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Hydropolitical Hotspots in Southern Africa: Will there be a Water War? The Case of the Kunene River

Richard Meissner

'Whiskey is for drinking but water is for fighting over.'
Mark Twain

Introduction

During the 1980s and 1990s, much was written and said about the impending water wars which are expected in semi-arid and arid regions across the globe during the twenty-first century. The hype about this type of conflict has been instilled in the minds of hydropolisists, and has been made popular by Boutros Boutros-Ghali's statement that: 'The next war in the Middle East will not be over politics but over water'. This led to an escalation of research projects regarding conflict over water resources in the Middle East. Thomas Naff and Ruth Matson (1984), and John Cooley (1984) did the first pioneering studies on the subject of water as a source of conflict and cooperation. Cooley (1984), a news correspondent by profession, looked specifically at the connection between water and conflict. Subsequent studies and articles

followed. These studies focused explicitly on the Middle East as a semi-arid and arid region, and one of political importance to the international community.

The Middle East was not the only region being scrutinised by academics and water resource planners as a future water war hotspot. Southern Africa also came under the magnifying glass as a region where potential water wars could be a reality in the not so distant future. At a 1998 Johannesburg conference on southern Africa in the next millennium, Aziz Pahad, the South African Deputy Minister of Foreign Affairs, identified water security in southern Africa as one of the main issues and concerns in the region (Pahad 1998:42). Pahad (1998:43) warned of water scarcities, and the likelihood of conflict as a result of it. The phrase 'water war' is on everybody's lips, it seems. However, what is meant by a water war? Is it a violent conflict over scarce water resources, or is it a situation where water is used as a weapon of war? Two variables are at work here: water as a direct cause of conflict, and water being used as a weapon during a conflict. This ambiguity has the potential to cause confusion, and the term 'water war' should be clearly defined if we want to adequately address the issue of water wars in southern Africa. A water war is a violent conflict which is directly caused by the incompatible sharing and/or allocation of water resources between states or non-state entities, at both the national and international level.

This paper will look at the likelihood of water wars occurring in southern Africa by analysing the hydropolitics of the Kunene River. The river is shared by Namibia and Angola, and our analysis will fall within the context of international relations between these two countries. If one wants to test the hypothesis of a water war between states in a semi-arid region, one should study the interaction of these actors with regard to shared water resources. The paper will also present some solutions, should a water conflict arise in the basin. This paper consists of three parts. The first section deals with political interaction between actors in an international river basin. In the second part, the physical characteristics of the Kunene River will be outlined. The final part looks at the dynamics of water politics in the Kunene River basin. Water or hydropolitics is defined as the systematic examination of the interaction between states, non-state actors and individuals – within the national and international domain – with regard to the authoritative allocation and/or use of international and national water resources such as rivers, aquifers, lakes, glaciers and wetlands.

International political interaction

In international politics, three patterns of interaction can be identified between actors. Firstly, politics may be characterised by competitive interactions. In such a situation, the achievement of goals by one actor is incompatible with the attainment of goals by other actors. The action that can arise from this may vary from a breakdown in communication to outright military confrontation. Secondly, politics may be a reflection of cooperative contact, in which goal achievement is facilitated or promoted by the complementary actions of different political actors. This is usually reflected in collaboratory agreements between states and non-state entities. Finally, and most realistically, politics may follow a mix of both cooperative and competitive interactions, in which actors pursue multiple goals, some of which are incompatible and thus give rise to contention, while others are compatible and are sought through complementary endeavours (Puchala 1971:5). In a similar vein, Soroos (1986:6) contends that 'world politics is a rich and perplexing mixture of trends and counter-trends'. What this means is that, for any given period of time, conflict and military confrontation can occur alongside cooperation and accommodation (Soroos 1986:6). This is true not only for world politics, but also for the interaction between states in a river basin. The three patterns of interaction that occur within a riparian context – with the third model being the most important – will always be discernible within the dynamics of any river basin.

By analysing the dynamics of the hydropolitical game in a river basin, one is able to measure, over a period of time, the nature and degree of conflict and cooperation within a riparian context. The nature and degree of conflict and cooperation over water varies constantly and is not the same at any given point in time. The sharing of the Orange River by South Africa and Lesotho, for example, caused a great deal of conflict before 1986. The degree of cooperation today is greater than before and may increase further in the immediate future (Meissner 1999). However, there is a flip side to the coin. The overall international relations between states sharing the waters of a river basin, often offer an indication of the nature and degree of interaction within the riparian context itself. If state A does not maintain a very good relationship with state B, then it generally follows that their relationship will be found wanting when it comes to the sharing of water resources. Therefore, it follows that in analysing the hydropolitics of a given river – in this case the Kunene River – one should also look at the nature of the relationship between

bordering states with regard to shared water resources.

As noted above, there are three types of interaction between states in the international political arena. There are also three schools of thought on the issue of water wars: there are those who say that water will one day lead to violent conflict; there are those who say that water will, only on occasion, lead to conflict between states; and there are those who say that water could lead to greater cooperation within and between states. Those who argue that a water war will, in all likelihood occur in semi-arid and arid regions, base their statements on the assumption that water scarcities, the improvement of living standards coupled with population growth, and global climatic changes will contribute to tensions and violent conflict between states (Gleick 1995:84). This is the main realist argument by observers writing on the subject of water wars. However, this is not universally accepted. It is easy to exaggerate the importance of natural resources as an object of conflict. A dispute over natural resources seems so frequent, that it can become tempting to regard the competitive demand for water as the single most important cause of conflict and war. This seems to be the case with water resources throughout the world. A dispute or military conflict which involves resources is not necessarily a struggle over resources (Brock 1991:409-410). Water resource depletion is seldom, if ever, the only cause of major conflict within or among states (Holst 1989:125). Interstate conflicts can be caused by a great variety of factors, including ethnic antagonism, ideology, border disputes, expansionist aspirations by states, religion and so on. Therefore, water can be part of the conflict, but not the overriding motive for starting a war. Further, there exists the possibility of cooperation over water as a means to strengthen the overall international relations between nations sharing this resource (Brock 1991:413) Gleick is in concert with this when he says that not all water disputes will lead to war, 'indeed most lead to negotiations, discussions, and non-violent solutions'. Analysing the water politics of the Kunene River will show that water has never led to violent conflict, and the likelihood that it will, will never occur. An analysis of the hydropolitics will shed some light on the kind of interaction that has historically occurred in the Kunene basin, and which continues to takes place.

Before tackling the dynamics of hydropolitics in the Kunene River basin, however, it is important that we first look at the physical characteristics of the river basin, as well as the countries sharing it. This is important because many intervening variables – like the geographic, climatological and hydrological characteristics of a riparian system and river basin – can

themselves have an influence on water resource scarcity, producing either an acute conflict or a cooperative relationship (Elhance 1999:6). The physical characteristics of a river basin and the countries sharing it, also explain the relationship between *Homo sapiens* and the way they utilise their environment. Every political community occupies a geographical area which has a unique combination of location, size, shape, climate and natural resources. These variables influence the behaviour of states. Human activity is affected by the uneven distribution of human and non-human resources in the system (Dougherty & Pfalzgraff 1990:67). Consequently, it is necessary to briefly study the physical characteristics of the Kunene River basin to see why the actors in the basin behave in a certain way.

Physical characteristics of the Kunene River Basin

The Kunene River rises in the central highlands of Angola near Nova Lisboa, where the annual rainfall is in the region of 1,500 millimetres (mm). The river is 1,050 km long and has a catchment area of 110,000 km^2 with an annual discharge of about 15 km^3/yr. The last 340 km of the Kunene make up the border between Namibia and Angola. The area where the Kunene has its source is very mountainous. After it crosses the border between Angola and Namibia the flow accelerates, and for 30 km it runs through ravines, and over rapids and waterfalls. It is estimated, from an engineering perspective, that the Kunene River has a surplus of water (Conley 1995:7). These physical characteristics give rise to the Kunene River's hydroelectric potential (Best & de Blij 1977:327).

Namibia, the downstream riparian in the Kunene River basin, is the driest country in Africa, south of the Sahara. The mean annual rainfall is approximately 284 mm (Devereux & Naeraa 1996:427-428) and the total surface water reserve is about 4,1 billion cubic metres per year (bcm/y). Of the total rainfall, 83% (between 2,600 mm and 3,700 mm) evaporates immediately after it had fallen, while the other 17% gets carried away as surface run-off. Of this remaining 17%, only 1% percolates into the ground to replenish groundwater and 14% is lost to evapotranspiration. Only 2% remains to be stored (Internet: Food and Agriculture Organisation 1997b). The only perennial rivers are also international rivers, on which Namibia is very dependent.

On the other hand, Angola, with its mostly tropical climate, has a more

stable rainfall pattern than Namibia. Rainfall decreases from north to south, and also as one moves further away from the coastal areas. Angola is therefore more water-rich than Namibia. The total water source is about 158 bcm/y. However, Angola is only using 0.3% (50 m^3 per capita per year) of its available water resources. It is the lowest abstraction rate in the SADC region (Du Toit & Jacobs 1995:30-31). The country's 26-year-long civil war is solely to blame for this. Having expended all of its resources on the civil war, the government does not have the financial capabilities to develop the country's water sector. Also, much of the water infrastructure has been damaged during the conflict and repairs cannot be made. This is the milieu which forms the background to the hydropolitical game in the Kunene River basin.

The dynamics of water politics in the Kunene River Basin

Owing to the fact that Namibia is not very richly endowed with water resources, the states that had control over Namibia in the past – as well as the present legitimate government – came up with a number of coping strategies which followed adaptive behaviour. Adaptive behaviour is defined as a manifest response to water scarcity and can take any one of a number of forms, perhaps the best example being the undertaking of large water projects to alleviate water scarcity. A coping strategy can be defined as the output of the decision-making elite, usually in the form of some coherent policy or set of strategies such as water demand management, which seeks to manage the water scarcity in some form or another (Turton & Ohlsson 1999:3). Adaptive behaviour and coping strategies were part of the dynamics of water politics in the Kunene River during the previous century and continue to remain a part of the scenario, usually taking the form of large-scale water projects to step up the supply of water and electricity in different areas of Namibia. For instance, at around the turn of the nineteenth century, the German colonists, Brincker and Gessert, first suggested damming the Kunene River to supply water to *Deutsch SüdwestAfrika*. Later, when South Africa held sway over Namibia, the development of the Kunene River was undertaken in order to facilitate the overall development of Namibia (Christie 1976:31). Dirk Mudge, South African MEC and acting administrator of Namibia in 1976, held the following view regarding the development of the Kunene River and what it meant for Namibia: 'The Kunene scheme is very important, for one just cannot develop these territories without water and electricity. ... We need a strong economy to provide jobs in the southern sector for people from the native homelands. One cannot have a strong economy without infrastructure' (Christie 1976:40, personal interview with D. Mudge).

Owing to the fact that the Kunene River is an international river, it was necessary for the previous entities which controlled Namibia and Angola – as well as for those who do so at present – to come up with some agreement regarding the sharing of the river's water. International agreements and cooperation regarding the waters of the Kunene River formed part of the coping strategies envisaged by Namibia and Angola. However, it was not always plain sailing to develop the Kunene River, because international political factors had (and still have) a profound impact on these projected plans.

From cooperation to conflict: 1926-1988

Cooperation regarding the joint management of the Kunene River can be traced as far back as 1926, when the Union of South Africa and the Republic of Portugal signed an agreement to regulate the use of the Kunene River waters for the purposes of generating power, inundation and irrigation in the mandated territory of South West Africa (SWA) (Agreement 1990a; Christie 1976:31). Ernest Oppenheimer envisaged that one of his companies would build a dam on the Kunene River to supply the mining industry in SWA/Namibia. At that time, Jan Smuts tried to redraw the Angolan border to include the dam site at Calueque witin the territory of South Africa, but he did not success. No substantial infrastructural developments were undertaken after the 1926 agreement. However, the Kunene Water Commission undertook a survey in 1927 to investigate the possibility of damming the Kunene and diverting its water into Owamboland (Wellington 1938:26). The reason why no development took place at that time, was that SWA and Angola were in no great need of water. The ground was, however, prepared for future cooperation.

In 1962, the South Africa government established the Odendaal Commission to investigate a report concerning the socio-economic potential of SWA and the measures to be taken to stimulate the rate of development in that country. The final report of the commission was published in 1964. One of the commission's conclusions was that the waters of the Kunene River should be utilised for the generation of electric power. This kind of development could provide a substantial economic contribution to the accelerated

development of SWA. A utility, the SWA Water and Electric Corporation (SWAWEK), was set up to develop the power and water potential of the Kunene River (Olivier 1977:125).

In the same year, a second agreement was reached between South Africa and Portugal regarding rivers of mutual interest to both Angola and SWA — the agreement included the involvement of the Kunene River scheme. In 1969, a third agreement was reached between South Africa and Portugal regarding the construction of supply-side management projects on the Kunene River. This development included the following: a dam at Gové in Angola to regulate the flow of the Kunene River; a dam at Calueque (upstream from the Ruacana Falls), for further regulation of the river in conjunction with the requirements of the power station to be built at Ruacana; a hydro-electric power station at Ruacana, with a capacity to generate 240 MW of electricity; and a pumping station at Calueque for irrigation purposes in Owamboland. A fourth dam, at Matala in Angola, was built outside the agreement with the view to generating 40 MW of electricity. In other words, four dams are at present in existence on the Kunene River (Conley 1995:14). A Permanent Joint Technical Commission (PJTC), which is still functioning today, was established within the agreement to oversee the implementation of the different projects along the river (Olivier 1977:128; Best & de Blij 1977:380).

After the infrastructural projects neared completion, it was realised that the Kunene River had further untapped hydro-electric potential because of several cataracts and waterfalls along its course. After the completion of the Gové and Calueque Dams, the Kunene River was more easily regulated, and it was therefore technically viable to continue with the development of the power potential of the river downstream from the Ruacana hydro-power plant. In the late 1970s, SWAWEK estimated the future potential of the river to be 1,560 MW of electricity, which could be generated at eight sites along the river (Olivier 1977:128). This forms the backdrop to current developmental plans for another hydro-electric power station at the site of the Epupa waterfall.

Immediately after Angola gained independence on 11 November 1975, a civil war broke out with the participation of both internal and external forces. The war is still raging today (McGowan 1999:233) between the government of Angola and UNITA (the National Union for the Total Independence of Angola). This has had a profound impact on the dynamics of water politics in the Kunene River. Not only was the fighting concentrated in the southern part of Angola, and in particular in Angola's Cunene province, but the Ruacana hydro-power complex was also seen as an important strategic asset by the warring parties. This was highlighted in 1975, when the civil war was still in its early stages.

South Africa, under Prime Minister John Vorster, was very reluctant at first to become involved in the Angolan[1] civil war. The reason for this, was that South Africa did not want to offend Portugal and international opinion by interfering directly in what was still a Portuguese affair (Barber & Barratt 1990:191). However, after Cuba became engaged in the war on the side of the Angolan government, South Africa got very alarmed. According to Barber & Barratt (1990:189), the Cuban factor had a critical impact on South Africa's decision to get involved in Angola. Throughout the conflict, the Cuban issue was central to South Africa's policy on both Angola and Namibia. South Africa's first intervention in the Angolan conflict was in August 1975, when the South African Army went into Angola to protect the joint Kunene River project at Calueque. Clashes between the MPLA (Popular Movement for the Liberation of Angola) and UNITA, and harassment of workers at the dam site by the MPLA and UNITA, drew South African troops into Angola to occupy and defend the dam[2] (Barber & Barratt 1990:191; Christie 1976:31). The harassment of workers led to a halt of work on the Calueque Dam and gave rise to the possibility that water to Owamboland would be cut (Steenkamp 1990:37). The action by the South African Army at that time, highlights the strategic importance of the Ruacana-Calueque scheme for SWA/Namibia, as well as South Africa's hold on the territory. It should be made clear that South Africa intervened in the Angolan conflict not only in order to take possession of Calueque and to defend the water resources of SWA/Namibia. The reasons that South Africa initially intervened in Angola had to do with South Africa's own security concerns. Three aspects had an impact on this concern: Soviet and Cuban involvement, the threat to Namibia, and the threat also to the Kunene River project. The underlying motive, according to Barber and Barratt (1990:194), was to ensure a non-hostile, cooperative Angola, without Soviet influence, which would not threaten Pretoria's dominance in southern Africa, particularly in Namibia. The August 1975 Calueque incident was possibly the catalyst for South Africa's involvement in Angola, because it gave South Africa a foothold in that country. However, it certainly was not a water war. Other countries also became involved in the Angolan conflict at that time: the Soviet Union, Cuba, the United States, Zambia and Zaire. The Angolan conflict was therefore a classic example of a Cold War proxy military

conflict, fought along the ideological lines of the East-West divide, with the Kunene playing a small role. In addition, a number of African leaders – who also feared communist expansion – supported and appealed to South Africa to get involved in Angola. They included Kenneth Kaunda, Mobutu Sese-Seko, Houphouet-Boigny, Julius Nyerere and Leopold Senghor (Barber & Barratt 1990:188, 191-192). No action took place at the Calueque Dam for the remainder of the war, except in 1988. However, it was always a source of friction (Steenkamp 1990:42). Be that as it may, the outbreak of war in Angola had a very negative effect on the cooperative endeavours between South Africa and Angola with regard to the Kunene River project.

By 1979, SWA/Namibia considered extending its electricity supply-lines to South Africa. The reason for this, was that the Ruacana hydro-electricity scheme was not running at full capacity because of the war raging in Angola. The direct cause was that the South African and Angolan governments could not agree on the operation of the project, and work on the project was suspended. Angola refused to close the sluice gates of the Ruacana Dam and also refused to complete the work on the Calueque Dam. As a result, the powerplant at Ruacana could only run at 120-160MW capacity (*Financial Mail* 24 August 1979:739). The power grid between South Africa and Namibia was completed in the early 1980s, after Ruacana proved incapable of producing electricity at full capacity (*The Cape Times* 22 February 1980:1). This showed how dependent SWA/Namibia was on South Africa for electricity, as well as the importance of the Kunene River project to the country at that time. As the 1980s proceeded, it was still not possible to tap the full potential of Ruacana and Calueque because of the antagonistic relationship between South Africa and Angola. The same thing happened with the Cabora Bassa hydro-electric scheme in Mozambique after the civil war broke out there (*Business Day* 23 March 1987:6). It is obvious that the Angolan government used the Ruacana and Calueque Dams as a lever to strengthen their position in the war against South Africa. Not completing the project meant that water to Owamboland, and electricity to the rest of SWA/Namibia, could not be delivered. This made South African operations in the war slightly difficult. However, because South Africa extended its power grid northwards into SWA/Namibia, it had a balancing effect on Angola's leverage.

The strategic importance of the Ruacana-Calueque scheme was again emphasised in June 1988, when Cuban and Angolan forces launched an attack on the Calueque Dam, first by land and then by air. During the attack considerable damage was inflicted on the dam wall and the power supply to the dam was cut. The water pipeline to Owamboland was also destroyed. This was at a time when Owamboland was suffering a severe drought, and negotiations between South Africa, Cuba and Angola were held at different venues in London, Brazzaville, Cairo, Geneva and New York (*Die Burger* 29 June 1988:1; Barber & Barratt 1990:342), in an attempt to end the conflict.

During the Brazzaville Round of talks, South Africa held negotiations with the Angolan delegation regarding the status of the Kunene River scheme. South Africa pointed out the importance of the project to drought-stricken Owamboland. The Angolan side reacted positively to this notion, and undertook not to cut water and power to Owamboland (*Die Burger* 29 June 1988:1). However, the attack took place after Angola's assurance that the water and power would not be cut. The explanation for this could be the Cuban factor. The Cubans probably wanted to inflict as much damage as possible to the South African forces and convinced Angola to jointly attack the Ruacana-Calueque scheme. At the time a military expert, Mr. Helmoed-Rohmer Heitman, declared that the objective of the attack on the dam was to put it totally out of commission. Heitman added that 'what is happening is that the Cubans have added to the bill [of South Africa] for defending Namibia. Perhaps they think if they keep on adding to it, the cost will become so great that South Africa will pull out' (*The Star* 30 June 1988:5). The assurance from Angola not to disrupt the scheme, indicated that as talks to end hostilities progressed, so did steps to cooperate regarding the development of the Kunene River. It also showed the importance of the Ruacana-Calueque scheme, not only to Namibia, but also to Angola. Bilateral cooperation in the Kunene River could start anew, following the withdrawal of South African and Cuban forces from Angola. However, the spectre of Angola's continuing civil war, and the external involvement of outside parties, added a new dimension to water resource cooperation in the Kunene River basin during the 1990s.

Outbreak of peace and renewed cooperation: 1989-2000

Following the implementation of the United Nations Resolution 435 and the election of the Namibian constituent assembly seven months later (Barber & Barratt 1990:344), peace finally broke out in Namibia and Angola in April 1989. The two countries were quickly out of the starting blocks to rejuvenate the Ruacana hydro-electric scheme. In May 1989, delegations from Angola and Namibia met in Windhoek to reactivate the 1969 agreement between

South Africa and Portugal. The purpose of the meeting was to discuss the setting up of a Joint Technical Committee (JTC) and to formulate plans to repair the Gové Dam, which was damaged during the war (*Business Day* 23 May 1989:3). In June 1989, a second meeting in Luanda set out to discuss the damage to the Gové Dam. Foreign assistance for the repair of the structure was also discussed, as it was difficult for Angola to raise the money internally because of the war (*Die Burger* 24 May 1989:15; *Die Republikein* 13 June 1989:3). In July 1989, the Administrator General of SWA/Namibia approved the Namibian component of the JTC. The JTC met for a third time that same month to start planning the reactivation of Ruacana (*The Windhoek Advertiser* 12 July 1989:3).

After Namibia gained independence in 1990, the stage was set for greater cooperation between the two bordering countries with regard to the Kunene River. The two governments could start with the socio-economic reconstruction of Angola and Namibia as they saw fit. The government of Namibia realised that the country needed electricity to power its numerous mining operations and deliver employment to its people. Consequently, a number of coping strategies were considered in order to achieve this. However, these coping strategies also required written agreements with Namibia's neighbours.

On 18 September 1990, Namibia signed two separate agreements with Angola concerning cooperation over the Kunene River, as well as cooperation in general between the two countries. One of the agreements concerned reactivating the three previous agreements between South Africa and Portugal in 1926, 1964 and 1969 respectively. This agreement had a number of purposes:

- To conclude the uncompleted Ruacana-Calueque water scheme.
- To establish a Joint Operating Authority, which would be tasked with ensuring maximum beneficial regulation at Gové for optimum power generation at Ruacana. The authority would also control the withdrawal of water along the middle reaches of the Kunene, and ensure the continuous operation and adequate maintenance of the water pumping works at Calueque, as well as the diversion weir at Ruacana.
- To allow the Permanent Joint Technical Commission, established in the 1969 agreement, to evaluate the development of further schemes on the Kunene in order to accommodate the present and future needs for electricity in both countries (Agreement 1990a:1-2).

The other agreement between Namibia and Angola created the Angolan-Namibian Joint Commission of Cooperation (Agreement 1990b). The commission was to deal with joint cooperative endeavours regarding a number of issues, one of which was water. This commission was in response to the friendly relations that existed between Angola and the South West African People's Organisation (SWAPO) in the years prior to Namibia's independence (Agreement 1990b:2). Consequently, five written agreements on shared water resources exist between Namibia and Angola, one of which relates to general cooperation between the two countries. These agreements bode well for peaceful interaction in the water sphere.

These two agreements demonstrate not only the importance of international rivers to Namibia's socio-economic well-being, but also to the relationship between the two countries. The linkage between these two agreements also highlights the fact that the overall relationship between countries sharing a river, can be a decisive factor in determining the kind of interaction one can expect between them when it comes to sharing the river's resources. In this case, Namibia and Angola's friendly relationship meant that cooperation in the field of water resources would follow as a matter of course.

With these agreements in place, Namibia and Angola could start with coping strategies in the water resource sector, in order to develop their socio-economic outlook. However, the water politics in the Kunene River basin took a dramatic turn in the early part of the 1990s. Firstly, the internal conflict in Angola took a turn for the worse after the breakdown of the Lusaka Accord, which was signed between the belligerent parties. Secondly, a new kind of actor arrived on the scene that elevated the dynamics of water politics to a new level.

Continuing conflict in Angola and new kids on the block

This section looks at the effect of the continuing conflict in Angola in the 1990s, as well as the involvement of non-state entities in future projects on the Kunene River. The only water project Namibia and Angola are pursuing at present is the Epupa hydro-electric scheme at the Epupa Waterfall. The two aspects identified in this portion of the paper – the war in Angola and involvement of non-state actors – have had a distinctive impact on the water politics of the Kunene River. These factors continue to influence the decisions of the two governments regarding the Epupa scheme, and they also (and this

is especially true of the non-state entities) cast the interaction of the Kunene hydropolitical game in a different light.

Angola's ongoing civil war

After the end of the Cold War, the conflict in Angola seemed to be on the wane and the Bicesse Accords were signed by the warring Angolan parties in 1991. However, the Accords were never fully implemented because UNITA challenged the result of the presidential elections held in 1992 (Boulden & Edmonds 1999:130). The second phase of Angola's conflict started at the end of October 1992 and lasted officially until 20 November 1994, when the Lusaka Protocol was signed in the Zambian capital on behalf of President José Eduardo dos Santos and Dr Jonas Savimbi. Negotiations regarding the Protocol had taken just over a year, following UNITA's announcement of a unilateral ceasefire in Abidjan on 14 September 1993 (Cleary 1999:145).

When the ceasefire broke down, renewed fighting erupted between the FAA (*Forças Armadas Angolanas*) and UNITA. The government ignored UNITA's termination of hostilities, disregarded the ensuing peace negotiations in Lusaka and deployed new weapons and better trained units against cities held by UNITA (Cleary 1999:146). The renewed fighting had a devastating effect on the economy of Angola. As Cleary (1999:146) put it: 'What little was left of Angola's economy after almost 16 years of civil war was destroyed between 1992 and the end of 1994. The GDP declined by 70% over three years; total external debt, as percentage of GDP, almost quadrupled, as did military spending, while social expenditure was halved'. Not only is Angola suffering from severe economic dislocation, but a landmine problem also increases the seriousness of the country's economic woes. Approximately five to eight million mines were planted across the country, but nobody knows how much land is affected (Boulden 1999:131). The landmine and economic problems of Angola certainly have a negative effect on the country's water resource management strategies. The economic situation makes it difficult for Angola to find money to launch new water development projects, not only internally, but also for international projects. Landmines make it very difficult for the agricultural sector to be developed to its fullest potential. Consequently, adaptive capacity is at its lowest level and coping strategies cannot get off the ground — except perhaps if Angola goes into

partnership with neighbouring countries. For instance, tap water supplied to towns is not potable and cholera is an ever-present threat. Visitors to Angola are warned not to drink the water. The water supply is in need of upgrading, as water supply stoppages are an almost daily occurrence in Luanda. Only 32% of Angola's population have access to safe water and only 16% have adequate sanitation facilities (SADC 1999:127). This is a grim outlook indeed. The war, which is still raging today, has not only had a negative effect on water resource development across the whole of Angola, but is also hampering the proposed Epupa scheme.

The decision as to whether or not to build a dam at Epupa Falls or Baynes Mountain lies with the Namibia-Angola Permanent Joint Technical Commission (PJTC). During 1998 and 1999, numerous meetings of the PJTC – organised to discuss the proposed projects on the Kunene – had to be postponed because of the security situation in Angola (Internet: *The Namibian* 25 June 1998). The war was not the only factor delaying the decision on the Epupa Dam. The PJTC had to put off a decision about the project in July 1998, after it found that the feasibility study on the project was incomplete (Internet: *The Namibian* 10 July 1998). In 1999, the PJTC decided that a meeting should be held in 2000 to make a decision on the Epupa project. The postponement of the decision caused a lot of frustration on the Namibian side, because if the Epupa Dam is further delayed, the cost of the dam could rise and make it unprofitable. A number of projects, like the Haib copper mine and Scorpion zinc mine, could also be affected, and consequently, the long-term economic outlook of Namibia (Internet: *The Namibian* 23 August 1999). The war in Angola has therefore an indirect impact on Namibia's socio-economic prosperity. At the same time, Namibia and Angola have not seen eye-to-eye on the sites of the proposed dam. Angola favours Baynes Mountain, and Namibia the Epupa Falls site. The Angolans' argument is that if a dam gets built at the Baynes site, then it will mean that the Gové Dam, which was damaged in the civil war, could be renovated. This in turn would bring much-needed development to Angola's Huambo province. Namibia, however, would like to see a dam built at Epupa. The Baynes site, they argue, is too small, despite its environmental and social advantages. The Epupa site is regarded as a prestige site by Namibia (Internet: *The Namibian* 13 July 1998). A dam at Epupa will also be larger than one at Baynes. The Epupa Dam will be the third-largest dam in Africa, and this holds the promise of much status and prestige for Namibia.

In September 1998, fierce fighting between UNITA and Angolan

government police forces broke out at the Gové Dam. The fighting was caused by a dispute over control of the installation (Internet: *The Namibian* 11 September 1998). The battle at Gové Dam shows that taking control of a water installation is only one strategy which belligerent parties use to gain advantage in an armed conflict. Whatever the purpose of the battle, it has certainly had a severe impact on a future dam at Epupa, as well as Angola's arguments for a dam at Baynes.

There seems to be a linkage between the damaged Gové Dam, the postponement of the decision about building a dam at Epupa or Baynes, and Namibia's sudden involvement in the Angolan conflict in December 1999. The Namibian President, Sam Nujoma, said that Namibia would back the Angolan government in its campaign against UNITA. The reason for this decision is the long-term friendly relationship between Namibia and the Angolan government (Internet: *Mail & Guardian* 15 December 1999). It seems as though the cooperation between Namibia and Angola regarding the war against UNITA, is pay-back for the support Angola showed SWAPO in its struggle against South Africa and UNITA in the 1970s and 80s. It could also become a bargaining chip for Namibia in the upcoming decision on the site for the proposed dam on the Kunene. Also, the fighting reportedly occurred more to the west, away from the Kunene River and in the region of the Okavango River. It could have been a strategy by Namibia to contain the fighting in that area, and keep it away from the Kunene basin and its strategic water installations. Should UNITA gain ground again and project the conflict towards the Kunene River basin, it could spell trouble for any proposed project on the river. Namibia's actions in Angola and the Democratic Republic of Congo (DRC) do not go unnoticed by the international community. If donor agencies perceive the financing of a dam on the Kunene as a severe risk, Namibia could find it very difficult to secure money for the project. Owing to Namibia's perceived negative image, governments of such donor institutions could also influence them not to supply money to Namibia.

The war in Angola will, as long as it continues, have an impact on any international project on the Kunene River. However, military confrontation is not the only type of interaction that influences the hydro-politics in the Kunene River. In the mid-1990s, the dynamics of the hydropolitical game in the Kunene River took on a new dimension with the appearance of a different kind of actor — the non-governmental organisation (NGO) or interest group.

The role and involvement of non-state actors

Giving an in-depth analysis of the role and involvement of non-state entities, and their impact in the politics of the Kunene River, is beyond the scope of this paper. However, a brief overview is possible. After various international and local non-governmental organisations became involved in the politics of the proposed Epupa Dam in the 1990s, a distinctive interaction developed between these non-state entities, other international non-governmental organisations (INGOs) and sovereign governments. In this section of the paper the different types of interaction will be highlighted. The contact between the various actors must be seen in the light of resource use perception. Resource use perception is the perceived utilisation of a resource within a distinctive mindset. It is because of different resource use perceptions that the engineer and the ecologist or environmentalist do not see eye-to-eye on large-scale supply-side management projects. These differing perceptions bring to the fore the nature and degree of interaction between NGOs and governments with regard to the implementation of large-scale supply-side management projects.

For the purposes of this paper, the term 'non-governmental organisation' (NGO) will be used interchangeably with that of 'interest group'. The growth and significance of NGOs, particularly with human rights and environmental agendas, have been very strong characteristics of the changing international dimension of water politics during the early part of the twenty-first century (Turton & Meissner 2000). These non-state entities can launch organised and determined opposition to a dam project anywhere in the world, and can elevate the project from a national political issue to an international question. This is the case in respect of the proposed Epupa hydro-power scheme. These non-state entities range from environmental, human rights and anthropological NGOs to grassroots interest groups in Namibia. Before discussing the engagement of these non-state actors, it is necessary to first determine what an NGO or interest group is, and what role or function they fulfil in society.

Interest groups or NGOs, like political parties, form the major link between the citizen and government in a society (Heywood 1997:252). They are also a distinguishing feature of democratic regimes (Sadie 1998:280). The linkage between interest groups or NGOs and government comes to the fore in the definition of an interest group. Interest groups form part of civil society, and can be defined as the wide range of voluntary associations that occupy the broad terrain between the individual and state. They are the primary

means by which citizens can articulate their interests to both the state and society at large (Baldo & Sibthorpe 1998:64). All in all, these groups have but one purpose, and that is to influence the political decision-making process (Ball 1988:96), while remaining apart from it (Duverger 1972:101). NGOs' business is the articulation of certain interests. In this case, it is the Epupa Dam project and the impact it will have on affected communities, as well as Namibia in general.

To articulate the interests of citizens, interest groups have a wide range of tactics and political strategies at their disposal. Different groups have different characteristics which produce a variety of strategies of influence (Whiteley & Winyard 1987:85). Two types of influencing techniques can be discerned: direct personal communication with decision-makers at the national and international level; and indirect contact via the media, as well as public opinion. Strategies of direct communication include deputations to politicians, meetings with different actors, personal presentations of research results and testimonies at hearings. These techniques are found to be the most effective (Sadie 1998:284) for lobbying purposes. Although sometimes by proxy[3], litigation can also fall under this type of contact, and can be just as effective (Hjelmar 1996:69). Less effective methods of impersonal communication are letters, telegrams and public relations campaigns. Tactics that fall under indirect communication include petitions, protests, strikes and demonstrations (sometimes violent, sometimes peaceful) against civil obedience (Sadie 1998:285). Most of these tactics are being used by interest groups in their fight against the proposed Epupa hydro-electric dam.

Two types of NGOs are involved in the politics of the Kunene River: those that operate within the national *status quo* (Shepherd 1996:424), and those that operate across international borders. The latter are characterised by organised activities occurring simultaneously in a number of countries, and by objectives that do not relate to the interests within any given territory (Holsti 1995:61). It seems as if the latter group of NGOs is the most vociferous in its campaign against the proposed Epupa Dam.

Non-governmental organisations became involved in the Epupa Dam debate in 1995, after an anthropologist, Christa Coleman (who worked with the Himba in that region) highlighted the plight of the Himba, should the Epupa dam be constructed[4] (Internet: Coleman 1995). The reaction of Coleman in raising the awareness of the Himba was, in fact, the initial trigger event that set the ball rolling. A second trigger event occurred when Earthlife Africa-Namibia (ELA) contacted the International Rivers Network (IRN)[5] and asked the IRN to get involved in the debate. Since then, a number of international NGOs, each with different agendas, have become embroiled in the Epupa Dam debate, together with local groups. At the local level, the Himba community organised the Epupa Action Committee (EAC) in 1997. Other Namibian interest groups are: the Legal Assistance Centre (LAC), Earthlife Africa-Namibia, the National Society for Human Rights (NSHR) and Greenspace. The Democratic Turnhalle Alliance (DTA), the main opposition party in Namibia, is also involved in the debate about the proposed dam. The most notable international interest groups are: the IRN, Environmental Defence (ED),[6] the Association for International Water and Forest Studies (FIVAS) from Norway, Survival International from the UK, and a large number of NGOs from South Africa, most notably the Environmental Monitoring Group (EMG), Earthlife Africa (ELA) and the Southern African Rivers Association (SARA). In South Africa, the Green Party also threw its weight behind the anti-dam lobby. The NGOs work together in a sort of loose coalition and have contact with each other on a regular basis (Lori Pottinger, personal communication). The interest groups are not merely against the proposed dams for the sake of opposition alone. Alternatives have also been proposed. These include wind and solar power, the Kudu Gas thermal power station with desalination capabilities (Meissner 1999:82), and the importation of electricity from South Africa, which, it is argued, would be cheaper than the Epupa hydro-power scheme. The central issue that is articulated is the plight of the Himba people, should the dam be constructed.

There is a mixture of conflict and cooperation between the interest groups and actors directly and indirectly involved in the proposed projects. The tactics of these NGOs also vary greatly, with direct personal communication and indirect contact being used at the same time. Studying their strategies and tactics will tell us more about the nature and degree of interaction between the actors.

In June 1996, the environmental lobby put a hold on the proposed R2-billion Epupa Dam. The construction of the proposed dam was delayed until an environmental impact assessment could be conducted, the results of which were published in 1997 (*Financial Mail* 21 June 1996:73). In October 1996, a public hearing was held in the Namibian capital, Windhoek, where the Himba community voiced their opposition to the dam. The issues they raised to substantiate their objection were, *inter alia*, that the land they are living on would be lost, as well as the graves of their ancestors and the grazing land for their cattle. The Himba people were represented by their chief,

Hikunimue Kapika (Internet: International Rivers Network 1996).

In March 1997, the DTA sided with the interest groups, after the party made it clear that it would do everything in its power to stop the Epupa Dam, including an attempt to block the financial assistance which the government or Nampower might seek in order to build the dam. The Legal Assistance Centre (LAC) warned the government that it would use litigation if it defended its decision to go ahead with Epupa. The LAC also threatened litigation if complaints by the Himba were not properly addressed. The National Society for Human Rights (NSHR) called on the government to treat the issue with extreme caution if it wanted to avoid bloodshed (Internet: Pottinger 1997). The Deputy Minister of Mines and Energy, Jesaya Nyamu, said that the dam would be built, irrespective of the outcome of the feasibility study. In July 1997, the anti-dam lobby in Namibia was given a great boost when Hikunimue Kapika and Paulus Tjavara made a visit overseas. The chiefs visited Germany, Belgium, Great Britain, Norway and Sweden. They met with members of the German Parliament, European Union Ministers and managers of financial institutions, as well as NORAD and Norconsult, the Norwegian organisation that sponsored the Epupa feasibility study. A press conference was held after their arrival in Windhoek. Seven overseas organisations' who sponsored the chiefs' visit sent a letter to President Nujoma, urging him not to build another dam on the Kunene. The Ministry of Mines and Energy responded angrily to the visit and called it a 'well organised farce'. The Ministry also said that the chiefs were used by 'environmental extremists' in the West. At its African conference, Earthlife Africa passed a resolution condemning the proposed Epupa Dam (Internet: Earthlife Africa 1997).

The draft feasibility study was completed in October 1997 and the Himba people were asked to comment on it, but they still opposed the dam in principle (Internet: International Rivers Network 1997). In November 1997, the EAC sent a letter to the President of Finland, Martti Ahtisaari, asking him to advise the Namibian government not to go ahead with Epupa and to consider alternative options of power generation (Internet: Letter to President Martti Ahtisaari 5 November 1997). In December 1997, a letter was sent from the Society for Threatened People to NORAD and Norconsult, asking them to stop supporting the dam (Internet: Letter to NORAD and Norconsult 19 December 1997). A number of independent scientists reviewed the feasibility study at the end of 1997. In general they found that, *inter alia*, the study was not up to standard (Internet: International Rivers Network 1998). A public hearing was held in Windhoek on 6 and 7 February 1998. Submissions were

handed in by both the IRN and the EAC, which pointed out the negative effects of the proposed dam on the Himba. The IRN released a press statement in which they reported on the feasibility study in general. The press release, echoing the conclusions of the experts who reviewed the study, stated that the investigation was 'riddled with incorrect conclusions, false assumptions and missing data', and that this meant 'that it cannot be used as a basis for a well-informed decision on the project' (Internet: International Rivers Network 1998). The World Bank and the European Union also had strong reservations about the viability of the project (Internet: *The Namibian* 1 June 1998).

One of the most peculiar responses from the Namibian government were the gifts of a four-wheel drive 'bakkie' (pick-up truck) and a speed boat to the Himba community. Whether or not these donations were a strategy on the part of government to reverse Himba opposition to the Epupa debate, is a matter for debate. If they were, they did not serve their purpose: the Himba community reiterated their anti-dam stance after the gifts were received (Internet: *The Namibian* 2 June 1998; 2 July 1998). Gifts were not the only government response to NGOs involved in the Epupa debate. In June 1998, President Sam Nujoma launched a scathing attack on the opponents of the Epupa Dam. He also warned foreign nationals in Namibia who 'disturbed the peace', that they would be 'deported', 'got rid off' or 'dealt with', with 'immediate effect'. The LAC came under severe criticism from the President (Internet: *The Namibian* 22 June 1998). This reaction gives some idea of the strained relations between the government and the NGOs, and also demonstrates Namibia's insistence on going ahead with Epupa. The utterance of the President was the spark in the powder keg which unleashed a fierce debate in Namibia. Other NGOs and the DTA defended the LAC. The President was accused of racism, and of threatening peace and stability in the country. SWAPO party members and other political allies defending the President received similar accusations (Internet: *The Namibian* 23 June 1998).

In March 1999, renewed criticism was levelled at the government concerning the Epupa Dam. This time the critique came from Kasita Mburura, Regional Councillor for the Epupa constituency. His arguments were that Epupa had potential for tourism, mining and agriculture, but that the government had not undertaken any developments such as schools, clinics, roads, water and other infrastructure. He also said that the 'statements by deputy ministers about the building of the Epupa Dam are destroying the peace and harmony of my region' (Internet: *The Namibian*

17 March 1999). In the same month, the Minister of Mines and Energy, Jesaya Nyamu, indicated that a referendum could be held in the Kunene region to decide whether the controversial Epupa Dam should go ahead (Internet: *The Namibian* 29 March 1999). If a referendum is held on the Epupa issue, it will be a move in the right direction and would reduce possible internal conflict in Namibia.

The strategies and tactics of the different national and international NGOs continued during the last part of 1999. In August, the loose coalition of NGOs sent a letter to Getinet Giorgis of the African Development Bank (ADB), urging the ADB not to finance the Epupa Dam, if indeed they were considering doing so. The letter was signed by 42 organisations and 17 individuals (Internet: Letter to Getinet Giorgis 1999). Of the 42 organisations, more than half (23) were from South Africa,[8] while five were from the UK and three from Namibia and Germany. This letter coincided with a briefing document sent to President Thabo Mbeki from the Environmental Monitoring Group (EMG), just before his visit to Namibia in August 1999. In the document the negative effects of the dam (in terms of the environment and the Himba community) were highlighted. The briefing document echoed Mbeki's vision of an African Renaissance and emphasised the importance of the minority human rights of the Himba. The letter also stated that the proposed Epupa Dam was undermining the progressive development of Namibia, and was contrary to South Africa's own self-interest in southern Africa (Internet: International Rivers Network, 1999). This shows that the NGOs are doing everything in their power to stop the Epupa Dam. It also indicates the link between government and citizens, and the democratic processes that are involved in lobbying for a certain issue. The letter and the briefing document are further steps in the internationalisation of the Epupa debate and indicate the initiatives which NGOs can take to advance their stance on an issue.

The interest groups pulled out all the stops, and used every forum possible to prevent Epupa from being constructed. In November 1999, the EAC and the LAC presented the case of the Himba before the World Commission on Dams (WCD) during a hearing in Cape Town. The WCD heard about the negative effects the dam could have on the Himba community. Andrew Corbett, from the LAC, also told the hearing that numerous meetings of the EAC in Namibia had been broken up by armed police (Internet: *Cape Times* 12 November 1999).

National and international NGOs can have a profound impact on supply-side management projects in developing countries. At this stage, the lobbying activities are well organised and peaceful, and should not turn violent in the near future. Yet, as long as the Epupa Dam is on the cards, the interest groups will keep up their campaigns against it.

Conclusion

The interaction between the different actors in the Kunene River basin has, since 1926 passed through phases of conflict and cooperation. However, the Kunene River was not the direct causality in the periods of conflict. The chronological study shows that a number of factors – most importantly ideological differences between the actors during the Cold War – contributed to the conflictual state of affairs during the period 1975-1989, with the waters of the Kunene playing a small role. The last stage of the relationship between the two neighbouring states is characterised by a larger degree of cooperation than has been demonstrated in the past. The good and solid relationship between Namibia and Angola is the reason for this, and this factor will always bode well for water politics in the Kunene River basin. The only bone of contention is the dam sites for the proposed dam on the Kunene. In all likelihood, if the issue of the dam sites persists into the future, the issue will be resolved peacefully. Initially, negotiations at ministerial level would be held between the two respective ministers who are concerned with the issue. Should these fail, talks will be held on a presidential level between Dos Santos and Nujoma. After this option has been exhausted, Namibia and Angola will move on to mediation and arbitration. However, it is envisaged that the issue will be resolved at presidential-level negotiations, if indeed, it should even come to that.

The role and involvement of national and international NGOs are of such a nature, that the issue of the Epupa Dam will continue to go against the grain of the non-state actors well into the future. One thing is certain, and that is that the interest groups in the Kunene River basin are here to stay, and will dog the Namibian government and influence other actors (like financial institutions) until the two countries either cancel the dam, or go ahead with it irrespective of the anti-dam lobby. The interest groups in Namibia are using peaceful means to advance their opposition to Epupa. If the Namibian and Angolan governments press ahead with the construction of a dam, the loose coalition will step up its campaigns against the governments, especially Namibia, which is seen as the driving force behind the new dam. If Namibia

proves steadfast in its decision to build a dam, the most likely action the interest groups in Namibia will take is litigation. The international NGOs will go ahead with their letter-writing and influencing of statesmen and women (and financial institutions) in other countries to persuade Namibia not to go ahead with the dam. The prospect of a referendum on the issue holds the promise of a peaceful resolution. A Memorandum of Understanding between the governments and the Namibian NGOs – like the one signed between the Lesotho Highlands Development Authority (LHDA) and the Lesotho NGOs regarding the Lesotho Highlands Water Project (LHWP) – could also bring the issue to a peaceful conclusion. The only movement which could transform the interaction between the state-actors in the Kunene basin is UNITA, should it decide to attack the strategic installations on the Kunene River. However, this will not be a water war, but pay-back for Namibia's support of Angola against UNITA.

Will there be a water war in the Kunene River basin? If the Sidudu/Kasikili island dispute between Namibia and Botswana is taken as a yard-stick for the way disagreements will be handled in southern Africa, then it bodes well for the peaceful resolution of water disputes. Also, the relations between the countries in southern Africa, and between Namibia and Angola in particular, are quite peaceful. These friendly relations are crucial to the prevention of conflict in the arena of hydropolitics. In conclusion, then, a water war, as defined in this paper, has not occurred in the Kunene River basin in the past, and the likelihood that it may occur in the future is very remote.

Footnotes

1 It was the hawkish Defence Minister P.W. Botha who, at a cabinet meeting in 1978, insisted South Africa become more directly involved in the Angolan war. The cabinet was overwhelmingly in favour of South Africa's involvement and Vorster had to give in to the hawks (De Klerk 1998:58-59).

2 The Portuguese ambassador to South Africa protested against the action by South Africa on the Calueque Dam, but no assurances could be given by him with regard to the safety of the workers and the pump station, and the South Africans remained at Calueque (Steenkamp 1990:39).

3 When litigation is used by an NGO or interest group it will not necessarily mean that a lawyer will be hired. Many interest groups and NGOs in the North employ their own legal experts and teams of lawyers, whose purpose is to articulate the interest of the organisation through litigation.

4 According to Coleman, President Sam Nujoma put an effective halt to the debate on the topic of the Epupa Dam, by declaring that any civil servant opposing the plan would be fired (Internet: Coleman 1995).

5 The IRN was established in 1985 by Philip Williams, who had for years helped environmentalists trying to stop water projects in California (McCully 1996:307). The IRN's policy regarding the involvement in large dam projects abroad is that a local interest group should first contact the organisation before they will lobby the issue. The reason for this is that the IRN, like any organisation, has limited resources at its disposal and cannot get involved in large dam debates everywhere.

6 Formerly known as the Environmental Defence Fund (EDF).

7 These organisations are: Gesellschaft für Aktives Umweltbewusstsein, Arbeitkreis Afrika, Gesellschaft für Bedrohte Volker, Survival International, European alliance with Indigenous People, FIVAS, IWGIA International Secretariat, Copenhagen and IWGIA Sweden (Internet: Earthlife Africa 1997).

8 These include, among others, the Southern African Rivers Association (SARA), Green Party of South Africa, Environmental Monitoring Group, Earthlife Africa and the CSIR: Environmentek.

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Institutional Evolution at Lake Chad: Traditional Administration and Flexible Fisheries Management

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Lake Chad is a vitally important wetland in the semi-arid Sahel corridor. It provides the basis of many thousands of livelihoods which depend on its seasonal fluctuations to renew fish stocks, farmland and rangeland. This paper describes how access to farmland and fishing rights has evolved on the Nigerian shore of the lake. The paper aims to assess the applicability of different institutional approaches to natural resource management on the lake shore. These include the 'equilibrium or tragedy' approach characterised by Hardin (1968), critiques discussing attempts to impose state regulation of renewable natural resources in the Sahel, models of institutional adaptation to resource scarcity and approaches which perceive institutions, such as those which govern access to natural resources and act as crucial determinants of social and economic development.

The western shore of Lake Chad has been under the jurisdiction of Borno State (in its various guises) since the end of the fourteenth century, and is currently one of 36 states in the Federal Republic of Nigeria. Although the