Unity, 1981-1994.* Page 185-211. Aldershot, Hants & Brookfield, VT: Dartmouth Publishing.
- Spitz, R. & Chaskalson, M.** 2000. *The Politics of Transition: A Hidden History of South Africa's Negotiated Settlement.* Johannesburg: Witwatersrand University Press.

Svendsen, M., Hammond Murray-Rust, D., Harmancioglu, N. & Alpaslan, N. 2001. Governing Closing Basins: The Case of the Gediz River in Turkey. In **Abernethy, C.L.** (Ed.) 2001. *Intersectoral Management of River Basins*. Colombo: International Water Management Institute (IWMI).

Treaty. 1926. Agreement Between South Africa and Portugal Regulating the Use of the Kunene [sic] River for the Purposes of Generating Hydraulic Power and of Inundation and Irrigation of the Mandated Territory of South-West Africa. In *League of Nations Treaty Series*, Vol. LXX, No. 1643; 315.

Treaty. 1964. Agreement Between the Government of the Republic of South Africa and the Government of Portugal in Regard to Rivers of Mutual Interest and the Cunene River Scheme. In *Republic of South Africa Treaty Series*. Pretoria: Government Printer.

Treaty. 1969(a). Agreement Between the Governments of the Republic of South Africa and Portugal Relative to the Cabora Bassa Project. In *South Africa Treaty Series*, Vol. 7; 1969.

Treaty. 1969(b). Agreement Between the Republic of South Africa and the Government of Portugal in Regard to the First Phase Development of the Water Resources of the Kunene [sic] River Basin. In *South Africa Treaty Series*, Vol. 1; 1969.

Treaty. 1983(a). Agreement Between the Government of the Republic of South Africa and the Government of the Kingdom of Swaziland with Regard to Financial and Technical Assistance for the Construction of a Railway Link in the Kingdom of Swaziland.

Treaty. 1983(b). Agreement Between the Government of the Republic of South Africa and the Government of Botswana with Regard to the Establishment of a Joint Permanent Technical Committee.

Treaty. 1983(c). Agreement Between the Government of the Kingdom of Swaziland, the Government of the People's Republic of Mozambique and the Government of the Republic of South Africa Relative to the Establishment of a Tripartite Permanent Technical Committee. Signed at Pretoria on 17 February 1983. In *South Africa Treaty Series*, No. 12; 1986.

Treaty. 1984(a). Agreement of non-Aggression and Good Neighbourliness Between the Government of the Republic of South Africa and the Government of the People's Republic of Mozambique. In *South Africa Treaty Series*, Vol. 14; 1986.

Treaty. 1984(b). Agreement Between the Governments of the Republic of South Africa, the People's Republic of Mozambique and the Republic of Portugal Relating to the Cahora [sic] Bassa Project. In *South Africa Treaty Series*, Vol. 15; 1986.

Treaty. 1986(a). Treaty on the Lesotho Highlands Water Project between the Government of the Republic of South Africa and the Government of the Kingdom of Lesotho. 85 pp.

Treaty. 1986(b). Agreement Between the Government of the Republic of Botswana, the Government of the People's Republic of Mozambique, the Government of the Republic of South Africa and the Government of the Republic of Zimbabwe Relative to the Establishment of the Limpopo Basin Permanent Technical Committee. 4pp.

Treaty. 1987. Cooperation Agreement Between the Government of the Republic of South Africa and the Transitional Government of National Unity of South-West Africa / Namibia Regarding the Control, Development and Utilization of the Water from the Orange River. Signatory Document, signed by Representatives of Two Governments. Windhoek, 13 November 1987. 5 Pp.

Treaty. 1989. Agreement Between the Government of the Republic of South Africa and the Government of Botswana with Regard to the Establishment of a Joint Permanent Technical Commission.

Treaty. 1992(a). Agreement Between the Government of the Republic of South Africa and the Government of the Republic of Namibia on the Establishment of a Permanent Water Commission. Signatory Document, signed by Representatives of the Two Governments. Noordoewer, 14 September 1992. 9 Pp.

Treaty. 1992(b). Agreement on the Vioolsdrift and Noordoewer Joint Irrigation Scheme Between the Government of the Republic of South Africa and the Government of the Republic of Namibia. Signatory Document, signed by Representatives of the Two Governments. Noordoewer, 14 September 1992. 33 Pp.

Treaty. 1992(c). Treaty on the Establishment and Functioning of the Joint Water Commission between the Government of the Kingdom of Swaziland and the Government of the Republic of South Africa. Signatory Document, signed by Representatives of Two Governments. Mbabane, 13 March 1992. 17 Pp.

Treaty. 1992(d). Treaty on the Development and Utilization of the Water Resources of the Komati River Basin between the Government of the Republic of South Africa and the Government of the Kingdom of Swaziland. Signatory Document, signed by Representatives of Two Governments. Mbabane, 13 March 1992. 51 Pp.

Treaty. 1997. Agreement Between the Government of the Republic of South Africa and the Government of the Republic of Botswana for the Establishment of a Joint Permanent Commission for Cooperation. 4 Pp.

Treaty. 1999. Protocol VI to the Treaty on the Lesotho Highlands Water Project. Supplementary Arrangements Regarding the System of Governance for the Project. Signatory Document, signed by Representatives of the Two Governments. Pretoria, 4 June 1999. 25 Pp.

Treaty. 2000. Agreement Between the Governments of the Republic of Botswana, the Kingdom of Lesotho, the Republic of Namibia, and the Republic of South Africa on the Establishment of the Orange-Senqu River Commission. Signatory Document, signed by Representatives of the Four Governments. Windhoek, 3 November 2000. 11 Pp.

Treaty. 2002. Tripartite Interim Agreement Between the Republic of Mozambique and the Republic of South Africa and the Kingdom of Swaziland for Cooperation on the Protection and Sustainable Utilization of the Water Resources of the Incomati and Maputo Watercourses. Signatory Document, signed by Representatives of the Three Governments. Johannesburg, 29 August 2002. 48 Pp.

Turton, A.R. 2003(a). The Political Aspects of Institutional Developments in the Water Sector: South Africa and its International River Basins. Unpublished draft of a D.Phil. Thesis. Department of Political Science. Pretoria: University of Pretoria.

Turton, A.R. 2003(b). Environmental Security: A Southern African Perspective on Transboundary Water Resource Management. In *Environmental Change and Security Project Report*. The Woodrow Wilson Centre. Issue 9 (Summer 2003). Washington, DC: Woodrow Wilson International Center for Scholars.

Turton, A.R. 2003(c). The Evolution of Water Management Institutions in Select Southern African International River Basins. In **Tortajada, C., Unver, O. & Biswas, A.K.** (Eds.) *Water and Regional Development*. London: Oxford University Press.

UNEP. 2002. *Atlas of International Freshwater Agreements*. Nairobi: United Nations Environment Program; and Corvallis: Oregon State University.

Vorster, M.P. 1988. The Lesotho Highlands Water Project, in *South African Yearbook of International Law*, Vol. 13; 95-118.

WCD, 2000. *Dams and Development: A New Framework for Decision-Making*. London: Earthscan.

Williams, G.J. 1986. Zambezi Water for South Africa? In *Zambia Geographical Journal*. No.36; 57-60.

Wolf, A.T., Yoffe, S.B. & Giordano, M. 2003. International Waters: Identifying Basins at Risk, in *Water Policy*, Vol. 5, No. 1; 29-60.

Young, B.S. 1961. Projected Hydro-Electric Schemes in Basutoland, in *Journal of Geography*. Vol. 60, No. 5;225-230.

ⁱ Military power is an important indicator in this regard, because economic development can translate into the capacity to project power outside of the borders of the country. All four pivotal states have this capacity, and have demonstrated their willingness to use it. The Republic of South Africa and Botswana became involved militarily during the SADC sponsored Operation Boleas in Lesotho, which started on 22 September 1998 and ended over a month later. Both Zimbabwe and Namibia have troops deployed in the Democratic Republic of Congo (DRC) at the time of writing.

ⁱⁱ Kariba Dam was seen to be the strategic powerhouse of the Rhodesian economy. In keeping with the blatantly racist policies of the time, the hydroelectric turbines were placed on the Rhodesian side of the Zambezi River, effectively making Northern Rhodesia (what later became Zambia) totally dependent on the goodwill of the white minority government in what was then known as Southern Rhodesia (subsequently Zimbabwe).

ⁱⁱⁱ This became Malawi at independence on 6 July 1964.

^{iv} This became Zimbabwe on 18 April 1980, after a protracted struggle against the white minority government of Ian Smith, who declared independence from Britain unilaterally in the 1960's and subsequently repressed any form of black political expression in what became known as the "bush war".

^v This became Zambia on 24 October 1964, and promptly became home for the liberation movements fighting white minority rule in Rhodesia and South Africa.

^{vi} This became Botswana on 30 September 1966.

^{vii} This became Lesotho on 4 October 1966.

^{viii} The imprisonment of Nelson Mandela and others occurred as a direct result of this event.

^{ix} P.W. Botha became the first Executive President of South Africa in 1984 after the constitution was changed to allow for the concentration of all political power in this one position.

^x The Nationalist Party was the ruling political party from 1948 until 1994 when the first democratic elections saw Nelson Mandela become the first Black President of South Africa.

Gutteridge W (1990) South Africa: Apartheid's endgame. Conflict Studies No 228: 1-37. In Gutteridge W (ed) (1995) South Africa: From Apartheid to National Unity, 1981-1994. pp 147-182. Aldershot, Hants & Brookfield, VT: Dartmouth Publishing. Google Scholar.

Turton AR (2003a) The political aspects of institutional developments in the water sector: South Africa and its international river basins. Unpublished draft of a D.Phil. Thesis, Department of Political Sciences, University of Pretoria, Pretoria, p 353 Google Scholar.

Turton A.R., Earle A. (2005) Institutions in South African International River Basins. In: Gopalakrishnan C., Biswas A.K., Tortajada C. (eds) Water Institutions: Policies, Performance and Prospects. Water Resources Development and Management.

Tshabalala's birth at the dawn of post-apartheid South Africa places her squarely on the front lines of what legendary South African cleric and theologian Desmond Tutu named the "Rainbow Generation." They are the first cohort of modern black, biracial and other ethnic groups who would not live under the legal and political system crafted by South Africa's white minority—largely descendants of late 17th century Dutch colonialists known as Afrikaners—which sanctioned racial segregation and economic discrimination against non-whites. How ironic, then, that a 34-year-old Dutch woman raised on a homestead who started apartheid in South Africa? Racial segregation and white supremacy had become central aspects of South African policy long before apartheid began. The controversial 1913 Land Act, passed three years after South Africa gained its independence, marked the beginning of territorial segregation by forcing black Africans to live in reserves and making it illegal for them to work as sharecroppers. Under pressure from the international community, the National Party government of Pieter Botha sought to institute some reforms, including abolition of the pass laws and the ban on interracial sex and marriage. The reforms fell short of any substantive change, however, and by 1989 Botha was pressured to step aside in favor of F.W. de Klerk.